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Human Biology - Your Changing Body

Teacher's Guide

Human Biology Your Changing Body Teacher's Guide

The Program in Human Biology,
Stanford University, (HumBio)

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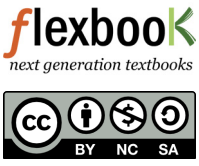

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1.1 Overview

Human Biology: An inquiry-based guide for the middle school student.

Developed by the Program in Human Biology at Stanford University and

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Dedication

The faculty, staff, and teachers of Stanford University's Human Biology Middle Grades Life Science Curriculum Project dedicate the publication of the HumBio Curriculum in memory of our colleagues and friends, Mrs. Donna Harrison and Dr. Mary Budd Rowe. Donna was the lead science teacher at Dozier Middle School, the project test site school in Newport News, Virginia. She was an outstanding teacher, a community leader, a devoted wife and mother, and a wonderful human being. Her involvement in the HumBio Project enriched the curriculum materials and brought great joy to our lives. Although her life ended suddenly and tragically, the inspiration she gave to all who knew her will live on in what we do to improve the education of children and youth. Mary Budd Rowe was our most distinguished science education colleague and our dear friend. She guided the early organizational stages of the project as a group of university scientists attempted to address issues of middle level science education. Her unbridled enthusiasm for the education of children always reminded us of the important purpose of our work. Mary continued her unwavering support of the HumBio curriculum until her passing in June of 1996.

1.3 Preface

Stanford University's Middle Grades Life Science Project began in 1986 with the vision of David A. Hamburg, M.D., then President of Carnegie Corporation of New York. A new wave of science education reform was gathering momentum following the release of *A Nation at Risk* by the United States Department of Education and *Educating Americans for the Twenty-First Century* by the National Science Board. Dr. Hamburg brought together the concerns of scientists and science educators over the watered down, vocabulary-laden life science curricula that were typical of middle level science courses at that time with broader public concern over large and increasing numbers of adolescents who engaged in high-risk behaviors leading to school failure, teen pregnancy, and other health problems. Because of his leadership in developing Stanford's undergraduate Program in Human Biology and his interests as a physician and scientist in the major physiological and behavioral transitions in the lives of children, Dr. Hamburg believed that a rigorous middle grades life science curriculum focused on human biology, and where possible on the adolescent, not only would greatly improve the science taught at this level, but through its relevance would capture the interest of this age group.

Initial work on the Human Biology (HumBio) Middle Grades Life Science curriculum brought together faculty, staff, and students from Stanford's Program in Human Biology and its School of Education with local middle and high school teachers. The curriculum development team was enriched in 1991 by twelve interdisciplinary teams of middle level teachers from diverse test site schools across the country. These teams became our most valued collaborators. The teachers attended annual two week summer institutes at Stanford between 1991 and 1994 and used the draft curriculum units in their classes between 1991 and 1995. The teachers and their students provided extensive formative evaluation data on the field-test materials, which has shaped the final student and teacher versions of the units that comprise the HumBio curriculum. Using HumBio units as a starting point, many teams also created their own innovative, interdisciplinary materials, which they taught across the middle level curricula in their schools.

The Project's Advisory Board provided insightful advice on the development of the curriculum from the unique perspectives of the professional associations, the institutions, and the fields its members represented. We are grateful to all of those who served for periods of time during the past seven years. We also would like to express our appreciation to the education consultants from universities, the National Middle School Association, and the California State Department of Education who made presentations and worked with the teacher teams during the summer institutes at Stanford. C. Stuart Brewster served with great distinction as our advisor on publication. We are indebted to him for his keen insights and good advice.

The Project faculty, the staff, and the teachers contributed more to the development of the HumBio Curriculum than anyone could have imagined before this work began. Their expertise, determination, and dedication to improving the education of young adolescents were inspirational. Supporting the curriculum development team and the test-site teachers were wonderful groups of Stanford undergraduates from the Program in Human Biology. They helped to ensure a productive and pleasurable working environment, which was an essential part of the success of the summer institutes.

To be sure, none of this work would have been possible without funding from Carnegie Corporation of New York, the National Science Foundation, and most recently The David and Lucile Packard Foundation. On behalf of the entire Project team we would like to thank these foundations and the program officers who have worked with us over the years for their support. As always, the final content of this curriculum is the sole responsibility of the Stanford University Middle Grades Life Science Project and does not necessarily reflect the views of Carnegie Corporation of New York, the National Science Foundation, or The David and Lucile Packard Foundation.

H. Craig Heller *Principal Investigator*

Mary L. Kiely *Project Director*

January, 1998

Stanford, California

1.4 Letter to the Teacher

Dear Teacher:

There is hardly a topic more closely linked to the lives of younger adolescents than puberty. It is an experience that involves everyone and to which no one can be indifferent. This unit, *Your Changing Body,* captures and capitalizes on students' interest s in the subject at several levels.

First, and at the most personal level, it addresses the youngster's urgent questions about, "What is happening to me?" It responds to his or her quest to know about the nature of and the reasons for the ongoing changes in the body. It provides reassurance that no matter how dramatic the transformation of self is, it is part of a natural and normal process of growth and development. In short, it sheds light on, and hence, makes it easier to cope with the bittersweet transition from childhood to adulthood.

Second, the topic of puberty provides an excellent opportunity to teach about the process of maturation, especially with respect to reproductive functions, sexual differentiation, and gender identity formation. Although puberty deals only with one part of adolescence, a thorough grounding in the biology of adolescence is essential for understanding its psychological and social aspects that are dealt with in other units of the Human Biology curriculum.

Third, puberty provides equally import ant bridges to the broader topics of reproduction and sexuality, which also are explored in detail in other units. This is true substantively in that learning about sexual differentiation and maturation is a critical requirement for gaining knowledge about reproduction and sexual behavior. Also, discussions of puberty help ease student and teacher into more controversial aspects of sexuality and reproduction.

Fourth, this unit establishes the curricular framework and educational philosophy of the Human Biology approach. The Human Biology program presents "hard science" in ways both rigorous as well as clear and accessible; it integrates biology and behavior as well as connects facts and makes relevant their implications to students' lives. Special attention is given to the relevance and the implication of these matters to the health and happiness of young people going through the adolescent life phase that is filled with joy, with anxiety, with normative change, and with the dangers of high-risk behavior.

While focusing on puberty, this unit covers a wide variety of topics. Their treatment ranges from the challenging and technical to the more commonplace and self-evident. The sections unfold in a logical and integrated sequence, but this may not be immediately evident to the student, or in some places even to the teacher. Therefore, it is important to look over the table of contents with some care to get a good sense of the "whole forest before venturing through the trees." There is a "story line" running through these sections that you should share with your students at the outset. The unit begins with learning about growth and development in general, and then about growth and development specifically during puberty. Descriptions of what actually happens come first; then the why and how these occurrences or changes happen follows. We then move on to the individual's reactions to these changes, and his or her attempts to deal with them both in healthy as well as problematic ways. The story ends on the happy note when students explore ways to make the most of this journey through a critical phase of their lives. It is a story that is as exciting as any that young people are likely to encounter. After all, each of them is the star in this story!

Herant Katchadourian

Professor of Psychiatry and Behavioral Sciences

and Professor of Human Biology-Project Steering Committee

1.5 Letter to the Student

Dear Student:

Do you ever wonder about the changes that you see taking place in yourself and your friends? Do you want to know if what you are going through is normal? This unit, called *Your Changing Body,* will help you understand what the changes you will be experiencing over the next few years are, why they happen, and what the normal schedule is for them to occur.

The text will provide you with straightforward information about the physical changes of puberty. Some of the information deals with height and weight gain, the differences in rate of growth between males and females, the development of secondary sexual characteristics such as breasts and facial hair, and topics such as menstruation and nocturnal emissions.

Some of these issues are not always easy to talk about. However, the activities in the unit are created to make the discussions easier for you, and to give you a chance to share how you are feeling about the changes. You will have the opportunity to talk about the ground rules for discussing difficult topics. The activities and discussions you will conduct in this unit will help you learn that everyone experiences changes during puberty.

Remember, it is natural to be concerned and curious about the changes that are taking place in and around you. This is your chance to ask serious questions and to learn as much as you can about what is happening so that it will be easier for you to understand and deal with the changes you are experiencing. The changes you are experiencing are a natural part of the wonderful and amazing way that the human body develops and works.

1.6 Unit Planning

Content Overview

Your Changing Body: What changes occur during Puberty? Why? How?

Your Changing Body provides an overview of the physical and related psychological changes of puberty for both boys and girls. Students learn that while puberty is a universal event, every adolescent develops at his or her own pace. The unit stresses that there is a wide range of normal in terms of the time and sequence in which the changes of puberty occur. Students use graphs throughout the unit to examine concepts such as rate of growth, the overlapping cycles of menstruation and the average ages and range at which the changes of puberty take place. They use charts to compare ideas, and interpret diagrams when reviewing new material. Students participate in role-playing activities to demonstrate complex relationships such as the one between glands, hormones, and the reproductive system. Discussion groups are used to address issues such as the common concerns of puberty and the specific problems and changes faced by boys and girls. Gender identity and gender roles are looked at in terms of how they are shaped, as well as how they impact behavior. Major concepts addressed in the unit include the following.

- Many factors can affect puberty, including heredity, the physical and social environment, ethnicity, nutrition, health, and emotional well being.
- Hormones control many body functions, including the development of the reproductive system, the onset of puberty, and much of our reproductive lives.
- It is important for students to understand not only about their own physical and psychological development, but also about the changes occurring in the opposite sex.
- It is difficult to separate physical and psychological development-together they make us the people we are.
- Understanding what puberty is and what to expect can improve sensitivity to others and alleviate common concerns, including fear of change, and the fear of being "the only one who feels that way."
- Feeling good about oneself is important. Many healthy ways exist to improve self-esteem and avoid unhealthy behaviors.

How This Unit Is Organized

Sections 1-3 introduce students to the physical changes specific to boys and girls, and to the factors which influence development at puberty.

Sections 4-5 introduce hormones and the role they play during puberty. These sections also cover menstruation from both a physical and psychological viewpoint.

Sections 6-8 focus on the experience of puberty, and how physical changes can affect self-image and self-esteem. These sections review some of the healthy ways to improve self-esteem, and the harmful things people do to their bodies, including drug use and extreme dieting, primarily from the perspective of why it happens, and how you can spot and help someone in trouble.

Why Teach This Unit?

- 56% of women and 73% of men today have inter-course before age 18.
- One million teenage women become pregnant each year.
- 24% of teenage mothers have a second child within 24 months.

"Teen pregnancy is off the charts and AIDS, too. Children are dying. Right there that should move you to want to do something, and we weren't doing anything. We felt strongly that teaching about reproduction and contraception and issues in sexuality had to be done."

-Teachers from East Lyme School, Connecticut

How our bodies work could not be a more real concern to each of us, at almost any age. It is of special interest to young adolescents who face a physical transformation at a psychologically vulnerable age. They need information to learn about themselves, how they fit in with their peers, and where they fit in with the world.

This unit relates directly to the daily lives of young adolescents, and it will help them:

- accumulate relevant knowledge about the changes occurring in their own bodies;
- make good decisions about their physical and mental well being;
- learn more about others to develop sensitivity; and
- stay healthy.

Summary Questions for the Unit

If you have a question about your body, what is normal, or how you feel about puberty's changes, whom can you talk to?

Answer: Every student needs to know that their questions should be asked and that the re are people who will answer them honestly and openly. Parents, other siblings, extended family members, teachers, health professionals, church leaders, teen clinics, hotlines, etc. are all resources.

What are some healthy, natural ways, to improve your health and feel better about yourself?

Answer: Exercise, sleep, good eating habits, understanding your body, knowing you have someone to talk to, involvement in groups or clubs with people who have similar interests, setting and reaching goals, helping others, etc. all contribute to positive self-esteem.

What does it mean to be normal? Who decides? Does "normal" change? How, why, and when? Does it matter? Why? What are some strategies for improving self-esteem if you are different? Why is it easier to say than do?

Answer: Normal is a function of both relative perspective and statistical averages. One is culturally based. The other is based on biological processes. Normal, as a cultural phenomenon, is influenced by the "agents for change" such as TV, print media, and movies. Going against any trend at any age is difficult-those who know themselves and want the best for themselves and have self confidence will have an easier time defining normal for themselves.

How will puberty affect you?

Answer: Change is OK, but it requires some adaptation. Part of adapting to puberty is pulling together all the emotional, physical, and social developments into a functioning human being. Gaining knowledge and developing sensitivity to others will help put puberty in perspective.

What are the consequences of unhealthy behaviors during adolescence?

Answer: Long-lasting problems can stem from inappropriate physical, social, or psychological adaptations to development. Drug and alcohol abuse, eating disorders, pregnancy, and deviant behavior are all symptoms of potential development problems.

TABLE 1.1: Unit Activities and Key Ideas

Section	Key Ideas	Activity
1 Growth, Development, and Puberty How does your body change during puberty and how does it feel to go through it?	• Growth refers to an increase in size. Development refers not only to growth, but also a change in function. Chronological age and developmental age are not always the same for everyone. Each person matures at his or her own rate-normal development can occur over a broad range of ages. • In the human life cycle, puberty is the physical transition from childhood to adulthood, from reproductive immaturity to maturity. Adolescence refers to psychological and social development. • Puberty can be a time of confusing emotions and changes, complicated by comparing oneself to one's peers. Differences between peers can be misinterpreted as abnormalities and can create stress.	**Mini Activity:** Puberty Brain storm **Activity 1-1:** You Must Have Been a Beautiful Baby **Mini Activity:** Prove It! **Mini Activity:** Describing Puberty **Activity 1-2:** Examining Differences

TABLE 1.1: (continued)

Section	Key Ideas	Activity
2 Growth of the Body What changes of puberty do both boys and girls experience?	• Physical growth and development are a function of two factors-heredity and environment. • During puberty, height and weight increase, muscles develop, and the body assumes new proportions of fat and muscle, depending on gender, nutrition, and heredity. • There are a number of common health concerns during puberty. Among the most common are acne and good nutrition. Regular visits to the doctor and learning about what happens to your body during puberty will help you stay healthy.	**Activity 2-1:** How Tall?

TABLE 1.1: (continued)

Section	Key Ideas	Activity
3 Sexual Maturation What changes should girls and boys expect?	• Sexual maturation involves two kinds of change-primary and secondary, Primary changes affects reproductive organs. Secondary changes affect characteristics which set girls apart from boys and the physically mature from the immature. • Menarche is the key transitional step to womanhood. However, it does not mark the beginning of puberty. Typically it is one of the later events, usually about two years after the beginning of breast development and after the peak of the growth spurt (avg. age = 12.8, normal range, 9-18). Menopause marks the end of a woman's reproductive years. • Nocturnal emissions (wet dreams) or ejaculation with masturbation signal semen production. • Heredity and environment, which includes both physical and social environment, determine not only our schedule of development, but also our lifelong health. Nutrition and health care have the greatest impact on our reproductive health.	**Mini Activity:** Word Origin: Menarche **Activity 3-1:** Changes in Girls during Puberty **Activity 3-2:** Changes in Boys during Puberty **Activity 3-3:** Knowing about Each Other **Activity 3-4:** Factors Influencing Puberty

TABLE 1.1: (continued)

Section	Key Ideas	Activity
4 Hormones and Puberty What are hormones and what do they do?	• Hormones, chemical substances which come from endocrine glands, are released in the bloodstream where specific receptors on target cells pick them up as needed; hormones and cell receptors work like a lock and key. • The hypothalamus and pituitary glands control the body's reproductive system and its functions through the release of gonadotropins, FSH and LH, which in the female cause the production of estrogens and progesterone, and in the male, androgens, primarily testosterone. • In the female, estrogens and progesterone work in a cycle to maintain the lining of the uterus and sustain pregnancy. Testosterone sustains sperm production in males and helps build muscle in both males and females. • The hypothalamus works as a thermostat for the body's hormone system-it helps control levels of hormones in the body through a negative feedback system.	**Mini Activity:** Word Origin: Endocrine, Exocrine **Activity 4-1:** Glands and Hormones **Mini Activity:** Social Feedback **Activity 4-2:** All That Happens at Puberty

TABLE 1.1: (continued)

Section	Key Ideas	Activity
5 The Menstrual Cycle How does the menstrual cycle work?	• The pituitary gland produces gonadotropins (FSH and LH) resulting in two cycles-the ovarian cycle which involves egg maturation and release and the menstrual cycle which prepares the uterus every month for possible implantation. • While boys produce a steady supply of sperm through their adult lives, women are born with a finite number of eggs, only a fraction of which ever mature between puberty and menopause. • Menarche is a girl's first period. Her periods may be irregular for a while, but then settle down to a fairly predictable cycle-about 28 days in length, with each period lasting 2-7 days. • Menstruation may cause some discomfort through cramping or premenstrual syndrome, both of which can be managed through diet, exercise, or mild medical treatment.	**Mini Activity:** How Thick Is the Uterine Lining? **Activity 5-1:** How Does the Menstrual Cycle Work?

TABLE 1.1: (continued)

Section	Key Ideas	Activity
6 Gender Identity and Body Image How do you see yourself physically and psychologically?	• Gender identity and gender role result from two sources-biology and culture-and affect one's identity at all levels and ages. • Hormones contribute to feelings of aggression and emotional expression (moodiness) in humans and other animals. It is difficult to separate biological, social, and cultural differences in behavior. • Puberty brings physical, emotional, and self-concept changes. We adapt to change to maintain a constant sense of self and identity. • The changes of puberty can create self-consciousness and uncertainty about oneself. Being either a fast or a slow maturer can create both social advantages and disadvantages, which even out by late adolescence.	**Activity 6-1:** Gender Differences **Mini Activity:** Debate! **Mini Activity:** Who Says So? **Mini Activity:** It's ever Too Late **Activity 6-2:** Behavior Differences **Mini Activity:** Changes Happen Around You, Too **Activity 6-3:** Who Me-Worry?

TABLE 1.1: (continued)

Section	Key Ideas	Activity
7 Harmful Ways of Changing Yourself Why do some adolescents handle stress in such unhealthy ways?	• Cultural ideals of beauty (among other things) create a lot of stress for young adolescents whose bodies are rapidly changing. • Anorexia nervosa, which is characterized by excessive activity and excessive dieting, and bulimia, which is characterized by bingeing and purging, are common eating disorders among women (although some adolescent boys can become obsessed with weight, as well). • Steroid abuse occurs more often with boys, but can happen among girls as well. As with eating disorders, it reflects poor self-esteem, and an unhealthy obsession with body image.	**Mini Activity:** How Can You Get Your Friends to Eat Healthily, Too? **Activity 7-1:** What Is Attractiveness?

TABLE 1.1: (continued)

Section	Key Ideas	Activity
8 Feeling Good about Yourself How do you develop positive self-esteem?	• Self-esteem is how you feel about yourself. It comes from your feelings about your attractiveness, body, accomplishments, personality, values, social interactions, family, ethnicity, talents, and interests. • Puberty can be a challenging time of life, and sometimes it is hard to feel good about yourself. Improving self-esteem doesn't just happen. You have to work at it, by choosing positive activities or setting some goals to work on. • Keeping your body looking and feeling its best through exercise, nutrition, and good health habits will help build self-esteem and a stronger sense of identity, which will in turn help you cope with the challenges of puberty.	**Mini Activity:** How Does What You Eat Make You Feel? **Mini Activity:** Who Are You? **Mini Activity:** Beauty from the Inside **Mini Activity:** The Messages You Send **Activity 8-1:** Healthy Bodies and Feeling Good **Mini Activity:** I Like Myself Because . . . **Mini Activity:** I'm Not Crazy About . . . **Mini Activity:** Next Time I'll . . . **Activity 8-2:** What Makes You Special?

Teacher's Guide Overview

The *Your Changing Body* unit is built around a variety of student activities. Text material can be used to introduce, reinforce, and extend the concepts developed in the activities. The activities are the foundation of this unit, so the unit's success depends on students' involvement in the activities. Embedded activities are interrelated, since the concepts developed in one may be applied in another.

Section Planning

For each section, you'll find extensive advance planning for the student activities and the section topic. Key ideas, section objectives, background information, suggestions for introducing activities, and the materials needed for each activity are listed on the Section Planning page. Review this information ahead of time to ensure that materials for each activity are available when you need them.

Support for Embedded Activities

Embedded activities are those activities contained or "embedded" in the student edition. Procedures for each embedded activity are contained in the student edition. In the Teacher's Guide, you'll find activity planning information, activity assessment, and student reproducible pages for each embedded activity.

Enrichment Activities

Enrichment activities are activities found in most Teacher's Guides. These activities are designed to extend and enrich students' learning experiences. Complete Enrichment activities, including Teacher Activity Notes and the student Activity Guides, are located at the end of each appropriate section of the Teacher's Guide. These sample Enrichment pages are taken from the *Genetics* unit, which would connect well with the content in this unit.

GroupWork Activities

Learning science is a process that is both individual and social. Students in science classrooms often need to interact with their peers to develop a knowledge of scientific concepts and ideas, just as researchers, engineers, mathematicians, and physicians who are working in teams do to answer questions and to solve problems. The GroupWork activities of the HumBio Curriculum for Middle Grades have been developed to foster a collaborative environment for groups of students. In short, GroupWork activities provide an environment in which students are "doing science" as a team.

For more information, refer to "Using GroupWork Activities" on TE page 109. The specific GroupWork Activities for this unit can be found on TE page 112.

Projects

The research and action projects in HumBio are varied and provide students with time to explore a particular topic in depth. With Projects, students have the opportunity to take a position based on knowledge gained through research, debate an issue, and devise a plan of action. In this way, students can apply what they are learning to larger issues in the world around them.

Projects for this unit include

- Research Questions
- Multicultural Perspectives: Issues of Puberty and Adolescence

Assessment Overview

Within each section of the unit there are suggestions for assessment that can be used individually or in combination to develop a complete assessment package. The list below describes the variety of assessment tools provided.

Apply Your Knowledge questions appear throughout each section. They can be used as homework assignments and as ways to initiate a class discussion. These questions are designed to assess

- communication skills
- depth of thought and preparation
- problem-solving skills
- ability to apply concepts to related or big ideas
- how well students relate their new knowledge to different problems

What Do You Think?

These questions appear in each section. They provide students with opportunities to think and write about the concepts they are learning in a larger context. You can use these questions to assess

- writing skills
- problem-solving abilities

- creativity and depth of thought
- the ability to analyze and summarize

Journal Writing

Journal Writing prompts are suggested throughout the unit. These prompts provide opportunities for students to write critically and creatively about concepts and issues. The writing products can be used to assess

- writing skills
- depth of thought
- and the ability to explain and expand concepts

Review Questions

Review Questions are located at the end of each section. These questions can be used for written responses or as the basis for class discussion. These questions are designed to assess content knowledge and whether students can explain the concepts explored in the section.

Activity-Based Assessment

Inquiry through student-centered activities are the foundation of the *Human Biology* Program. The unit is rich with relevant exciting activities that introduce, support, or reinforce concepts students are exploring. Within the Teacher's Guide, you'll find extensive teacher information, including assessment strategies, for each type of activity:

- Embedded Activities
- Mini Activities
- GroupWork
- Projects

Mini-Activity

Describing Puberty Write down three words that describe puberty and adolescence and pass them in. The teacher will put them up on a board so your class can discuss them. Now create a poem, picture, or a paragraph using the words and concepts discussed.

You can use students' products to assess their progress. These products include models, simulations, observations and reports of laboratory investigations, role plays, written responses to question and written observations, student-designed explorations and procedures, poster presentations, and classroom presentation.

PORTFOLIO ASSESSMENT

You may want to have each student develop a portfolio for the unit. Portfolio assessment is an excellent way to assess the whole student as he or she progresses throughout the unit. Although there are many opportunities to select a variety of the students' products, the following list shows one possible assessment portfolio for this unit:

- Written responses to three *What Do You Think?* questions.
- An analysts of the student's two favorite Activities and how those activities helped the student understand an important concept.
- Written responses to one *Apply Your Knowledge* question from each section.
- Two examples of written reports from library research.
- An analysis or interpretation of graphs.
- One example of an artistic creation.

Getting Started

Address Sensitive Material. This unit covers sensitive issues of puberty. Not everyone is comfortable teaching about the subjects in this unit. Hopefully you will be working with a group of students with whom you have already had an opportunity to develop trust. If not, trust will need to be established first to ensure an open dialogue.

One of the first things you might start off with is a discussion of why the subject causes so much embarrassment and shyness.

You may want to communicate your schedule of topics with parents, and anticipate problems rather than react to them. It is also important to know and adhere to the policies your Board of Education has established for dealing with sensitive material.

Establish Ground Rules for Discussion. Since some of the issues investigated within this unit are not easily or comfortably addressed, one way to make yourself and your students comfortable is to establish some ground rules for discussions, such as:

- respect the thoughts of others,
- show maturity,
- no teasing, no insults or "put-downs,"
- respect for confidentiality,
- grant the "right to pass,"
- listen and respond with empathy, and
- any other ground rules you feel are appropriate.

A sense of humor can be a useful tool in teaching sensitive subjects, as long as you don't become glib or insensitive. Be prepared for any sort of question, and answer all questions truthfully. If you don't know the answer, say so, and if possible give students a source to find the answers.

Keep Students Interested. Encourage students to read the text: It is the story line that ties all of the content together. Every effort has been made to make the text interesting to students and appropriate to their reading level. Text material can be used to introduce, reinforce, and extend the concepts addressed within the activities.

The success of the unit depends on the completion of at least the Embedded activities. Keep in mind that some activities are related since the data obtained in one may be used in another.

Plan Ahead. The unit is activity-based, and you can select the activities that will best meet your class' needs. The activities are listed in the Unit Matrix on page and in the Activity Index on page 153. Mini Activities are shorter and can be done with minimal teacher input; they are located in the margin of the student edition. The Embedded activities in the student text are investigations that require some planning and setup time; these are the essential activities within the unit.

A variety of projects were designed to extend the content of the unit. These include ongoing class projects, school projects, and/or community projects. Projects are located at the end of the Teacher's Guide, beginning on page 145.

Customize the Unit. Each section of this unit builds upon knowledge gained in the previous sections. Teaching timelines are provided on TE pages xxiv-xxv. The first timeline on TE page xxiv demonstrates how to complete this unit within a three-week schedule. The timeline on TE page xxv demonstrates how to complete this unit within a five-week schedule. Both of these timelines highlight the essential activities. If your class has time to study the unit over a longer period of time, many additional activities are available.

Allow Time for Projects. Consider having students start projects at the beginning of the unit and then prepare those projects for presentation as a culminating event.

Use Current Events. Ask students to bring in newspaper and magazine articles that relate to what they are studying each week. Relating the unit content to current events helps students see that what they are doing in class is, in fact,

relevant to their lives outside of school. Students can use current events to make group scrapbooks, bulletin boards, and posters or to develop class presentations.

Make a "Question Box" Available. Have students write down questions they have about what they are investigating and put them in the box. At appropriate times select questions and read them to the class to generate discussion. These questions can also be used to initiate class research projects.

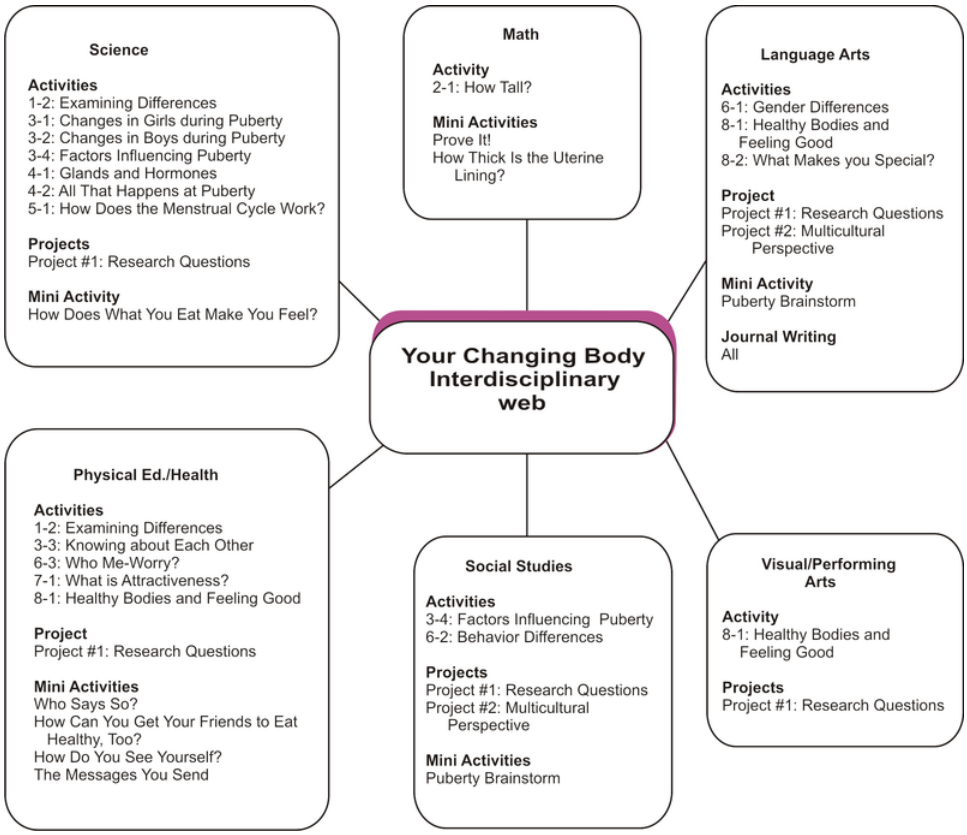
Use a Variety of Resources. We encourage you and your students to use a wide variety of sources for information. The activities provide rich opportunities for students to explore a variety of concepts. The more students incorporate information from resources outside the classroom, the richer their learning experiences will be. Use computer services for gathering student and teacher information, for networking with students in different schools and with community resources, and for contacting experts in the field under study. A list of resources can be found on page 148 of this Teacher's Guide.

Make Career Connections. Encourage students to investigate careers related to the content of the unit. Invite scientists, physicians, and technologists working in the field to come to your classroom to discuss career opportunities, their research, and specific topics of interest.

Address Health Concerns. Be aware of any special health problems your students may have. Some students may have health conditions that would make it uncomfortable for them to participate in certain activities, such as those that require exercise or that relate directly to their particular health problems. For students unable to participate fully in these activities you may wish to create an alternative assignment or have them use data from another group.

Connect with Other Disciplines. The interdisciplinary web provided is a guide for planning if your school uses an interdisciplinary team approach. The web classifies the unit's activities and projects by related discipline-language arts, math, social studies, physical education, health/nutrition, and visual/performing arts, and science. For interdisciplinary planning, schedule meetings with your team early. You are encouraged to tap the talents and interests of your team members as well as of your unique school and community resources in developing other suitable activities for this unit.

Connect with the Home. Give special attention to the unit activities as a means of involving family and community members. Also, encourage your students to take selected Apply Your Knowledge questions and Mini Activities home for further exploration.



Teaching Timelines

You can use these timelines as a place to start in designing your own timelines, or you can use them as they are laid out. If you're planning your own timeline, consider the inclusion of the Embedded activities first. The "Embedded activities" are included in the student edition. The GroupWork activities and Projects can then be included, depending on your time restrictions. The timelines are guides that can vary if some activities are done at home or in other classes in addition to science class.

Given your time constraints, it may not be possible to do all the activities shown on these timelines. If you need to remove activities, be careful not to remove any activities critical to the content of the unit. You may want to divide the activities among interdisciplinary members of your teaching team.

Page references in the charts refer to the student edition.

TABLE 1.2: Option 1: Three Week Timeline

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	Read Section 1 Introduce **Activity 1-1:** You Must Have Been a Beautiful Baby (bring pictures Wed.) Do **Activity 1-2:** Examining Differences	Read Section 2 Do **Activity 2-1:** How Tall?	Read Section 3 up to Activity 3-1 Do **Activity 3-1:** Changes in Girls during Puberty (collect pictures for Activity 1-1)	Read Section 3 up to Activity 3-2 Do **Activity 3-2:** Changes in Boys during Puberty (display pictures for Activity 1-1 students begin guessing) Complete Activity 1-1	Finish Section 3 Do **Activity 3-3:** Knowing about Each Other or **Activity 3-4:** Factors Influencing Puberty
Week 2	Read Section 4 up to Activity 4-1 Do **Activity 4-1:** Glands and Hormones	Finish Section 4 Do **Activity 4-2:** All That Happens at Puberty	Read Section 5 up to Activity 5-1 Do **Activity 5-1:** How Does the Menstrual Cycle Work?	Finish Section 5 Read Section 6 through Activity 6-1	Do **Activity 6-1:** Gender Differences
Week 3	Read section 6 through 6-2 Do **Activity 6-2:** Behavior Differences	Finish section 6 Do **Activity 6-3:** Who Me-Worry?	Read Section 7 Do **Activity 7-1:** What Is Attractiveness?	Read Section 8 **Activity 8-1:** Healthy Bodies and Feeling Good	End with **Activity 8-2:** What Makes You Special?

TABLE 1.3: Option 2: Five Week Timeline

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	Read Section 1 Introduce **Activity 1-1:** You Must Have Been a Beautiful Baby (bring pictures Wed.) Do **Activity 1-2:** Examining Differences	Read Section 2 Do **Activity 2-1:** How Tall? (collect pictures for Activity 1-1)	Read Section 3 up to Activity 3-1 Do **Activity 3-1:** Changes in Girls during Puberty	Explain Project choices #1 or #2 to students	Begin guessing on **Activity 1-1:** You Must Have Been a Beautiful Baby
Week 2	Read Section 3 up to Activity 3-2 Do **Activity 3-2:** Changes in Boys during Puberty (students turn in guesses for 1-1)	Finish Section 3 Do **Activity 3-3:** Knowing about Each Other or **Activity 3-4:** Factors Influencing Puberty	Read Section 4 up to Activity 4-1 Do **Activity 4-1:** Glands and Hormones	Finish Section 4 Do **Activity 4-2:** All That Happens at Puberty	Project Day: allow students time to work

TABLE 1.3: (continued)

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 3	Read Section 5 up to Activity 5-1 Do **Activity 5-1:** How Does the Menstrual Cycle Work?	Finish Section 5	**Mini Activity** Day: Choose the mini activity you like best from the unit, or allow the students to choose	Read Section 6 through Activity 6-1 Do **Activity 6-1:** Gender Differences	Project Day: allow students time to work
Week 4	Read Section 6 up through Activity 6-2 Do **Activity 6-2:** Behavior Differences	Finish section 6 Do **Activity 6-3:** Who Me-Worry?	Read Section 7 Do **Activity 7-1:** What Is Attractiveness?	Share Projects	Share Projects
Week 5	Read Section 7	Continue Activity 7-1	Read Section 8 Begin **Activity 8-1:** Healthy Bodies and Feeling Good	Share Activity 8-1	**Activity 8-2:** What Makes You Special?

Safety for Teachers

- Always perform an experiment or demonstration on your own before allowing students to perform the activity. Look for possible hazards. Alert students to possible dangers. Safety instructions should be given each time an experiment is begun.
- Wear glasses and not contact lenses. Make sure you and your students wear safety goggles in the lab when performing any experiments.
- Do not tolerate horseplay or practical jokes of any kind.
- Do not allow students to perform any unauthorized experiments.
- Never use mouth suction in filling pipettes with chemical reagents.
- Never "force" glass tubing into rubber stoppers.
- Use equipment that is heat resistant.
- Set good safety examples when conducting demonstrations and experiments.
- Turn off all hot plates and open burners when they are not in use and when leaving the lab.
- When students are working with open flames, remind them to tie back long hair and to be aware of loose clothing in order to avoid contact with flames.
- Make sure you and your students know the location of and how to use fire extinguishers, eyewash fountains, safety showers, fire blankets, and first-aid kits.
- Students and student aides should be fully aware of potential hazards and know how to deal with accidents. Establish and educate students on first-aid procedures.
- Teach students the safety precautions regarding the use of electricity in everyday situations. Make sure students understand that the human body is a conductor of electricity. Never handle electrical equipment with wet hands or when standing in damp areas. Never overload electrical circuits. Use 3-prong service outlets.
- Make sure that electrical equipment is properly grounded. A ground-fault circuit breaker is desirable for all laboratory AC circuits. A master switch to cut off electricity to all stations is desirable for all laboratory AC circuits.

- Make sure you and your students are familiar with how to leave the lab safely in an emergency. Be sure you know a safe exit route in the event of a fire or an explosion.

For Student Safety

Safety in the Classroom

- Wear safety goggles in the lab when performing any experiments. Tie back long hair and tuck in loose clothing while performing experiments, especially when working near or with an open flame.
- Never eat or drink anything while working in the science classroom. Only lab manuals, notebooks, and writing instruments should be in the work area.
- Do not taste any chemicals for any reason, including identification.
- Carefully dispose of waste materials as instructed by your teacher. Wash your hands thoroughly.
- Do not use cracked, chipped, or deeply scratched glassware, and never handle broken glass with your bare hands.
- Lubricate glass tubing and thermometers with water or glycerin before inserting them into a rubber stopper. Do not apply force when inserting or removing a stopper from glassware while using a twisting motion.
- Allow hot glass to cool before touching it. Hot glass shows no visible signs of its temperature and can cause painful burns. Do not allow the open end of a heated test tube to be pointed toward another person.
- Do not use reflected sunlight for illuminating microscopes. Reflected sunlight can damage your eyes.
- Tell your teacher if you have any medical problems that may affect your safety in doing lab work. These problems may include allergies, asthma, sensitivity to certain chemicals, epilepsy, or any heart condition.
- Report all accidents and problems to your teacher immediately.

HANDLING DISSECTING INSTRUMENTS and PRESERVED SPECIMENS

- Preserved specimens showing signs of decay should not be used for lab observation or dissection. Alert your teacher to any problem with the specimen.
- Dissecting instruments, such as scissors and scalpels, are sharp. Use a cutting motion directed away from yourself and your lab partner.
- Be sure the specimen is pinned down firmly in a dissecting tray before starting a dissection.
- In most cases very little force is necessary for making incisions. Excess force can damage delicate, preserved tissues.
- Do not touch your eyes while handling preserved specimens. First wash your hands thoroughly with warm water and soap. Also wash your hands thoroughly with warm water and soap when you are finished with the dissection.

CHAPTER 2 Growth, Development, and Puberty - Teacher's Guide (Human Biology)

CHAPTER OUTLINE

2.1 PLANNING

2.2 USING GROWTH, DEVELOPMENT, AND PUBERTY – STUDENT EDITION (HUMAN BIOLOGY)

2.3 ACTIVITIES AND ANSWER KEYS

2.1 Planning

Key Ideas

- Growth refers to an increase in size. Development refers not only to growth, but also a change in function. Chronological age and developmental age are not always the same for everyone. Each person matures at his or her own rate-normal development can occur over a broad range of ages.
- In the human life cycle, puberty is the physical transition from childhood to adulthood, from reproductive immaturity to reproductive maturity. Adolescence refers to both psychological and social development.
- Puberty can be a time of confusing emotions and changes, complicated by comparing oneself to one's peers. Differences between peers can be misinterpreted as abnormalities and can create stress.

Overview

This section serves as an introduction to the many changes of puberty. In it students distinguish between growth and development and learn the difference between chronological age and developmental age. Through activities they see that even though our bodies change, we maintain a certain likeness throughout our lives, and that there is a very wide range of "normal" in terms of when changes take place and the order in which they occur.

Objectives

Students:

✓ distinguish between growth and development.

✓ distinguish between chronological and developmental age.

✓ identify physical characteristics that remain the same and those that change over time.

✓ become more comfortable discussing the human body in an appropriate way.

✓ note the wide range of differences between individuals at various stages of adolescent development.

✓ understand that these differences are normal.

Vocabulary

adolescence, averages, chronological age, development, developmental age, growth, life cycle, maturation, normal development, puberty, reproduce

Student Materials

Activity 1-1: You Must Have Been a Beautiful Baby

- Activity Report
- One picture provided by each student

Activity 1-2: Examining Differences

- Activity Report
- Resource-1 copy per group (suggested group size is 3-5) OR teacher-created transparency

Teacher Materials

Activity 1-1: You Must Have Been a Beautiful Baby

- Activity Report Answer Key made by teacher
- Poster or bulletin board space for posting pictures
- 1 Picture of teacher as a child (Optional)

Activity 1-2: Examining Differences

- Activity Report Answer Key
- Resource
- Teacher-made transparency of picture labeled “Body Differences” (Optional)

Advance Preparation

See Activities 1-1 and 1-2 in the student edition.

Activity 1-1: You Must Have Been a Beautiful Baby

- If you want to have this Activity ready for the first day of the unit, assign students the task of bringing in their pictures the week before.
- If you are going to mount the pictures on a poster, prepare the poster for mounting.

Activity 1-2: Examining Differences

- Read the directions to the students and decide how you are most comfortable addressing this topic with your particular group of students.
- If you choose, use the Resource to make a transparency of the picture “Body Differences.”
- If you intend to give the students their own copies, prepare one per student.

Interdisciplinary Connections

Language Arts Discussion groups help students develop communication skills and can lead to essay or journal writing.

Social Studies Rites of passage vary from culture to culture and are often an important part of the transition from childhood to adulthood.

Background Information

There are two concepts that you need to get across to students in this section. First, change is a necessary and ever-present process in all living things. We change from the moment we are conceived to the moment we die. What is special about puberty is that the process of physical change is accelerated. These changes bring to culmination the process of physical development or growth spurt.

The second concept is more difficult to get across because it appears contradictory. The process of development entails both change and constancy. You will need to use examples to get this point across. For example, if you inflate a balloon, you do not end up with a different balloon, but one that looks and, in some ways, is different. Getting this point across will also help students understand that we can maintain a sense of psychological identity or sameness while we go through various phases of life.

There are several reasons why puberty requires psychological adjustments that may be difficult for some. First is the need to modify one's body image. The slower pace of growth earlier makes it easier to gradually adapt to growth. The faster pace of change in puberty requires faster adaptation. Reproductive maturation also can cause anxiety because teenagers can't usually talk about these changes freely with their parents or peers. Second is the need to adapt to the changed responses of others. For example, a girl with developing breasts attracts the sort of attention that she did not earlier. Finally, the many hormonal changes of puberty may affect the person's moods. Although we do not fully understand how this works, it is important to keep in mind that some of the emotional experiences of puberty may be biologically influenced.

2.2 Using Growth, Development, and Puberty – Student Edition (Human Biology)

Begin by letting students know that they are the focus of this unit. As middle school students, most of them are approaching, experiencing, or finishing puberty. This unit will help them understand the changes that they are experiencing.

Make sure that students understand the differences between growth/development, physiological/psychological, and puberty/adolescence. Complete the *Mini Activity: Puberty Brainstorm.*

Introduce *Activity 1-1: You Must Have Been a Beautiful Baby* on the first day so students have time to bring in their pictures, or ask them a week before you begin the unit, so that you will have the bulletin board ready on the first day.

Have the students read the material on what it feels like to go through puberty. Make a decision about whether you will give each student a copy of the drawings or create an overhead for your own use. Before you introduce *Activity 1-2: Examining Differences,* talk with your class about the way to conduct themselves when discussing sensitive material.

Conclude by reviewing the basic changes of puberty.

A suggested response will be provided upon request. **Please send an email to teachers-requests@ck12.org.**

Apply Your KNOWLEDGE

During puberty, girls' breasts grow larger and boys' testes begin to produce sperm. Why would these changes be called "development," rather than "growth?"

Mini-Activity

Puberty Brainstorm Students create a chart that lists the physical, social, and psychological changes that have occurred since childhood.

2.3 Activities and Answer Keys

Activity 1-1: You Must Have Been a Beautiful Baby

PLAN

Summary In this activity students bring in pictures of themselves between the ages of 2-5. The pictures are displayed with numbers, not names, and students guess which picture goes with which classmate.

Objectives

Students:

✓ identify physical characteristics that remain the same and those that change over time.

✓ use powers of observation and critical thinking skills to find similarities and differences that will allow them to make accurate identifications.

Student Materials

- 1 picture (age 2-5) provided by each student
- Activity Report

Teacher Materials

- Poster or bulletin board space for posting pictures
- Activity Report Answer Key prepared as students turn in pictures
- 1 picture of teacher as a child (Optional)

Advance Preparation

If you want to have this Activity ready for the first day of the unit, assign students the task of bringing in their pictures the week before.

If you are going to mount the pictures on a poster, prepare the poster for mounting.

Interdisciplinary Connections

This activity has **Language Arts, Advisory,** and **Social Science** connections, although any teacher can use it. It can be extended to include:

Art Have students draw a current self-portrait. Then ask them to sketch what they think they will look like in 10 years, or 30 years. Discuss the changes.

Language Arts Students could bring in and arrange pictures of themselves at one-year intervals. They could then write a pictorial history of their growth and maturation, focusing on physical changes such as height, weight, hair color or texture, shape of face, etc.

Math Have students find out approximately how much they weighed at one year of age and again at two years of age. Ask them to calculate how much they would weigh now if they continued to grow at the same rate that they did when they were very young. This could be a challenge activity.

Social Studies Look at baby pictures of children ages 2-5 who live in other countries. Are there physical characteristics that do not change from culture to culture? Are there characteristics that seem to be dominant in a particular culture, such as hair color? Do physical characteristics or cultural characteristics such as clothing or hairstyles vary more?

Estimated Time

Day 1 Take 5-10 minutes to explain the activity to the class.

Day 2-3 Allow students 2-3 days to bring in a picture from home.

Day 4 Set aside 15 minutes to set up picture board and distribute Activity Report.

Day 5-6 Allow students 1-2 days to study the pictures and submit their guesses.

Day 7 Spend 20 minutes comparing guesses, justifying observations, and revealing the correct answers.

Prerequisites and Background Information

No special knowledge required

Helpful Hints

Students love it if you bring in your own picture. You might even convince your principal or other faculty members to contribute.

IMPLEMENT

Introduce Activity 1-1 by explaining that even though we undergo enormous changes in our life, some characteristics remain identifiable. You might want to start by showing them your own baby picture.

Please note-Some students may not have access to any baby pictures. An alternative to bringing in pictures would be to have them write a brief paragraph description to post in lieu of a picture.

Steps 1-2 As you collect the pictures, make sure that the students' names are written or taped on the back of the picture. Give each picture a number. To make an answer key, use one of the student Activity Reports and record the name of each student next to the number you have given his or her picture. Post the pictures on a bulletin board or poster prepared ahead of time and write the assigned number under the picture.

Steps 3-5 Before students make their guesses, talk about characteristics that might help them to identify individuals. Characteristics might include hair color, eye color, shape of chin, shape of ears, etc. Talk about things that will not help, such as clothing and hairstyles. When students have made their guesses, have them explain their reasoning before sharing the correct answers. Remind them to keep their comments appropriate.

Conclude Activity 1-1 by discussing which general characteristics they believe will change the most over the next few years and which ones will remain the same.

ASSESS

Use the discussion portion of this assignment to assess if students can

✓ explain that certain physical characteristics change as an individual ages, while others do not.

✓ identify those characteristics that change as an individual ages and those that do not change.

Activity 1-1: You Must Have Been a Beautiful Baby – Activity Report Answer Key

- Sample answers to these questions will be provided upon request. **Please send an email to teachers-requests@ck12.org to request sample answers.**

For this activity you were asked to bring in a picture of yourself between the ages of 2-5. Your teacher has posted the pictures and numbered them, but hidden the names. Your job is to study the pictures and try to identify which classmate belongs to each picture. On the sheet below, put the name of the person next to the number of the picture that you think matches. As you study the pictures, think about characteristics that might help you in your identification, such as hair color, eye color, or shape of face. Try not to be distracted by things like clothing or hairstyle.

After you have checked your answers, list those characteristics that proved most useful in making correct guesses. Why do you think that some people were more recognizable than others were? In general, which characteristics changed the most over time? Which characteristics changed the least?

Mini-Activity

Prove It! Students examine the statements (1) "I am a billion seconds old." and (2) "I am a trillion minutes old." They convince the class that the statements are either true or false.

Mini-Activity

Describing Puberty Students write three words that describe puberty and adolescence and pass them in. Teacher posts them on the chalkboard or bulletin board for a class discussion.

Activity 1-2: Examining Differences

PLAN

Summary This activity is designed to address the issue of shyness that some students may feel when looking at pictures of the human body by talking openly about why we feel shy, and why it is important to be able to discuss the human body. The activity also asks students to examine pictures of people at various stages of adolescent development to note the differences and to explain that these differences are normal.

Objectives

Students:

✓ become more comfortable discussing the human body in an appropriate way.

✓ note the wide range of differences between individuals at various stages of adolescent development.

✓ understand that these differences are normal.

Student Materials

- Activity Report
- Resource-1 copy per group (suggested group size is 3-5) OR teacher-created transparency

Teacher Materials

- Activity Report Answer Key
- Resource
- Teacher-made transparency of picture labeled Body Differences (Optional)

Advance Preparation

Read the directions to the students and decide how you are most comfortable addressing this topic with your particular group of students.

If you choose, make a transparency of the Resource, which illustrates examples of body differences.

If you intend to give the students their own copies of the Resource, prepare one per student.

Estimated Time 30 minutes

Interdisciplinary Connections

This Activity has **Guidance** and **Advisory** connections. It can be extended to include:

Art/Music Examine the use of the human form in art. How have attitudes toward nudity changed in different parts of the world over time, as reflected in art? For example: Ancient Greek and Roman sculptors focused on what they considered the perfect human body.

Social Studies Students who are interested might research different cultural views of nudity and when it is or isn't considered appropriate. What shapes these views? Investigate how attitudes toward the human body have helped or hindered medical research at various times in history.

Prerequisites and Background Information

Teacher: Look ahead to the chart and timetable on adolescent development found on p. 00 if you are unsure about the range of normal development.

> **Helpful Hint**
>
> If this class is new to you, you might need to try a few "trust-building" exercises first.

IMPLEMENT

Introduce Activity 1-2 by explaining that in this activity you will be dealing with an issue that sometimes makes people uncomfortable. Discuss with your class the reasons that people may feel shy or awkward when looking at pictures of the human body. Explain to them why it is appropriate in this situation. Set up ground rules for discussion if they do not already exist in your class, such as no put-downs and the right to pass if the topic is too uncomfortable.

Steps 1-2 Divide the class into groups. Suggested group size is 3-5. Distribute the Activity Report and review the questions BEFORE using the transparency or handing out the Resource. Ask students to focus on finding serious answers to the questions they are asked on their Activity Reports.

Step 3 Show the transparency and/or distribute the Resource. Allow groups time to formulate and record their observations. Circulate among the class as they work, keeping them focused and maintaining appropriate demeanor.

Step 4 Come back together as a whole class to compare findings. Ask one group to report, then ask the other groups to add any other observations they may have had.

Conclude Activity 1-2 with a discussion about how wide the range of normal is in adolescent development.

ASSESS

Use the Activity Report responses and class discussions to assess the students' understanding that there is a very wide range of normal for body shapes and physical changes during puberty.

Activity 1-2: Examining Differences – Activity Report Answer Key

- Sample answers to these questions will be provided upon request. **Please send an email to teachers-requests@ck12.org to request sample answers.**

Choose someone within your group to be the recorder. With your group, study the picture labeled Body Differences during Puberty. Discuss the questions, then record your observations. Remember to keep your discussions serious and respectful.

All the girls pictured are 13 years old. All the boys pictured are 14 years old. This is because girls generally enter puberty earlier than boys do, and we are comparing changes at puberty, not changes at a certain age. All pictures represent adolescents who are considered normal for their age. As you examine the pictures, remember that you are looking for differences that are the result of *changes during puberty,* not differences such as eye color, texture of hair, or skin color.

1. Describe the differences that you notice between the girls.
2. Describe the differences that you notice between the boys.
3. Compare the *general body shapes* of Boy 1 and Girl 1. Why do you think they are so much alike?
4. Compare the *general body shapes* of Boy 3 and Girl 3. Why do you think they are now so different?
5. If all of these adolescents are considered "normal" for their age, then what can you say about change during puberty? Does change happen all at once? Does change happen to everyone in the same order, at the same age, or in the same way?

What Do You Think?

Why do you think the legal age for marriage is 18 years old (in most states), although sexual maturity is often reached several years earlier? What are the advantages and disadvantages of early marriages?

A suggested response will be provided upon request. **Please send an email to teachers-requests@ck12.org.**

Apply Your KNOWLEDGE

Give some examples of life cycles of other animals. How are they the same or different from the human life cycle?

What Do You Think?

American society does not have formal "rites of passage" (events that mark new stages of development), but some "development markers" may serve similar functions. What are some "rites of passage" or "development markers" you think of for adolescents in this country?

Journal Writing

What kind of baby were you (fussy, sweet, active, sleepy, etc.)? What kind of behavior did you exhibit as a child? What physical characteristics distinguish you? What personality characteristics distinguish you? Think about these elements of yourself as they apply to you today: What is the you-in-you that remains constant throughout the changes in your life?

Review Questions/Answers

- Sample answers to these questions will be provided upon request. **Please send an email to teachers-requests@ck12.org to request sample answers.**

1. What is the difference between growth and development?
2. What is the difference between puberty and adolescence?
3. What is the difference between developmental and chronological age?
4. What is normal development?
5. What are some common feelings about experiencing puberty?

Activity 1-1 Report: You Must Have Been a Beautiful Baby (Student Reproducible)

For this activity you were asked to bring in a picture of yourself between the ages of 2-5. Your teacher has posted the pictures and numbered them, but hidden the names. Your job is to study the pictures and try to identify which classmate belongs to each picture. On the sheet below, put the name of the person next to the number of the picture that you think matches. As you study the pictures, think about characteristics that might help you in your identification such as hair color, eye color, or shape of face. Try not to be distracted by things like clothing or hairstyle.

1.
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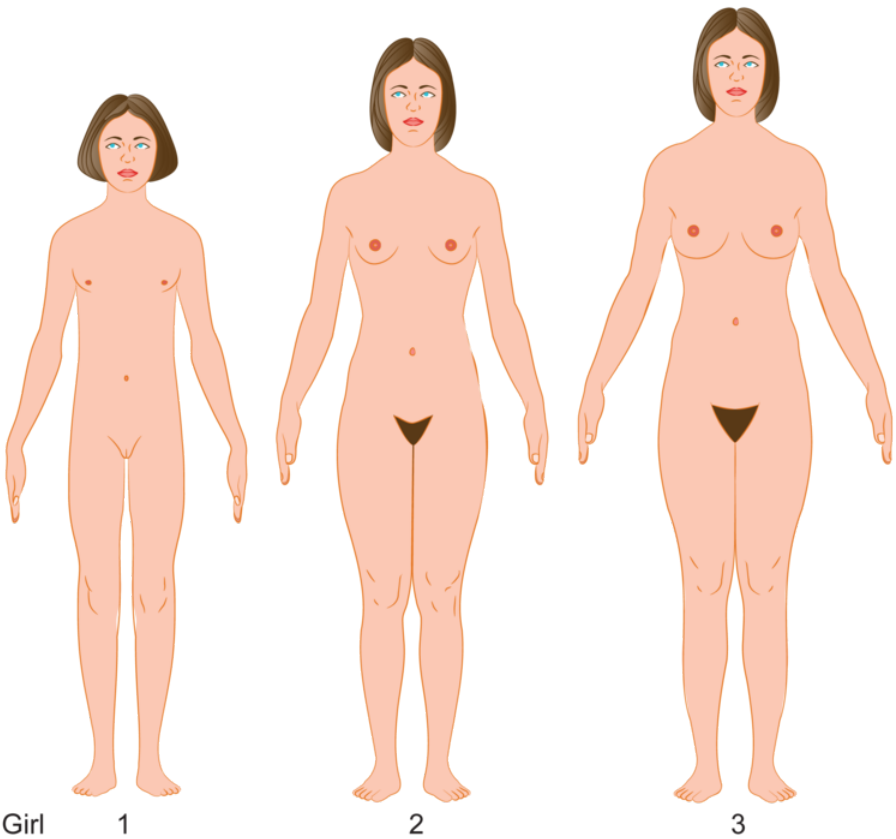
38.

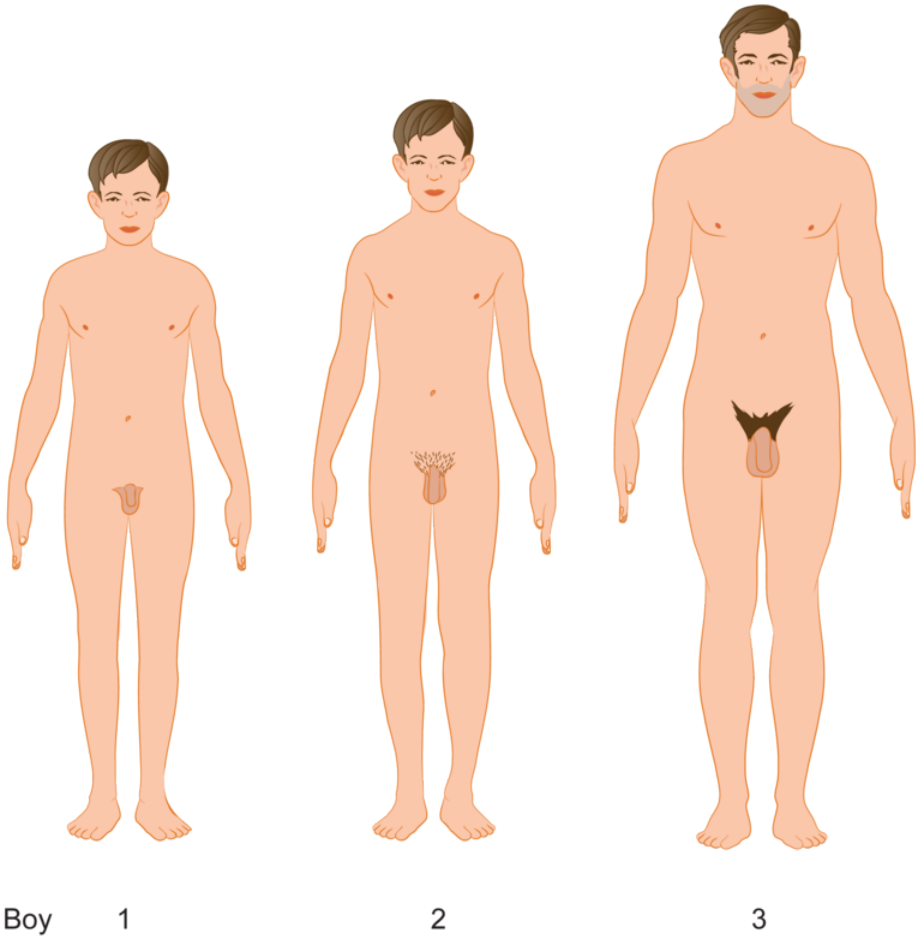
39.

40.

After you have checked your answers, list those characteristics that proved most useful in making correct guesses. Why do you think that some people are more recognizable than others? In general, which characteristics changed the most over time? The least?

Activity 1-2 Resource: Examining Differences (Student Reproducible)





Activity 1-2 Report: Examining Differences (Student Reproducible)

Choose someone within your group to be the recorder. With your group, study the picture labeled Body Differences during Puberty. Discuss the questions, then record your observations. Remember to keep your discussions serious and respectful.

All the girls pictured are 13 years old. All the boys pictured are 14 years old. This is because girls generally enter puberty earlier than boys do, and we are comparing changes at puberty, not changes at a certain age. All pictures represent adolescents who are considered normal for their age. As you examine the pictures, remember that you are looking for differences that are the result of *changes during puberty*, not differences such as eye color, texture of hair, or skin color.

1. Describe the differences that you notice between the girls.

2. Describe the differences that you notice between the boys.

3. Compare the *general body shapes* of Boy 1 and Girl 1. Why do you think they are so much alike?

4. Compare the *general body shapes* of Boy 3 and Girl 3. Why do you think they are now so different?

5. If all of these adolescents are considered normal for their age, then what can you say about change during puberty? Does change happen all at once? Does change happen to everyone in the same order, at the same age, or in the same way?

CHAPTER 3 Growth of the Body - Teacher's Guide (Human Biology)

CHAPTER OUTLINE

3.1 PLANNING

3.2 USING GROWTH OF THE BODY – STUDENT EDITION (HUMAN BIOLOGY)

3.3 ACTIVITIES AND ANSWER KEYS

3.1 Planning

Key Ideas

- Physical growth and development are a function of two factors-heredity and environment.
- During puberty, height and weight increase, muscles develop, and the body assumes new proportions of fat and muscle, depending on gender, nutrition, and heredity.
- There are a number of common health concerns during puberty. Acne and good nutrition are among the most common concerns. Regular visits to the doctor and learning about what happen to your body during puberty will help you stay healthy.

Overview

This section focuses on height, weight, and muscle gain, as well as a variety of health concerns during puberty. Students use charts to examine the average height of boys and girls at a given age, and the average age at which the growth spurt occurs. The fact that average and normal are not the same is emphasized. Students see that it is perfectly normal to be taller or shorter than the average figure. Acne and scoliosis are two problems associated with adolescence that are addressed in this section.

Objectives

Students:

✓ examine average heights and average rates of growth.

✓ interpret a graph.

✓ compute percentage.

✓ determine the factors influencing height, weight gain, and muscle development.

Vocabulary

chronic, endurance, genes, heredity, proportions

Student Materials

Activity 2-1: How Tall?

- Activity Report
- 1 ruler per student if possible, or per group (pairs are suggested)

Teacher Materials

Activity 2-1: How Tall?

- Activity Report Answer Key

Advance Preparation

See Activity 2-1 in the student edition

Activity 2-1: How Tall?

- Gather rulers.
- Make a transparency of the two graphs in the exercise to make explanation and discussion easier. (Optional)

Interdisciplinary Connection

Math Proportion is discussed, as are averages. Students read curves and interpret charts and graphs.

Background Information

The primary determinants of growth patterns are genetic. There is a species-specific pattern. For example, there are not 20-feet-tall humans. However species-specific patterns are modified by racial differences (Africans from the Nile Valley are taller than Pygmies) and familial variations (tall parents tend to have tall children).

However, these basic genetic patterns can be greatly influenced by nutritional and other environmental factors. Malnutrition leads to stunted growth. Even psychological factors, such as severe stress, can interfere with normal growth. Further variations on this normal pattern are influenced by illness typically affecting the pituitary gland (which produces growth hormone) that can lead to various forms of dwarfism and gigantism.

This section provides an excellent opportunity to discuss the interaction of genetics (over which we have little control), with the physical environment (over which we have more control), and the social environment (which is of our own making).

3.2 Using Growth of the Body – Student Edition (Human Biology)

Let students know that this section focuses on changes common to both boys and girls during puberty.

Conduct *Activity 2-1: How Tall?* Make sure students focus on the concept that there is a wide range that is considered normal for development.

Have students read the material on weight. Stress that weight has an even wider range of normal than height, because part of weight gain depends on diet and exercise, factors over which individuals have some control.

Point out that muscle development is one area in which there are more differences physiologically between boys and girls. However, also point out that an individual boy or girl can be stronger than another based on their level of physical fitness.

Acne is a topic about which many students are especially interested. You may ask them to discuss their own methods of trying to deal with acne and the information in the text, in an attempt to clarify what will and what will not work to control this condition.

3.3 Activities and Answer Keys

Activity 2-1: How Tall?

PLAN

Summary In this activity students use graphs to compare the rate of growth and the average height of males and females between the ages of 1 and 19. They also identify when rapid spurts of growth are likely to take place.

Objectives

Students:

✓ examine average heights and average rates of growth.

✓ interpret a graph.

✓ compute percentage.

Student Materials

- Activity Report
- 1 ruler per student if possible, or per group (pairs are suggested)

Teacher Materials

- Activity Report Answer Key

Advance Preparation

Gather rulers.

Make a transparency of the two graphs in the exercise to make explanation and discussion easier. (Optional)

Estimated Time

This activity should take 30-45 minutes, depending on students' familiarity with graphing.

Interdisciplinary Connections

This activity has **Math** and **Science** connections because it involves graphing and calculating. It can be extended to include:

Physical Education/Health Have students take their height measurements. Ask them to bring that information to their math classes.

Math Use the height measurements taken in PE or Health class to graph the heights of males and females in the class. Discuss the difference between a straight-line graph and a bell curve, which should roughly be the result of the height measurements. If your class is able, go one step further and calculate the average height within the class for males, and the average height for females. Stress that average is not the same as normal, and that there is a very wide range of normal for each age and grade level.

Prerequisites and Background Information

If students are not familiar with graphs, time should be taken before the exercise to explain terms such as *plot line, x* - and *y -axis*, and *average*. Learning how to read the graph is part of the exercise itself. The exercise also involves determining percentage.

IMPLEMENT

Introduce Activity 2-1 by asking students if all 4-year-olds are the same height. Are all 8-year-olds? Are all adults? Explain that in this activity they will see how wide the range of normal height is at all ages. If students are unfamiliar with graphing, take time to go over what a graph is, types of graphs, and what the parts of a graph are. Do not let their lack of graphing skills stop you from doing the activity. It is a good time for them to learn. An alternative approach is to conduct the graphing as a demonstration.

Steps 1-5 Based on your assessment of the classes' skill level in math, you can have them work independently, in groups, or lead them step-by-step. Distribute a ruler and Activity Report to each student (or pair of students).

Read the directions with the students, answer questions about procedure, then give the class time to make their calculations.

Conclude Activity 2-1 by discussing their findings. Lead them to the conclusion that there is a wide range of normal in height, particularly during adolescence.

ASSESS

Use the Activity Report responses to assess if students can

✓ read a graph.

✓ calculate percentages.

✓ define the terms average and normal and explain the difference between these terms.

Activity 2-1: How Tall? – Activity Report Answer Key

- Sample answers to these questions will be provided upon request. **Please send an email to teachers-requests@ck12.org to request sample answers.**

Look at the graph in Figure 2.3 Average Heights for Boys and Girls on p. 11 of your textbook. Follow the steps below to figure out how tall the average boy or girl would be at age 10.

1. Place the edge of your ruler at age 10, then, keeping it straight up, see where it crosses the two plot lines for boys and girls. Since they are so close together at this point, we will treat them as one.
2. Mark with your pencil the point on the plot line that your ruler is touching.
3. Now place the ruler horizontally from that point until it reaches the vertical line. It will intersect a little below the $140 - cm$ mark. This is the average height a boy or girl will be at age 10. Now that you know how to read the graph with your ruler, find out the average height of boys and girls your own age and mark it below. Remember, you may be taller or shorter than the average height for your age, but still be perfectly normal. My age is
4. As you can see from studying the graph, the average heights of boys and girls are almost exactly the same for many years, with the line for girls falling only a tiny bit below the line for boys. Then the pattern begins to change. a. At what age do average heights for boys and girls first seem to meet at the same point on the graph? b. Between what ages is the average height for girls taller than the average height for boys? c. At what point do the average heights for boys and girls meet for the second time? d. After that point, are males or females

taller on average? e. When plot lines level off, or become horizontal, they then show that height remains constant. What is the difference in height, on average, between boys and girls once their growth levels off?

5. The next measurement you make might surprise you. Using the same graph, use your ruler to find out the average height of girls at age 2 and write it down. Do the same for age 19. a. average height of girls at age 2 b. average height of girls at age 19 c. How do these figures compare? At age 19, females are about twice as tall as when they are 2 years old. That means that by age 2, girls have already reached half, or 50%, of their adult height. The same would be true for boys at age 3.
6. Now do the same calculations for boys at age 11 and at age 19. a. average height of boys at age 11 b. average height of boys at age 19 c. What percentage of their adult height have males reached at age 11?
7. Go back to your textbook and look at the graph labeled Figure 1.4, Growth Spurts. a. During what three-year period is growth the greatest for both boys and girls? b. On average, during what three-year period is the growth spurt greatest for girls? Which year is the peak year? c. On average, what three-year period shows the most rapid growth for boys? What is the peak year?
8. Read the final paragraph of this activity in your textbook.

A suggested response will be provided upon request. **Please send an email to teachers-requests@ck12.org.**

Apply Your KNOWLEDGE

Look at the table above showing Olympic performances in the long-jump event. At what rate are the men's and women's records changing?

What Do You Think?

On average, since adult males have the potential to develop stronger muscles than adult females, should adult females be excluded from jobs that involve heavy physical labor (for example, fire fighting)?

Journal Writing

What are some ways you mark your growth and development? Do your friends or family celebrate or recognize milestones (accomplishments, growth) in any way? How? How might you recognize those milestones important to you, but not currently celebrated, and share them with someone?

Review Questions/Answers

- Sample answers to these questions will be provided upon request. **Please send an email to teachers-requests@ck12.org to request sample answers.**

1. What factors influence how tall you will be?
2. What factors affect your weight?
3. How does puberty affect exercise and endurance?
4. What causes acne, and what can you do about it?
5. Name three other health concerns common to adolescents, and describe them.

Activity 2-1 Report: How Tall? (Student Reproducible)

Look at the graph in Figure 2.3, Average Heights for Boys and Girls, on p. 11 of your textbook. Follow the steps below to figure out how tall the average boy or girl would be at age 10.

1. Place the edge of your ruler at age 10, then, keeping it straight up, see where it crosses the two plot lines for boys and girls. Since they are so close together at this point, we will treat them as one.

2. Mark with your pencil the point on the plot line that your ruler is touching.

3. Now place the ruler horizontally from that point until it reaches the vertical line. It will intersect a little below the $140 - cm$ mark. This is the average height a boy or girl will be at age 10. Now that you know how to read the graph with your ruler, find out the average height of boys and girls your own age and mark it below. Remember, you may be taller or shorter than the average height for your age, but still be perfectly normal.

My age is _____.

The average height of boys my age is _____.

The average height of girls my age is _____.

4. As you can see from studying the graph, the average heights of boys and girls are almost exactly the same for many years, with the line for girls falling only a tiny bit below the line for boys. Then the pattern begins to change.

a. At what age do average heights for boys and girls first seem to meet at the same point on the graph?

_____

b. Between what ages is the average height for girls taller than the average height for boys?

_____

c. At what point do the average heights for boys and girls meet for the second time?

_____

d. After that point, are males or females taller on average? _____

e. When plot lines level off, or become horizontal, they then show that height remains constant. What is the difference in height, on average, between boys and girls once their growth levels off?

_____

5. The next measurement you make might surprise you. Using the same graph, use your ruler to find out the average height of girls at age 2 and write it down. Do the same for age 19.

a. average height of girls at age 2 _____

b. average height of girls at age 19 _____

c. How do these figures compare? _____

6. Now do the same calculations for boys at age 11 and at age 19.

a. average height of boys at age 11 _____

b. average height of boys at age 19 _____

c. What percentage of their adult height have males reached at age 11 ? _____

7. Go back to your textbook and look at the graph labeled Figure 1.4 Growth Spurts.

a. During what three-year period is growth the greatest for both boys and girls?

_____

b. On average, during what three-year period is the growth spurt greatest for girls?

_____

Which year is the peak year? _____

c. On average, what three-year period shows the most rapid growth for boys?

_____

What is the peak year? _____

8. Read the final paragraph of this activity in your textbook.

CHAPTER 4 Sexual Maturation - Teacher's Guide (Human Biology)

CHAPTER OUTLINE

4.1 PLANNING

4.2 USING SEXUAL MATURATION – STUDENT EDITION (HUMAN BIOLOGY)

4.3 ACTIVITIES AND ANSWER KEYS

4.1 Planning

Key Ideas

- Sexual maturation involves two kinds of change-primary and secondary. Primary change affects reproductive organs. Secondary change affects characteristics that set girls apart from boys and the physically mature from the immature.
- Menarche is the key transitional step to woman-hood. However, it does not mark the beginning of puberty. Typically it is one of the later events, usually about two years after the beginning of breast development and after the peak of the growth spurt (avg. age = 12.8, normal range, 9-18). Menopause marks the end of a woman's reproductive years.
- Nocturnal emissions (wet dreams) or ejaculation with masturbation signal semen production.
- Heredity and environment, which includes both physical and social environment, determine not only our schedule of development, but also our lifelong health. Nutrition and health care have the greatest impact on our reproductive health.

Overview

This section deals with the maturation of the reproductive system during puberty. Students use graphs to see the average age and the normal range of development for boys and girls. The graphs show height spurt, the appearance of pubic hair, the development of breasts and menarche in girls, and the growth of the testes and the penis in boys. Through discussion groups students share their concerns over the changes they are facing. They try to learn what the changes during puberty are like for the opposite sex. Students also distinguish between those factors influencing development during puberty over which they have control, and those factors over which they have no control. Groups make suggestions for how to maximize healthy development.

Objectives

Students:

✓ distinguish between primary and secondary sexual characteristics.

✓ identify the normal time range for change in girls and boys during puberty.

✓ read a graph.

✓ construct a chart using data from the graph.

✓ express their own concerns over the changes of puberty.

✓ listen to the concerns of others.

✓ identify factors in the physical and social environment that influence puberty.

Vocabulary

axillary hair, ejaculation, environment, genitals, larynx, masturbation, menarche, menopause, menstruation, nocturnal emissions, ovaries, penis, physical environment, pubic hair, scrotum, secondary sexual characteristics, semen, sperm, social environment, testes

Student Materials

Activity 3-1: Changes in Girls during Puberty

- Activity Report

Activity 3-2: Changes in Boys during Puberty

- Activity Report

Activity 3-3: Knowing about Each Other

- Activity Report

Activity 3-4: Factors Influencing Puberty

- Activity Report

Teacher Materials

Activity 3-1: Changes in Girls during Puberty

- Activity Report Answer Key

Activity 3-2: Changes in Boys during Puberty

- Activity Report Answer Key

Activity 3-3: Knowing about Each Other

- Activity Report Answer Key

Activity 3-4: Factors Influencing Puberty

- Activity Report Answer Key

Advance Preparation

See Activities 3-1, 3-2, 3-3, and 3-4 in the student edition.

Activity 3-1: Changes in Girls during Puberty

- Make a transparency of the graph if you think it would be useful for your class. (Optional)

Activity 3-2: Changes in Boys during Puberty

- Make a transparency of the graph if you think it would be useful for your class. (Optional)

Activity 3-3: Knowing about Each Other

- None required

Activity 3-4: Factors Influencing Puberty

- Decide on group size.

Interdisciplinary Connections

Language Arts Students determine word origin. Discussion groups help students develop communication skills, and can lead to essay or journal writing.

Background Information

Higher levels of gonadal hormones that are produced by the testes (testosterone) and ovaries (estrogens) bring about the changes of puberty. The increased production of gonadal hormones are due to higher levels of gonadotrophins (FSH and LH) produced by the anterior pituitary, which is under the influences of gonadotropin releasing hormone (GnRH) released from the hypothalamus. What determines the timing of puberty is not entirely clear. It may be linked to the accumulation of a critical amount of fat in the body.

Boys, unlike girls, do not have a discrete event like menarche to mark sexual maturation. This is why studies such as the timing of puberty are more easily done with girls.

Girls now often receive information and advice, usually from their mothers, in anticipation of menarche. Boys often are told nothing about nocturnal emissions. Because of its sexual connotations, this important experience often is not addressed, causing puzzlement or distress to boys. Without launching into a full-scale discussion of sexuality, some of these issues can be discussed.

When a child enters puberty is purely a function of the levels of gonadal hormones in the body (discussed in the next section). The body's tissues will respond to the effect of hormones at any age. This explains cases of precocious puberty whereby a girl may develop breasts or a boy pubic hair at age 4. The most dramatic example is the youngest mother on record who gave birth to a normal child (through cesarean section) at the age of 5 years and 10 months.

These cases of precocious puberty are often due to some illness or abnormality, such as a brain tumor that triggers the chain of hormone production. But precocious puberty can also occur without apparent cause.

The same is true for delayed puberty. If a child, for whatever reason, fails to go through the normal stages of puberty on schedule, hormonal treatment can bring about these changes later, in adulthood. In other words, the ability of the body's tissues to respond to hormones is not lost with time.

4.2 Using Sexual Maturation – Student Edition (Human Biology)

Tell students that this section focuses on the specific changes of puberty that are connected to sexual maturation, and that these are the changes that make it possible for them to reproduce.

Distinguish between primary and secondary sexual characteristics.

Introduce *Activity 3-1: Changes in Girls during Puberty*. Point out that the dark part of the band for menarche is small, not because everyone goes through it at the same time (the age range is 10-16), but because it is a single event. Other changes such as breast development start at one age, end at another, and are spread over time.

Complete the material on the changes that occur for girls, then point out that although they are not always as obvious, boys go through many changes at puberty as well.

Discuss the vocabulary terms related to male development before beginning *Activity 3-2: Changes in Boys during Puberty*. Tell them that this activity for boys is similar to the one they completed for girls.

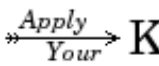
Conduct *Activity 3-3: Knowing about Each Other,* and explain that it is important to understand how the changes that boys and girls are going through make them feel, so that they can react appropriately to one another.

Conclude the section by examining the factors that influence puberty and distinguishing between those factors over which they have no control and those over which they do have some control. End with *Activity 3-4: Factors Influencing Puberty*.

Mini-Activity

Word Origin: Menarche Students research the origin of the word *menarche.*

A suggested response will be provided upon request. **Please send an email to teachers-requests@ck12.org.**



How do animals distinguish male from female? Give some examples and describe secondary sexual characteristics.

4.3 Activities and Answer Keys

Activity 3-1: Changes in Girls during Puberty

PLAN

Summary In this activity students use a graph to identify the types of changes that occur during puberty, when they most commonly occur, what the normal range is for each occurrence, and over how long a period of time the changes usually take place. The students then use the information they have gathered to put together a chart of changes during puberty.

Objectives

Students:

✓ read a graph.

✓ construct a chart using data from the graph.

✓ identify the normal time range for change in girls during puberty.

Student Materials

- Activity Report

Teacher Materials

- Activity Report Answer Key

Advance Preparation

Prepare a transparency of the graph if useful for your class. (Optional)

Estimated Time 30 minutes (Allow more time if students are unfamiliar with reading graphs.)

Interdisciplinary Connection

Math This activity involves the use of graphs and charts.

Prerequisites and Background Information

Students should have some knowledge of how to read a graph.

IMPLEMENT

Introduce Activity 3-1 by referring to *Activity 2-1: How Tall?* in which students discovered that there was a wide range of normal heights. Explain that this is true for other areas of growth and development as well. Review terms from the chapter that will be used in the graph, such as pubic hair, menstruation, and menarche. Go over the Activity in the text with the students.

Step 1 Distribute the Activity Reports and review directions.

Step 2 Allow students time to complete the assignment individually, in pairs, or in small groups.

Conclude Activity 3-1 by having students compare answers and create a class chart.

ASSESS

Use the Activity Report responses to assess if students can

✓ identify "normal range" for the developments and changes that occur in girls during puberty.

✓ read a graph.

✓ create a chart from graphed data.

Activity 3-1: Changes in Girls during Puberty – Activity Report Answer Key

- Sample answers to these questions will be provided upon request. **Please send an email to teachers-requests@ck12.org to request sample answers.**

1. Look at Figure 3.2 in your textbook. It shows the changes that take place in girls during puberty and the ages at which those changes are likely to occur.
2. Use the graph to make a chart. The chart will list:
   (a) the four major changes that occur in girls during puberty.
   (b) the most common times for them to occur.
   (c) the wide range of normal during which they can happen.

   To find the *most common* time for each event to occur look between the beginning and end of the dark part of each bar. To find the *normal range* for each event look between the beginning and the end of the dotted part of each bar. The bars do not start and end exactly at the listed ages, so your answers should be approximate, such as "between age 12 and 13" or "almost at age 15."

A.

1. The change most likely to occur **first** is:
2. The most common time for it to occur is
3. The normal range during which it can occur is

B.

1. The change most likely to occur **second** is
2. The most common time for it to occur is
3. The normal range during which it can occur is

C.

1. The change most likely to occur **third** is
2. The most common time for it to occur is
3. The normal range during which it can occur is

D.

1. The change most likely to occur **fourth** is
2. The most common time for it to occur is
3. The normal range during which it can occur is

What Do You Think?

Can you think of any reasons why hair growth varies among cultural groups? For example, Asians don't grow facial hair; Mediterranean and Middle Eastern men tend to have dark hair and heavy beards.

A suggested response will be provided upon request. **Please send an email to teachers-requests@ck12.org.**

Apply Your KNOWLEDGE

What is the function of the scrotum?

What Do You Think?

Why do we talk more about (and have a term for) a girl's first menstruation (menarche) than a boy's first ejaculation? Are they similar or different experiences?

Activity 3-2: Changes in Boys during Puberty

PLAN

Summary In this activity students use a graph to identify the types of changes that occur during puberty, when they most commonly occur, what the normal range is for each occurrence, and over how long a period of time the changes usually take place. The students then use the information they have gathered to put together a chart of changes during puberty.

Objectives

Students:

✓ read a graph.

✓ construct a chart using data from the graph.

✓ identify the normal time range for change in boys during puberty.

Student Materials

- Activity Report

Teacher Materials

- Activity Report Answer Key

Advance Preparation

Prepare a transparency of the graph if useful for your class. (Optional)

Estimated Time 30 minutes (Allow more time if students are unfamiliar with reading graphs.)

Interdisciplinary Connection

Math This activity involves the use of graphs and charts.

Prerequisites and Background Information

Students should have some knowledge of how to read a graph.

IMPLEMENT

Introduce Activity 3-2 by referring to *Activity 3-1: Changes in Girls during Puberty*, in which students discovered that there is a wide range of normal. Explain that this is true for boys as well. Review terms from the chapter that will be used in the graph, such as pubic hair and testes. Go over the Activity in the text with students.

Step 1 Distribute the Activity Reports and review directions.

Step 2 Allow students time to complete the assignment individually, in pairs, or in small groups.

Conclude Activity 3-2 by having students compare answers and create a class chart.

ASSESS

Use the Activity Report responses to assess if students can

✓ identify "normal range" for the developments and changes that occur in boys during puberty.

✓ read a graph.

✓ create a chart from graphed data.

Activity 3-2: Changes in Boys during Puberty – Activity Report Answer Key

- Sample answers to these questions will be provided upon request. **Please send an email to teachers-requests@ck12.org to request sample answers.**

1. Look at Figure 3.5 in your textbook. It shows the changes that take place in boys during puberty and the ages at which those changes are likely to occur.
2. Use the graph to make a chart. The chart will list:
   (a) the four major changes that occur in boys during puberty.
   (b) the most common times for them to occur.
   (c) the wide range of normal during which they can happen.

   To find the *most common* time for each event to occur look at the beginning and end of the dark part of each bar. To find the *normal range* for each event look at the beginning and the end of the dotted part of each bar. The bars do not start and end exactly at the listed ages, so your answers should be approximate, such as "between age 12 and 13" or "almost at age 15."

A.

1. The change most likely to occur **first** is:
2. The most common time for it to occur is
3. The normal range during which it can occur is

B.

1. The change most likely to occur **second** is
2. The most common time for it to occur is
3. The normal range during which it can occur is

C.

1. The change most likely to occur **third** is
2. The most common time for it to occur is
3. The normal range during which it can occur is

D.

1. The change most likely to occur **fourth** is
2. The most common time for it to occur is
3. The normal range during which it can occur is

Activity 3-3: Knowing about Each Other

PLAN

Summary Students find out what worries boys and girls most about the changes that take place during puberty by compiling their own lists of worries, comparing their list with other lists written by members of the same sex, and then discussing the lists with members of the opposite sex.

Objectives

Students:

✓ express their own concerns over the changes of puberty.

✓ listen to the concerns of others.

Student Materials

- Activity Report

Teacher Materials

- Activity Report Answer Key

Advance Preparation

None required

Estimated Time 20-30 minutes

Interdisciplinary Connections

This activity has **Guidance** and **Health** connections. It can be extended to include:

Language Arts Ask students to respond orally or in writing to the following statements as they relate to the changes of puberty.

1. The kinds of statements that bother me or make me uncomfortable are _____.
2. The kinds of actions that bother me or make me uncomfortable are _____.

Then ask students to role-play *appropriate* ways to respond to these types of statements or behaviors, so that they can feel more confident about standing up to situations that make them uncomfortable.

Prerequisites and Background Information

Students should know what the changes are that take place during puberty as explained in Section 3.

IMPLEMENT

Introduce Activity 3-3 by asking students if they worry about the same things now that they worried about 5 years ago. Then ask if they think they worry about the same types of things that adults do. Tell them that many factors affect what we worry about, and that gender plays a role, especially during puberty. Discuss what students have learned about the changes that take place in boys and girls during puberty. Mention that we all need to know about the changes that are taking place in our own bodies, but that it is also important to learn about the changes that members of the opposite sex are going through, too, and that these changes aren't always easy. Tell them that in this activity they try to find out which changes worry boys and girls the most.

Steps 1-2 Review the Introduction and Procedure. Distribute the Activity Report and allow the students 5-6 minutes to write down their individual answers to questions 1 and 2.

Step 3 Divide the class into same-sex groups. The number of groups will depend on how large a group you think is best for your students. Ask each group to compare the group members' lists, keep a tally of how many times the same idea appears, and make a single list for the group of the top five changes that concern boys and the top five changes that concern girls. (Allow 10 minutes.)

Step 4 Have each group take turns sharing its final list either verbally or by writing it on the chalkboard.

Steps 5-6 Ask the class to study the lists to see if boys and girls have accurately predicted what it is that worries the opposite sex. If they have not, then ask the class to discuss the differences following the procedure indicated on the Activity Guide.

Conclude Activity 3-3 by explaining that if we understand the changes that we are all going through, and are aware of what worries us about these changes, then we will be less likely to make statements, or behave in ways, that might embarrass each other.

ASSESS

Use the Activity Report responses, group discussion, and whole class discussion to assess if students can

✓ identify the changes boys go through during puberty.

✓ identify the changes girls go through during puberty.

✓ express their own concerns about the changes of puberty.

✓ listen empathetically to the concerns of others.

Activity Report 3-3: Knowing about Each Other – Activity Report Answer Key

- Sample answers to these questions will be provided upon request. **Please send an email to teachers-requests@ck12.org to request sample answers.**

1. List the five changes that you think are hardest for **boys** to go through at puberty.
2. List the five changes that you think are hardest for **girls** to go through at puberty.
3. List the five changes your **group** thought were the hardest for **boys** to go through.
4. List the five changes that your **group** thought were the hardest for **girls** to go through.

What Do You Think?

How can you best evaluate and control your environment? Give an example of one element in your environment that you can and want to change.

A suggested response will be provided upon request. **Please send an email to teachers-requests@ck12.org.**

Apply Your KNOWLEDGE

According to the *Did You Know?* on this page, the age of menarche has come down significantly in the last 100 years. Based on what you know about factors influencing puberty, what might explain this trend? This trend has stopped at about age 12.8 years. How might you explain why the trend has not continued?

What Do You Think?

With medical advances available today, it is possible to medically treat children who do not enter puberty at the average age. Should we treat children who have not yet entered puberty at the average age or wait for nature to take its course? Why or why not? How long should we wait?

Activity 3-4: Factors Influencing Puberty

PLAN

Summary Students identify those factors from Section 3 that influence growth and development at puberty. They categorize those factors according to whether or not they have control over the factors, then state ways in which the factors can have positive or negative effects. Students come up with a plan to maximize the positive effects of those factors over which they have some control.

Objectives

Students:

✓ recognize factors influencing puberty.

✓ distinguish between positive and negative factors within their control.

Student Materials

- Activity Report

Teacher Materials

- Activity Report Answer Key

Advance Preparation

Decide on group size.

Estimated Time 30-40 minutes

Interdisciplinary Connections

Language Arts If you feel that your class can handle the discussion, ask them to debate what is more important, the factors over which you have control, or those over which you have no control. Another debate could center around whether or not society has a responsibility, a right, or no responsibility to ensure proper nutrition and a healthy environment for its children.

Physical Education/Health Since physical activity is a factor which influences healthy development and is also within some control of the student, ask each member of the class to analyze his or her physical activities and make

a plan for adding healthy activities if they are needed. Discuss activities that might be easy to do with limited time, space, or equipment. (Some examples are isometrics, stretching, situps, push-ups, and walking.)

Social Studies Have students predict what impact situations such as war or famine might have on children going through puberty at the time of crisis.

Prerequisites and Background Information

Students should have read Section 3.

IMPLEMENT

Introduce Activity 3-4 by reviewing with students the factors discussed in Section 3 that affect puberty. Point out that these are not the only factors that influence growth and development. For example, this section does not discuss the role of hormones.

Step 1 Divide the class into groups. The recommended group size is 4-5 students.

Give each group an Activity Report. Review the Introduction and Procedure of the activity. Explain that it may not always be easy to tell which category a factor fits into and that not all members of the group will agree. They will have to decide how they will handle situations involving disagreements. Point out that sometimes a factor might realistically fit in both categories. For example, the students may not be able to control what is cooked at home, but they can probably control how much they eat. They can also try to influence the menu by talking about it with the adult in charge. They might also try to add a third category if they wish, "Things that can be controlled, but not by me, and how I can work to change that."

Step 2 Give the groups 15-20 minutes to fill out their charts and write their paragraphs. Some groups may need longer.

Steps 3-4 Reconvene the class and have each group share its suggestions for positively influencing healthy development.

Conclude Activity 3-4 by having the class combine and summarize the ideas.

ASSESS

Use the group charts to assess the students' understanding that many factors influence puberty, some in a positive way, some in a negative way, and that while some of those factors are within our control, others are not. Use the class discussion and the group paragraphs to assess the students' understanding that there are things they can do to positively impact their growth and development.

Activity 3-4: Factors Influencing Puberty – Activity Report Answer Key

- Sample answers to these questions will be provided upon request. **Please send an email to teachers-requests@ck12.org to request sample answers.**

Some factors influencing puberty include the following.

heredity	family	food	physical activity
genes	friends	sun	emotional factors
air	social class	ethnicity	

In the chart below, list those factors that your group decides you have very little or no control over. Put the factors in the first column. Then, in the next two columns, list one positive way and one negative way that each factor can influence your development.

Why did you decide you had little or no control over these factors? Did everyone in your group agree?

In the chart below, list those factors that your group decides you have some or a great deal of control over. Put the factors in the first column. Then, in the next two columns, list *at least* one positive and one negative way that each factor can influence your development.

As a group, write a paragraph telling other students what they can do to **positively** impact their growth and development.

Journal Writing

Are you ready for all the changes that puberty will bring to you? What changes of puberty do you think will be the easiest and hardest to deal with for you? Why? What are the changes of puberty that you are actually the most excited about? What do you look forward to about growing up and changing?

Review Questions/Answers

- Sample answers to these questions will be provided upon request. **Please send an email to teachers-requests@ck12.org to request sample answers.**

1. What is the difference between a primary and a secondary sexual characteristic?
2. Give two primary changes for boys, and two primary changes for girls.
3. Give two secondary changes for boys, and two secondary changes for girls.
4. What are the major parts of the female reproductive system?
5. What are some of the reasons a female might have irregular periods?
6. Name three factors affecting puberty you can control and three factors you cannot control.

Activity 3-1 Report: Changes in Girls during Puberty (Student Reproducible)

1. Look at Figure 3.2 in your textbook. It shows the changes that take place in girls during puberty and the ages at which those changes are likely to occur.

2. Use the graph to make a chart. The chart will list:

a. the four major changes that occur in girls during puberty.

b. the most common times for them to occur.

c. the wide range of normal during which they can happen.

To find the *most common* time for each event to occur look between the beginning and end of the dark part of each bar. To find the *normal range* for each event look between the beginning and the end of the dotted part of each bar. The bars do not start and end exactly at the listed ages, so your answers should be approximate, such as "between age 12 and 13" or "almost at age 15."

A.

1. The change most likely to occur **first** is _____.
2. The most common time for it to occur is _____.

3. The normal range during which it can occur is _____.

B.

1. The change most likely to occur **second** is _____.
2. The most common time for it to occur is _____.
3. The normal range during which it can occur is _____.

C.

1. The change most likely to occur **third** is _____.
2. The most common time for it to occur is _____.
3. The normal range during which it can occur is _____.

D.

1. The change most likely to occur **fourth** is _____.
2. The most common time for it to occur is _____.
3. The normal range during which it can occur is _____.

Activity 3-2 Report: Changes in Boys during Puberty (Student Reproducible)

1. Look at Figure 3.5 in your textbook. It shows the changes that take place in boys during puberty and the ages at which those changes are likely to occur.

2. Use the graph to make a chart. The chart will list:

a. the four major changes that occur in boys during puberty.

b. the most common times for them to occur.

c. the wide range of normal during which they can happen.

To find the *most common* time for each event to occur, look between the beginning and end of the dark part of each bar. To find the *normal range* for each event, look between the beginning and the end of the dotted part of each bar. The bars do not start and end exactly at the listed ages, so your answers should be approximate, such as "between age 12 and 13" or "almost at age 15."

A.

1. The change most likely to occur **first** is _____.
2. The most common time for it to occur is _____.
3. The normal range during which it can occur is _____.

B.

1. The change most likely to occur **second** is _____.
2. The most common time for it to occur is _____.
3. The normal range during which it can occur is _____.

C.

1. The change most likely to occur **third** is _____.

2. The most common time for it to occur is _____.
3. The normal range during which it can occur is _____.

D.

1. The change most likely to occur **fourth** is _____.
2. The most common time for it to occur is _____.
3. The normal range during which it can occur is _____.

Activity 3-3 Report: Knowing about Each Other (Student Reproducible)

1. List the five changes that you think are hardest for **boys** to go through at puberty.

a. _____

b. _____

c. _____

d. _____

e. _____

2. List the five changes that you think are hardest for **girls** to go through at puberty.

a. _____

b. _____

c. _____

d. _____

e. _____

3. List the five changes your **group** thought were the hardest for **boys** to go through.

a. _____

b. _____

c. _____

d. _____

e. _____

4. List the five changes that your **group** thought were the hardest for **girls** to go through.

a. _____

b. _____

c. _____

d. _____

e. _____

Activity 3-4 Report: Factors Influencing Puberty (Student Reproducible)

Look at the list of factors influencing puberty that were mentioned in Section 3.

heredity	family	food	physical activity
genes	friends	sun	emotional factors
air	social class	ethnicity	

In the chart below, list those factors that your group decides you have very little or no control over. Put the factors in the first column. Then, in the next two columns, list one positive way and one negative way that each factor can influence your development.

TABLE 4.1:

Factor	Positive Effect	Negative Effect

Why did you decide you had little or no control over these factors? Did everyone in your group agree?

In the chart below, list those factors that your group decides you have some or a great deal of control over. Put the factors in the first column. Then, in the next two columns, list *at least* one positive and one negative way that each factor can influence your development.

TABLE 4.2:

Factor	Positive Effect	Negative Effect

As a group, write a paragraph telling other students what they can do to **positively** impact their growth and development.

CHAPTER 5 Hormones and Puberty - Teacher's Guide (Human Biology)

CHAPTER OUTLINE

5.1 PLANNING

5.2 USING HORMONES AND PUBERTY – STUDENT EDITION (HUMAN BIOLOGY)

5.3 ACTIVITIES AND ANSWER KEYS

5.1 Planning

Key Ideas

- Hormones, chemical substances that come from endocrine glands, are released in the bloodstream where specific receptors on target cells pick them up as needed; hormones and cell receptors work like a lock and key.
- The hypothalamus and pituitary glands control the body's reproductive system and its functions through the release of the gonadotrophins, FSH and LH; in the female they cause the production of estrogens and progesterone, and in the male, androgens, primarily testosterone.
- In the female, estrogens and progesterone work in a cycle to maintain the lining of the uterus and sustain pregnancy. Testosterone sustains sperm production in males and helps build muscle in both males and females.
- The hypothalamus works as a thermostat for the body's hormone system. It helps control levels of hormones in the body through a negative feedback system.

Overview

This section examines how hormones function. Students use a puzzle to demonstrate that they know how hormones "fit" with specific receptors on a cell to influence its behavior. The role of glands such as the pituitary gland, the adrenal glands, and the gonads are discussed along with the hormones that they produce. After learning about feedback systems, students perform a relay role-play in which they demonstrate the way glands and hormones work together to create the changes of puberty and to maintain the balance needed to keep the body functioning smoothly.

Objectives

Students:

✓ demonstrate that they understand the way hormones link with certain receptors but not with others.

✓ demonstrate a knowledge of the role that hormones play in overall development.

✓ model the role of specific hormones and glands.

✓ explain what is meant by a feedback system.

Vocabulary

adrenal gland, endocrine glands, estrogen, exocrine glands, follicle-stimulating hormone, gonadotropins, gonadotropin-releasing hormone, gonads, growth hormone, hormones, hypothalamus, luteinizing hormone, nervous system, pituitary gland, progesterone, receptors, steroids, testosterone

Student Materials

Activity 4-1: Glands and Hormones

- Activity Report
- Glue stick or bottle of glue (per team if possible)
- Scissors (per team)

Activity 4-2: All That Happens at Puberty

- Resources 1 and 2
- Name card, role card
- Construction paper, markers
- Scissors (unless you precut the construction paper)

Teacher Materials

Activity 4-1: Glands and Hormones

- Activity Report Answer Key

Activity 4-2: All That Happens at Puberty

- 1 set of name cards per 18 students
- 1 set of role cards per 18 students
- 1 set of intact role cards to use as a guide for giving directions during the relay

Advance Preparation

See Activities 4-1 and 4-2 in the student edition.

Activity 4-1: Glands and Hormones

- Make sure that there are enough scissors and glue available.

Activity 4-2: All That Happens at Puberty

- Decide how you will group your class. There are 18 roles. You can select performers and have then other students watch, or, with enough students, you can have two or more separate groups. It is also possible to give some students more than one role or to eliminate the egg, sperm, bone and tissue, or muscle cards, since they are dead-end cards. Another way to include more students is to have two or more of some cards, for example, two adrenal glands or two or more testosterone cards, since some roles have more than one job.
- Copy one set of name cards and one set of role cards for each group. Cut out the cards.

- Decide where you will conduct the activity. Since it works best if students can spread out in a fairly open space, the gym, lunchroom, or classroom with chairs pushed back works best.
- Gather the necessary supplies.

Interdisciplinary Connections

Social Studies The concept of a feedback system can be applied to social and governmental situations. Many examples can be found in daily life and society.

Background Information

Hormones are chemical substances that are essential for cellular activities that ultimately maintain the homeostatic balance of the body. Hormones can also be thought of as chemical messengers circulating in blood, which control the developmental and metabolic functions of cells and tissues.

The 30 or so hormones produced by a dozen major endocrine glands differ greatly in their chemical conformation and properties. Some, such as hormones produced by the pituitary, are complex proteins. Others, such as the steroid hormones, are smaller, less complex chemicals.

The endocrine and nervous systems are closely integrated. Some chemicals function both as hormones and as neurotransmitters.

Sex hormones affect the body at two levels. At the first level, the impact is permanent as with the changes of puberty. Thus, once a girl develops breasts or a boy grows a beard, the task is accomplished.

The second level of hormone function is the maintenance of bodily functions. Thus, ovaries and testes must continue to produce their hormones to make reproduction possible. In this case, as the body uses hormones, the hormones have to be replenished constantly to sustain the functions they Support.

5.2 Using Hormones and Puberty – Student Edition (Human Biology)

This section examines what it is in the body that triggers the changes of puberty. Students learn about hormones, their function, and the glands that produce them.

Focus on the concept that hormones work with specific receptors on cells. *Activity 4-1: Glands and Hormones* is a visual representation of this concept.

Have students read the material on the specific hormones of puberty. They may want to take notes during this section so that they can keep all the connections clear and maintain a handy reference.

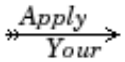
Discuss the concept of a negative feedback system.

Conclude the section with *Activity 4-2: All That Happens at Puberty,* which includes a relay demonstrating the way in which all the hormones and glands of puberty work together to create change.

Mini-Activity

Word Origin: Endocrine, Exocrine Students research the words *endocrine* and *exocrine.*

- A suggested response will be provided upon request. **Please send an email to teachers-requests@ck12.org.**



Why does the body need both a nervous system and an endocrine system to regulate its function?

5.3 Activities and Answer Keys

Activity 4-1: Glands and Hormones

PLAN

Summary Students cut out and put together models of hormones and receptors. At the end of the activity students will be able to explain why hormones attach themselves to certain cells but not to others.

Objectives

Students:

✓ explain that hormones link with certain receptors but not with others.

✓ demonstrate how hormones link with certain receptors but not with others.

Student Materials

- Activity Report
- Glue stick or bottle of glue (per team if possible);
- Scissors (per team)

Teacher Materials

- Activity Report Answer Key

Advance Preparation

Make sure that there are enough scissors and glue available.

Estimated Time 30 minutes

Interdisciplinary Connections

Physical Education/Health Have half the class represent cells. Divide the cells into five equal groups. Assign each group a different arm position, for example, right arm up, left arm to the side, or both hands clasped. These positions represent receptor sites on the cell. The other half of the class represents hormones. Divide the hormones into five groups, and give them each an arm position that corresponds to, or links with, the positions held by the receptor sites. Have the cells scatter themselves around the room, then freeze in position. Next, tell the hormones to flow through the cells until they come to one that matches their arm position. The cell and the receptor should then link up and wait until as many hormones as possible have found receptors.

After playing the game, ask students to explain why this game represents hormones and receptors.

Social Science Have students identify other examples of lock-key arrangements in the world around them. For example, some banks are designed to sort coins by shape and size.

Prerequisites and Background Information

None required

IMPLEMENT

Introduce Activity 4-1 Ask students to explain why only the correct key will open any given lock. Explain that hormones and receptors work on the same principle-only the receptors and hormones that "match" each other work together.

Step 1 Review the portion of the text that describes the way receptors work. Divide the class into pairs or teams. Distribute Activity Reports and review the Instructions and Procedure. Ask one member of each team to get the scissors and the glue.

Steps 2-5 Give the class 15 minutes to cut out the pieces and glue them in place.

Step 6 When they are done, ask them to discuss the process as a group, then answer the two questions on the back of the Activity Report.

Conclude Activity 4-1 by discussing the answers to the questions as a class.

ASSESS

Use the finished product and the Activity Report to assess if students can

✓ explain that hormones link with certain receptors but not with others.

✓ demonstrate how hormones link with certain receptors but not with others.

What Do You Think?
What do you think would happen if the body didn't begin producing more and different hormones at puberty?

What Do You Think?
Now that you know something about what hormones can do, what do you think is meant by the phrase "raging hormones"? Why is the term often used when talking about adolescents?

Activity 4-1: Glands and Hormones – Activity Report Answer Key

- Sample answers to these questions will be provided upon request. **Please send an email to teachers-requests@ck12.org to request sample answers.**

1. In your own words, explain how hormones link up with specific cells.
2. List three things that hormones can cause cells to do. If you are unsure, check back in your text.

- A suggested response will be provided upon request. **Please send an email to teachers-requests@ck12.org.**

How can a small gland like the pituitary produce so many hormones?

Social Feedback Students create stories or poems that describe a social feedback system.

Apply Your KNOWLEDGE

The feedback system discussed here is a negative feedback system. Why? What might a positive feedback system be?

Activity 4-2: All That Happens at Puberty

PLAN

Summary Students act out the roles of various hormones and body parts in order to see how the hormones of puberty affect change and growth. They have to understand their roles, give commands, and locate the next part of the chain.

Objectives

Students:

✓ assume the role of one of the hormones or organs important in puberty.

✓ demonstrate a knowledge of the part that the hormone or organ plays in overall development.

Student Materials

- Resources 1 and 2
- Name card; Role card; Construction paper; Scissors (unless you precut the construction paper); Markers

Teacher Materials

- 1 set of name cards per 18 students
- 1 set of role cards per 18 students
- 1 set of intact role cards to use as a guide for giving directions during the relay

Advance Preparation

Decide how you will group your class. There are 18 roles. You can select performers and have the other students watch, or, with enough students, you can have two or more separate groups. It is also possible to give some students more than one role, or to eliminate the egg, sperm, bone and tissue, or muscle cards. Another way to include more students is to have two or more of some cards, for example, two adrenal glands or two or more testosterone cards, since some roles have more than one job.

Copy one set of name cards and one set of role cards for each group. Cut out the cards.

Decide where you will conduct the activity. Since it works best if students can spread out in a fairly open space, the gym, lunchroom, or classroom with chairs pushed back works best.

Gather the necessary supplies.

Estimated Time 30-40 minutes

Interdisciplinary Connections

This Activity has **Science/Health** connections. It can be expanded to include:

Science If you wish to make the above activity a little more complex, have students turn the background information on their role cards into part of their script. For example, the hypothalamus could say, “Hi, I’m the hypothalamus and I’m located above the pituitary gland. I produce GnRH and send it to the pituitary gland. I also. . .”

Art Have students, as groups or individuals, create a chart using cartoon-type characters to explain the role of each part in the chain of hormones and glands.

Prerequisites and Background Information

Students should have read the text through Section 4.

Students need to know the parts of the reproductive system from earlier sections.

IMPLEMENT

Introduce Activity 4-2 by explaining to the students that this activity will put together all the pieces from the previous sections and show how hormones influence the growth and development they have been studying.

Step 1 Review the information in Section 4 with your students. Review the Instructions and the Procedure.

Steps 2-4 Group students and pass out the name cards and role cards. Let them have a few minutes to make their name tags. Some students may want to shape their tags to reflect their role or draw appropriate pictures on them.

Step 5 Identify the player who has the hypothalamus. Tell that student that he or she will go first. Walk students through the first step or two before you have them go back and start on their own. Try to stand back and let them work out the glitches on their own, but step in when needed. You might want to repeat the activity a few times until it becomes smooth, and they can see all the connections.

Step 6 If you have two or more groups perform, they may either work simultaneously or take turns and watch each other.

Conclude Activity 4-2 with a class discussion about the process.

ASSESS

Use the relay and the discussion that follows to assess if students can

✓ identify where hormones are produced.

✓ explain the function of hormones.

✓ describe and demonstrate how hormones fit together.

Journal Writing

Close your eyes and imagine your hormonal system at work. Hormones are surging through your body, passing in and out of some cells, binding to others. What does it feel like? What might it look like artistically, not scientifically? Draw your impression of what's going on under your skin or describe it with words.

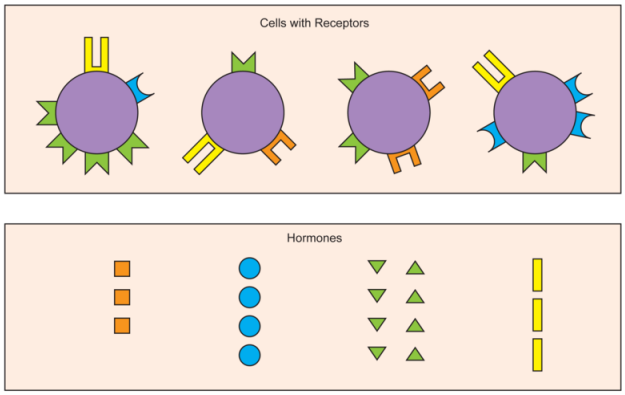
Review Questions/Answers

- Sample answers to these questions will be provided upon request. **Please send an email to teachers-requests@ck12.org to request sample answers.**

1. What are hormones? Name three body functions they affect.
2. What is the difference between endocrine and exocrine glands?
3. How do cells know which hormones to bind to?
4. What is the difference between the pituitary gland and the hypothalamus?
5. How do FSH and LH stimulate the production of other hormones?
6. What do testosterone, estrogen, and progesterone do in males and females?
7. What is a feedback system? How does it work?

Activity 4-1 Report: Glands and Hormones (Student Reproducible)

Refer to the Activity Guide on p. 00 of your text.



1. In your own words, explain how hormones link up with specific cells.

2. List three things that hormones can cause cells to do. If you are unsure, check back in your text.

a. _____

b. _____

c. _____

Activity 4-2 Resource 1: All That Happens at Puberty (Student Reproducible)

TABLE 5.1: Name Cards

HYPOTHALAMUS	**PITUITARY GLAND**
GnRH	**HGH**
FSH IN THE MALE	**FSH IN THE FEMALE**
LH IN THE MALE	**LH IN THE FEMALE**
ESTROGEN	**PROGESTERONE**
OVARIES	**TESTES**
ADRENAL GLANDS	**TESTOSTERONE**
EGG	**SPERM**
BONE & TISSUE	**MUSCLE**

Activity 4-2 Resource 2: All That Happens at Puberty (Student Reproducible)

TABLE 5.2: Role Cards

HYPOTHALAMUS

- You are located above the pituitary gland.
- You produce GnRH and send it to the pituitary gland to tell it when to release hormones.
- You do this when the levels of testosterone rise or fall and signal you to slow down or increase production.

"GnRH, go tell the pituitary gland to release hormones!" (to start the game)
"Okay everybody, slow down production of hormones!" (to end the game)

GnRH

- You are a hormone produced by the hypothalamus.
- The hypothalamus sends you to the pituitary gland, where you cause the pituitary gland to produce and release the hormones LH and FSH.

"Pituitary gland, make FSH and LH!"
FSH IN THE MALE

- You are a hormone produced by the pituitary gland after a signal from the hypothalamus.
- The pituitary gland sends you to the testes.
- There you stimulate the production of sperm cells.

"Testes, make sperm cells!"
LH IN THE MALE

- You are a hormone produced by the pituitary gland after a signal from the hypothalamus.
- You are sent to the testes by the pituitary gland.
- When you are there, you make the cells produce testosterone.

"Testes, make testosterone!"

PITUITARY GLAND

- You are a pea-sized organ located at the base of the brain.
- You are controlled by the hypothalamus.
- When it sends GnRH, you:

1. produce and release HGH.
2. produce and release FSH.
3. produce and release LH.

- You also control the adrenal gland and tell it to release testosterone.

"HGH, go build bone and tissue!"
"FSH and LH, go to the testes in the male!"
"FSH and LH, go to the ovaries in the female!"
"Adrenal glands, produce testosterone!"
HGH

- You are a hormone produced by the pituitary gland.
- You regulate growth of bone and tissue.
- When the pituitary tells you to, you do your job.

"Bone and tissue, it's time to grow!"

FSH IN THE FEMALE

- You are a hormone produced by the pituitary gland after a signal from the hypothalamus.
- The pituitary gland sends you to the ovaries.
- You tell the ovaries to make an egg mature in the follicle cells.

"Ovaries, make an egg mature in the follicle cells!"
LH IN THE FEMALE

- You are a hormone produced by the pituitary gland after a signal from the hypothalamus.
- You are sent to the ovaries by the pituitary gland.
- After LH makes an egg mature, you cause the follicle cells to produce progesterone.

"Ovaries, produce progesterone in the follicle cells!"

TABLE 5.2: (continued)

HYPOTHALAMUS
ESTROGEN

- You are produced in the follicle cells of the ovaries as the egg matures at a signal from the hormone FSH.
- You help with sexual maturation, the menstrual cycle, and reproduction.

"I'm helping make sexual maturation, the menstrual cycle, and reproduction possible!"
OVARIES and FOLLICLE CELLS

- You are located in the lower abdomen.
- The hormone FSH tells you to make an egg in the follicle cells mature.
- As the egg matures, you produce estrogen in the follicle cells.
- Once the egg is mature, the hormone LH tells you to make progesterone.

"Egg, it's time to mature!"
"I'll make estrogen while you mature!"
"Now I'll make progesterone!"

BONE and TISSUE

- The hormone HGH makes bone and tissues grow.

"Thanks, HGH! We're growing now."

EGG

- You are stored in the follicle cells of the ovaries in the female.
- No new eggs are formed during puberty.
- You mature at a signal from the hormone FSH.

"Okay, FSH, I'll mature now!"

PITUITARY GLAND
PROGESTERONE

- You are produced in the ovaries by the follicle cells after the egg matures at a signal from the hormone LH.
- You help with sexual maturation, the menstrual cycle, and reproduction.

"I'm helping make sexual maturation, the menstrual cycle, and reproduction possible!"
TESTES

- The pituitary gland sends the hormone FSH to you
- It tells you to stimulate the production of sperm cells.
- The pituitary sends LH to you. It tells you to produce testosterone.
- When there is too much testosterone, the rising level sends a signal to the hypothalamus and the pituitary to slow down production of hormones.

"Okay, I'll make sperm now!"
"Now I'm making testosterone!"
"Oops, testosterone, I think. I've made too much, so send signal!"
MUSCLES

- Muscle growth is affected by the hormone testosterone in both males and females.

"Hooray! We're growing now!"
SPERM

- You are produced and stored in the testes of the male.
- You begin being produced at puberty at a signal from the hormone testosterone and continue to be produced throughout a male's lifetime.

"Okay, I'm ready to find an egg!"

TABLE 5.2: (continued)

HYPOTHALAMUS **ADRENAL GLANDS**	**PITUITARY GLAND** **TESTOSTERONE**
• You are located above the kidneys. • You are controlled by the pituitary gland. • When it tells you to, you produce testosterone and release it.	• You are produced in the testes at a command from LH, and told to stimulate the production of more sperm. • You are also produced in the adrenal glands at a command from the pituitary gland and told to build more muscle in both males and females. • The level of testosterone in the body lets the hypothalamus and pituitary know when it is time to slow down or increase the production of hormones.
"Testosterone, go build muscle!"	**"I'm going to go build muscle: Grow, muscle!"** **"Testes, make more sperm!"** **"Oops, there's too much of me! Hypothalamus and pituitary, slow down your production of hormones!"**

CHAPTER 6 The Menstrual Cycle - Teacher's Guide (Human Biology)

CHAPTER OUTLINE

6.1 PLANNING

6.2 USING THE MENSTRUAL CYCLE - STUDENT EDITION (HUMAN BIOLOGY)

6.3 ACTIVITIES AND ANSWER KEYS

6.1 Planning

Key Ideas

- The pituitary gland produces gonadotropins (FSH and LH) resulting in two cycles-the ovarian cycle that involves egg maturation and release and the menstrual cycle which prepares the uterus every month for possible implantation.
- While boys produce a steady supply of sperm through their adult lives, women are born with a finite number of eggs, only a fraction of which ever mature between puberty and menopause.
- Menarche is a girl's first period. Her periods may be irregular for a while, but then settle down to a fairly predictable cycle-about 28 days in length, with each period lasting 2-7 days.
- Menstruation may cause some discomfort due to cramping or premenstrual syndrome, both of which can be managed through diet, exercise, or mild medical treatment.

Overview

This section is a detailed description of the menstrual cycle. Students use graphs to determine the ways in which the hormonal, ovarian, and menstrual cycles are connected. They examine what is taking place in each cycle at a given moment, then describe what they observe. Students are informed about the process of menstruation and how the flow is managed by the use of tampons or pads. The fact that periods are often irregular at first is brought up, as well as the fact that some women experience some discomfort, while other women barely notice that they are menstruating. Through discussion groups, girls examine their feelings about menstruation, and boys learn to understand what girls experience each month.

Objectives

Students:

✓ interpret data from related charts and diagrams.

✓ explain the relationship between the hormonal, ovarian, and menstrual cycles during each phase of menstruation.

✓ discuss the experience of menstruation.

Vocabulary

anemia, dysmenorrhea, follicle, ovulation, premenstrual tension syndrome, toxic shock syndrome, uterus

Student Materials

Activity 5 -1: How Does the Menstrual Cycle Work?

- Activity Report

Teacher Materials

Activity 5-1: How Does the Menstrual Cycle Work?

- Activity Report Answer Key

Advance Preparation

See Activity 5-1 in the student edition.

Activity 5-1: How Does the Menstrual Cycle Work?

- Carefully review the charts and diagrams prior to teaching the lesson. They are complex.

Interdisciplinary Connections

Math Students calculate percentages.

Language Arts Several of the *What Do You Think?* questions lend themselves to debate. Discussion groups help students develop communication skills, and can lead to essay or journal writing.

Background Information

The idea that menstruation renders a women "unclean" is an ancient belief that has been part of many cultures, including Judaism. However, the Old Testament also considers men to be "unclean" after ejaculation, although that fact has not attracted as much public attention. It is not clear why a normal bodily function should have taken on such a ritualistic meaning. Ancient societies may have been awed by bodily fluids that are associated with the reproductive organs. Blood, in particular, has induced both awe and fear as the vital fluid that sustains life.

6.2 Using The Menstrual Cycle - Student Edition (Human Biology)

This section looks at the menstrual cycle in detail. Tell students that just as there are many things going on in their lives at the same time, there are also many things going on in their body simultaneously. The menstrual system is a complex feedback system.

Activity 5-1: How Does the Menstrual Cycle Work? demonstrates how the hormonal, ovarian, and menstrual cycles overlap and work together. This is an activity that will be difficult to do independently. It might be a good idea to group students who are knowledgeable about reading and interpreting charts and graphs with those who have less experience.

Have students read the material that describes the experience of menstruation.

How Thick Is the Uterine Lining? Students calculate by what percent the endometrium thickens during the menstrual cycle.

6.3 Activities and Answer Keys

Activity 5-1: How Does the Menstrual Cycle Work?

PLAN

Summary Students learn that menstruation results from three cycles working together by analyzing charts and diagrams that illustrate the hormonal, ovarian, and menstrual cycles. They develop their own descriptions of the relationships among the cycles.

Objectives

Students:

✓ interpret data from related charts and diagrams.

✓ explain the relations hip among the hormonal, ovarian, and menstrual cycles during each phase of menstruation.

Student Materials

- Activity Report

Teacher Materials

- Activity Report Answer Key

Advance Preparation

Carefully review the charts and diagrams prior to teaching the lesson. They are complex.

Estimated Time 30-40 minutes

Interdisciplinary Connections

Art Create a page from a medical calendar for a month, with diagrams of changes in the ovaries and uterus as the illustrations at the top, and little notes on the appropriate days of the week. For example, on Tuesday, June 3, the notation might read: "On this day, the levels of both FSH and LH begin to rise . . ."

Prerequisites and Background Information

Students should have knowledge of the process of menstruation and should have read Section 5.

IMPLEMENT

Introduce Activity 5-1 by explaining that, like most things in life, the menstrual cycle is not simple. It is a result of the interaction of many different elements. In this activity students observe how all the different parts of the process relate.

Step 1 Review the information from Section 5 on menstruation. Review the Introduction and Procedure. Determine how familiar students are with reading graphs. Model how to read the data. Make sure they understand how each set of graphs and diagrams fits together.

Steps 2-4 Distribute the Activity Reports. Allow the students 20 minutes to analyze the graphs and record their answers. Depending on your class, you may want to have the students work alone, in pairs, or as teams. Another option is to have them work alone, then pair with a partner to compare and refine their answers.

Conclude Activity 5-1 by asking several members of the class to share their answers or by creating a class answer key.

ASSESS

Use the Activity Report responses to assess if students can

✓ interpret data from related charts and diagrams.

✓ explain the relationship among the hormonal, ovarian, and menstrual cycles during each phase of menstruation.

Activity 5-1: How Does the Menstrual Cycle Work? – Activity Report Answer Key

- Sample answers to these questions will be provided upon request. **Please send an email to teachers-requests@ck12.org to request sample answers.**

[Insert Image Here]

Days 1-7

1. What is happening in the ovaries?
2. What changes occur in the uterus?
3. What is happening to the levels of ovarian hormones, estrogen and progesterone?
4. What is happening to the pituitary hormones, FSH and LH?
5. What relationships do you see between all these events?

Days 7-14

1. What is happening in the ovaries?
2. What changes occur in the uterus?
3. What is happening to the levels of ovarian hormones, estrogen and progesterone?
4. What is happening to the pituitary hormones, FSH and LH?
5. What relationships do you see between all these events?

Days 14-21

1. What is happening in the ovaries?
2. What changes occur in the uterus?
3. What is happening to levels of the ovarian hormones, estrogen and progesterone?
4. What is happening to the pituitary hormones, FSH and LH?
5. What relationships do you see between all these events?

Days 21-28

1. What is happening in the ovaries?
2. What changes occur in the uterus?
3. What is happening to levels of the ovarian hormones, estrogen and progesterone?

4. What is happening to the pituitary hormones, FSH and LH?
5. What relationships do you see between all these events?

A suggested response will be provided upon request. **Please send an email to teachers-requests@ck12.org.**

Apply Your KNOWLEDGE

- **How can a girl best keep herself healthy before and during menstruation?**
- **List the factors which may affect the regularity of menstruation.**

What Do You Think?

1. Some judges have acquitted (let go) women accused of violent crimes committed while suffering from severe PMS. This is based on the argument that people under conditions of diminished responsibility cannot be held accountable for what they do. Do you agree or not? What are your reasons?

2. If people cannot be held responsible for their actions during periods of temporary physiological circumstances, should they be allowed to engage in risky activities where others may be hurt (flying an airplane)?

Journal Writing

Girls: The onset of menstruation is not predictable. What would you do if your period started during school?

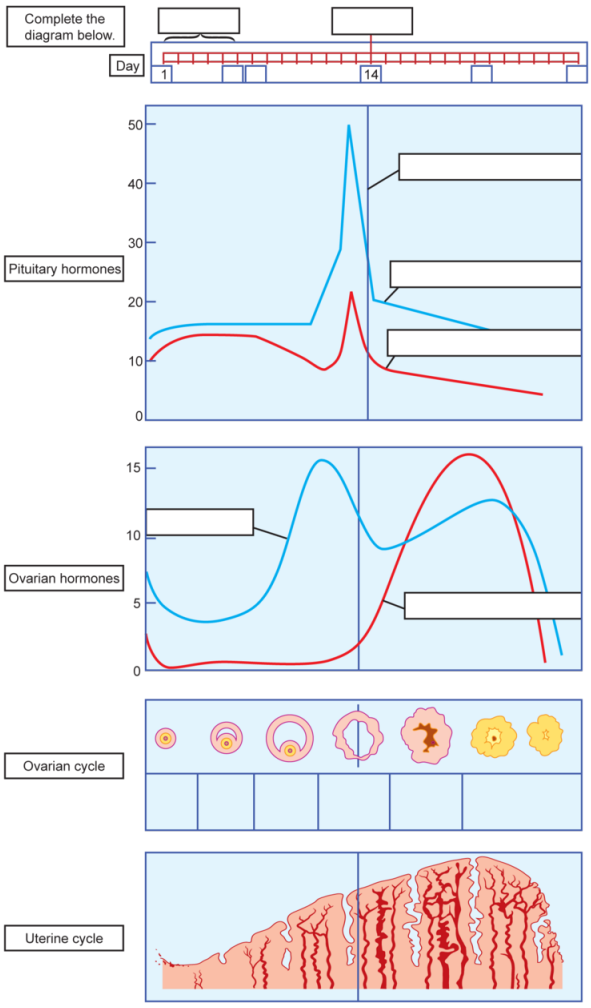
Boys: Voice changes are unpredictable, and sometimes so are erections. What would you do if your voice kept cracking while you were trying to give a presentation in class?

Review Questions/Answers

- Sample answers to these questions will be provided upon request. **Please send an email to teachers-requests@ck12.org to request sample answers.**

1. What is the difference between the ovarian cycle and the menstrual cycle?
2. At the time of ovulation, describe where the menstrual, ovarian, and hormonal cycles are.
3. When does menstruation usually occur during puberty?
4. What are the pros and cons of tampon and sanitary pad use?
5. What common discomforts might a girl experience? Explain.
6. List the factors that may affect the regularity of menstruation.

Activity 5-1 Report: How Does the Menstrual Cycle Work? (Student Reproducible)



Fill in the blank boxes on the chart. Then answer the questions that follow.

Days 1-7

1. What is happening in the ovaries?
2. What changes occur in the uterus?
3. What is happening to the levels of ovarian hormones, estrogen and progesterone?
4. What is happening to the pituitary hormones, FSH and LH?
5. What relationships do you see between all these events?

Days 7-14

1. What is happening in the ovaries?
2. What changes occur in the uterus?
3. What is happening to levels of the ovarian hormones, estrogen and progesterone?

4. What is happening to the pituitary hormones, FSH and LH?
5. What relationships do you see between all these events?

Days 14-21

1. What is happening in the ovaries?
2. What changes occur in the uterus?
3. What is happening to levels of the ovarian hormones, estrogen and progesterone?
4. What is happening to the pituitary hormones, FSH and LH?
5. What relationships do you see between all these events?

Days 21-28

1. What is happening in the ovaries?
2. What changes occur in the uterus?
3. What is happening to levels of the ovarian hormones, estrogen and progesterone?
4. What is happening to the pituitary hormones, FSH and LH?
5. What relationships do you see between all these events?

CHAPTER 7

Gender Identity and Body Image - Teacher's Guide (Human Biology)

CHAPTER OUTLINE

7.1 PLANNING

7.2 USING GENDER IDENTITY AND BODY IMAGE – STUDENT EDITION (HUMAN BIOLOGY)

7.3 ACTIVITIES AND ANSWER KEYS

7.1 Planning

Key Ideas

- Gender identity and gender role result from two sources-biology and culture-and affect one's identity at all levels and ages.
- Hormones contribute to feelings of aggression and emotional expression (moodiness) in humans and other animals. It is difficult to separate biological, social, and cultural differences in behavior.
- Puberty brings physical, emotional, and self-concept changes. We adapt to change to maintain a sense of self and identity.
- The changes of puberty can create self-consciousness and uncertainty about oneself. Being either a fast or a slow maturer can create both social advantages and disadvantages, which even out by late adolescence.

Overview

This section is about how adolescents see themselves. It begins with a discussion of gender, and how gender influences our behavior. Through discussions, students examine gender differences, first in terms of preferences, and then in terms of behavior. Both the influence of culture and the impact of hormones are studied as they relate to gender. Aggression is one of the issues addressed. As a group, students identify concerns felt by boys, concerns felt by girls, and common concerns about the changes that accompany puberty. The desire to be "normal" and the fear of being different are two of the most consistent worries felt by both girls and boys.

Objectives

Students:

✓ distinguish between gender identity and gender role.

✓ examine gender differences and similarities.

✓ analyze the reasons for the differences.

✓ discuss perceived gender behavior differences.

✓ analyze the reasons for the differences.

✓ develop a list of positive behaviors that apply to both sexes.

✓ identify the physical, emotional, and social changes of puberty.

✓ compare concerns.

Vocabulary

aggression, gender, gender identity, gender role, peers, sex-discrimination law, stress

Student Materials

Activity 6-1: Gender Differences

- Activity Report

Activity 6-2: Behavior Differences

- Activity Report

Activity 6-3: Who Me-Worry?

- Activity Report

Teacher Materials

Activity 6-1: Gender Differences

- None required

Activity 6-2: Behavior Differences

- Activity Report Answer Key

Activity 6-3: Who Me-Worry?

- Activity Report Answer Key

Advance Preparation

See Activities 6-1, 6-2, and 6-3 in the student edition.

Interdisciplinary Connections

Language Arts Debate One Mini Activity asks students to compose a letter. Debate and discussion groups help students develop communication skills, and can lead to essay or journal writing.

Social Studies Students can examine the influence of culture in determining gender roles. Also, adaptation plays an important role in the development of cultures as well as individuals.

Background Information

Every society we know of makes certain distinctions between males and females with respect to their sense of themselves and their behaviors, sexual and otherwise.

Why these differences exist is not entirely clear. Both biological and cultural factors appear to be at play, but scientists are not in agreement about how this works. To complicate matters further, what little evidence there is suggests that gender identity seems to be determined by how a person is raised. Yet gender role-behavior, how masculine or feminine a child behaves, seems to be influenced by prenatal, hormonal influences.

The sensible approach here is to maintain an open mind until we know more about these issues, rather than to assert dogmatically that all gender differences are either biologically based or socially constructed.

The issue of difference has already come up several times in this unit, but this section provides yet another opportunity to deal with this important concept.

It is important to help students learn not to equate being average with being normal. Being average is a statistical concept. In reality there is a range of differences that encompass individuals who are normal in the sense of being healthy, without being average.

It also is important to help students learn that being different may be perfectly normal, but may require some adjustment.

Finally, students need to realize that puberty and adolescence are periods of change. There is little point to worrying about what you are going to be like until development is complete. There is little point in judging a batch of half-baked cookies.

7.2 Using Gender Identity and Body Image – Student Edition (Human Biology)

This section focuses on gender, how it impacts our behavior, and how our views about it are shaped.

Start by distinguishing between gender, gender role, and gender identity. As students complete *Activity 6-1: Gender Differences*, ask them to think about which elements are shaping their responses.

The topic of aggression is dealt with in detail. Read the section on aggression before beginning *Activity 6-2: Behavior Differences.* Make sure students learn that most behavior is learned behavior.

The last portion of this section deals with the anxiety produced by being either an early or late developer. Once again, reinforce the idea that there is a wide range of normal, but that by the end of puberty, many of the differences between them will have evened out. Conduct *Activity 6-3: Who Me-Worry?*

What Do You Think?
Can girls and boys be different in some ways, yet be treated as social equals?

What Do You Think?
Can you think of any social scripts that tell us how to behave in certain social situations? How do gender role expectations affect you in adolescence?

7.3 Activities and Answer Keys

Activity 6-1: Gender Differences

PLAN

Summary Students identify their favorite activities and interests, then survey the class to see if some activities are primarily of interest to the boys, while others are primarily of interest to the girls. Through discussion, they determine some of the reasons that these differences in interest occur between boys and girls.

Objectives

Students:

✓ share interests.

✓ look for gender differences and similarities.

✓ analyze the reasons for the differences.

Student Materials

- Activity Report

Teacher Materials

- None required

Advance Preparation

Question 9 requires students to demonstrate activities that they have prepared. You will need to determine ahead of time how elaborate you want their presentations to be and plan accordingly. It is also possible to eliminate question 9 and simply end with the discussion.

Estimated Time 30 minutes for the Activity Report and discussion portion of the activity

Question 9 will need to be assigned and planned on one day (10-15 minutes) and done the next day, or several days later. The time will vary greatly depending on the type of presentations.

Interdisciplinary Connections

Math Using the information gathered in the activity, have students create a bar graph which compares how many boys and how many girls like each activity. Alternatively, have students calculate what percentage of the boys and what percentage of the girls participate in each activity.

Prerequisites and Background Information

None required

IMPLEMENT

Introduce Activity 6-1 by discussing some favorite things you and the class enjoy.

Steps 1-2 Have students think quietly about their favorite things that they do for fun. Give them two minutes. Distribute the Activity Report, and review the Procedure.

Steps 3-4 When they have identified their favorite activities have them share their answers and add activities to a master list. You may want to create an overhead transparency to which you can add activities.

Steps 5-8 Have the class vote on which activities they enjoy the most. Record the votes by boys and girls. Look for preferences by sex. Have them discuss questions 6-8 in their text. Focus on where and how they learned the activity, and why they enjoy it.

Step 9 Group the class by sex. If the class is large, you may need two groups of boys and two groups of girls. Each group will plan to teach an activity to a group of the opposite sex. They should select an activity that they really enjoy, but that they think the opposite sex doesn't do very often. For example, string games are often played by girls, but not by boys. You will have to set your own restrictions on how much time you want the activity to take, and how much time you want to give the groups to prepare.

Conclude Activity 6-1 by having the students present their activities to each other. Discuss their reactions.

ASSESS

Use the Activity Report responses and the class discussion to assess if students can:

✓ share interests.

✓ identify gender differences and similarities.

✓ analyze the reasons for the differences.

Mini-Activity

Debate! Students debate the sentence, "If women can choose to stay at home to raise the kids or develop a career, a man should have the same choice."

What Do You Think?

Why is it that girls are now raised to be anything they want-from housewives to presidents-yet most boys are raised to develop some career? Why are men, but not women, subject to the military draft? Think about other examples of differences in roles and expectations for men and women. Are they set by "nature," or by "culture"? Do you agree or disagree with the examples you find?

Mini-Activity

Who Says So? Students name three sources of information about how they are supposed to behave, besides their family, friends, or peer group, and rank them according to how much these sources influence them.

What Do You Think? Think of a situation in which you "flew off the handle." How has an act of emotionality or aggressiveness hurt those around you unnecessarily? What could you say or do to improve the situation or repair the damage?

What Do You Think?

If in America aggression is largely culturally linked, should we as a society try to change our parenting styles? What positive side of aggression might we want to still keep?

Mini-Activity

It's Never Too Late Students write or call someone to whom they owe an apology.

Activity 6-2: Behavior Differences

PLAN

Summary Students look at their own behavior, then compare it to the behavior of other members of their sex. They also look at the behavior of the opposite sex and see if they can make any generalizations. Through discussion they try to identify the reasons for the differences they see and develop a list of behaviors that they would like to see all people follow, regardless of sex.

Objectives

Students:

✓ discuss perceived gender behavior differences.

✓ analyze the reasons for the differences.

✓ develop a list of positive behaviors that apply to both sexes.

Student Materials

- Activity Report

Teacher Materials

- Activity Report Answer Key

Advance Preparation

None required

Estimated Time 30-40 minutes

Interdisciplinary Connections

Art Turn the list called *Ways That Human Beings Should Behave* into an illustrated wall chart, post it, and use it as a set of class standards of behavior.

Language Arts Ask students to talk with their parents about the way that opportunities and expectations have changed for the sexes since the parents or guardians were children. Was there anything that their parents or guardians would have liked to do, but couldn't because of restrictions or perceptions? Are there any behaviors that they know they have developed because it was expected of them as a man or a woman? What do they hope will be different for their children? Students should report what they learned from their discussions.

Prerequisites and Background Information

None required

IMPLEMENT

Introduce Activity 6-2 by reinforcing the idea that they are to focus on actions and behaviors in this activity.

Step 1 Review the Procedure. Distribute the Activity Reports and ask students to write their individual answers to the first question. Allow them about 5 minutes.

Steps 2-3 Divide the class into same sex groups. The size of the groups will depend on the nature of the class, and how many groups you want to have report back to the class. Tell them to describe what they consider to be general boy behaviors, and what they consider to be general girl behaviors. Remind them that the behavior doesn't have to be true of everyone in the group for it to be put on the list. It just has to be representative of a large number. Remind them to describe behaviors in a neutral way, rather than judging the behaviors. Ask each group to select a discussion leader and a recorder to record their list, or write a paragraph, then walk around the classroom as they conduct their discussions. This should take about 10 minutes, but you may want to give them more time if their discussions seem to be going well.

Steps 4-5 When groups have finished their discussions, ask them to choose a spokesperson. Reconvene the class and have the groups take turns comparing their findings. Let the boys respond to what the girls say about them, and let the girls respond to what the boys say about them. Remind them again that the descriptions are of groups, not of individuals, and that the descriptions should be neutral rather than judgmental. Next, conduct a class discussion of question 5 on the Activity Report.

Step 6 As a final activity, divide the class into mixed sex groups of 4-8 students and have them complete the section on the Activity Report titled *Ways That Human Beings Should Behave.*

Conclude Activity 6-2 by sharing the final lists in a whole-class discussion. You may want to combine the answers into a single class list.

ASSESS

Use the Activity Report and discussions to assess if students can

✓ discuss perceived gender behavior differences.

✓ analyze the reasons for the differences.

✓ develop a list of positive behaviors that apply to both sexes.

Activity 6-2: Behavior Differences – Activity Report Answer Key

- Sample answers to these questions will be provided upon request. **Please send an email to teachers-requests@ck12.org to request sample answers.**

TABLE 7.1:

How Do I Behave?
How Do Boys Behave?

TABLE 7.2:

How Do Girls Behave?
Ways That Human Beings Should Behave

A suggested response will be provided upon request. **Please send an email to teachers-requests@ck12.org.**

Apply Your KNOWLEDGE

What are some ways teenagers can control aggressiveness? If aggressive behavior is directed at you, what are some ways you can deal with it?

What Do You Think?

Sometimes when boys act aggressively, it is excused with the expression, "Boys will be boys." Based on what you are learning, how do you feel about this statement?

What Do You Think?

- What makes change stressful? How does anticipated change (going to high school) differ from unanticipated change (getting sick)?
- How do biological changes (puberty, aging) differ from social changes (moving and making new friends, getting fired, financial success)?

Mini-Activity

Changes Happen Around You, Too Students identify changes taking place around them.

Activity 6-3: Who Me-Worry?

PLAN

Summary Students think about the changes of puberty that worry them the most and try to predict what worries others. They then compare answers, reach consensus on common concerns, and offer suggestions to each other on how to cope with the many changes of puberty.

Objectives

Students:

✓ identify the physical, emotional, and social changes of puberty.

✓ compare concerns.

Student Materials

- Activity Report

Teacher Materials

- Activity Report Answer Key

Advance Preparation

None required

Estimated Time 40 minutes

Interdisciplinary Connections

Language Arts Have students use the ideas generated to write a "Dear Abby" type of column in which they create sample letters about worries during puberty, and then generate answers about how to cope with each problem. Each student could address a different concern, and then all answers could be compiled in a single "advice column."

Prerequisites and Background Information

None required

IMPLEMENT

Introduce Activity 6-3 by explaining that the class will have an opportunity to share concerns about all the changes that are happening to them physically, emotionally, and socially. Review the Procedure. Remind students about the proper way to talk about sensitive material. They are to listen attentively and respectively. They should respond positively when possible, and express differing views calmly, without resorting to insults or put-downs.

Step 1 Distribute the Activity Reports and ask students to write their individual answers. Allow them about 5 minutes.

Step 2 Divide the class into groups. These can be same-sex groups or mixed groups, depending on your preference. The size of the groups will depend on the nature of the class, and how many groups you want to have report back to the class. Give each group about 8 minutes to compare answers, add to their own lists, and come up with new ideas. Encourage groups to develop 12 or so ideas.

Step 3 Ask each group to select a spokesperson. Ask each spokesperson to share one idea at a time from each category with the class. Continue sharing ideas until all ideas have been reported. Then ask the class to add any remaining concerns they can think of.

Step 4 Ask everyone to silently choose the three items that worry them the most. As a class, vote on what the three most common concerns in each category are.

Step 5 Conduct a class discussion to let students share ideas on how to cope with these problems. If you Wish, show the class the suggested responses for the Activity Report, which were compiled by students in South Oldham, Kentucky. Compare it to your class list. Talk about how most of the worries about puberty are universal.

Conclude Activity 6-3 by having the students complete

Step 6. Give them 5 quiet minutes to write a paragraph on the back of their Activity Report or in their journal about what worries them the most, and how they intend to cope with that worry.

ASSESS

Use the individual responses on the Activity Report, the group interaction, and the whole-class discussions to assess if students can

✓ identify the physical, emotional, and social changes of puberty.

✓ compare concerns.

✓ demonstrate their sensitivity to the concerns of others.

Activity 6-3: Who Me-Worry? – Activity Report Answer Key

- Sample answers to these questions will be provided upon request. **Please send an email to teachers-requests@ck12.org to request sample answers.**

(Compiled by 7th Grade Students, South Oldham, KY)

TABLE 7.3:

Things both girls and boys worry about during puberty	Things girls (but not boys) worry about during puberty	Things boys (but not girls) worry about during puberty

What Do You Think?

What are some strategies for dealing with life's stresses? How do you handle being different? How can you help someone else? How can you develop confidence in your own strengths and interests-especially if they aren't like everyone else's?

What Do You Think

- Who has the harder adjustment when off-time-girls or boys?
- What advantages do you feel you have at this age?
- Why do you choose the friends you do? Why is it important to be with people like you? Different from you?

Journal Writing

How much do you feel that the fact that you are a girl or a boy influences the way that you think, the way that you feel, the way you behave, the things that you do, the opportunities you are given, and the way that others think about you? In your opinion, how much of this is because you were born a boy or a girl, and how much is because of the culture around you?

Review Questions/Answers

- Sample answers to these questions will be provided upon request. **Please send an email to teachers-requests@ck12.org to request sample answers.**

1. What is the difference between gender and sex when describing males and females?
2. What is the difference between gender identity and gender role?
3. To what should we attribute the gender differences in aggression and emotional expression? Explain.
4. How does the term *adaptation* apply to puberty and adolescence?
5. What are three consequences of being off-schedule for early maturers? Late maturers?
6. What are three sources of stress for adolescents?

Activity 6-1 Report: Gender Differences (Student Reproducible)

Refer to p. 00 in your text for the instructions to this activity.

TABLE 7.4:

Interests and Activities	Boys	Girls
1. television		
2. talking with friends on the phone		

TABLE 7.4: (continued)

Interests and Activities	Boys	Girls
3. going to a friend's house		
4. hanging out somewhere		
5. shopping		
6. electronic games		
7. computers		
8. make something or build something		
9. go for a walk or be alone		
10. cook		
11. take lessons		
12. shoot baskets		
13. play a team sport such as:		
14. collect something such as:		
15. play a board game or cards		
16. help someone		
17. read a book or magazine		
18. trade secrets with a friend		
19. have a party		
20. go to an arcade		
21. play with animals		
22. see a movie		
23. art:		
24. music:		
25. dance:		
26.		
27.		

Activity 6-2 Report: Behavior Differences (Student Reproducible)

Think about the following questions, first as they apply to you as an individual, then as they apply to boys in general, then as they apply to girls in general.

How do you interact with your same-sex peers? How do you behave near members of the opposite sex? How do you relate to adults? How do you behave at school? How do you behave in a crowd? How do you behave with strangers? How do you react when you are angry? How do you react when you are sad? How do you react when you are lonely? How do you react when you are hurt? What about disappointed, scared, worried, proud, happy, confused, and bored? How do you react when you are being teased? How do you respond to others when they are feeling any of the ways just mentioned? How aware are you of how others are feeling? How do you handle problems that require physical strength or difficulty? How do you handle situations that require thinking and planning? How do you let others know how you feel? How do you make friends? How do you act when playing a game? How do you act when you win or lose?

TABLE 7.5:

How Do I Behave?	
How Do Boys Behave?	

TABLE 7.5: (continued)

How Do I Behave?

TABLE 7.6:

How Do Girls Behave?	Ways That Human Beings Should Behave

Activity 6-3 Report: Who Me-Worry? (Student Reproducible)

TABLE 7.7:

Things both girls and boys worry about during puberty	Things girls (but not boys) worry about during puberty	Things boys (but not girls) worry about during puberty
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.
5.	5.	5.
6.	6.	6.
7.	7.	7.
8.	8.	8.
9.	9.	9.
10.	10.	10.
11.	11.	11.
12.	12.	12.
13.	13.	13.
14.	14.	14.
15.	15.	15.
16.	16.	16.
17.	17.	17.
18.	18.	18.

CHAPTER 8 Harmful Ways of Changing Yourself - Teacher's Guide (Human Biology)

CHAPTER OUTLINE

8.1 PLANNING

8.2 USING HARMFUL WAYS OF CHANGING YOURSELF – STUDENT EDITION (HUMAN BIOLOGY)

8.3 ACTIVITIES AND ANSWER KEYS

8.1 Planning

Key Ideas

- Cultural ideals of beauty (among other things) create a lot of stress for young adolescents whose bodies are rapidly changing.
- Anorexia nervosa, which is characterized by excessive activity and excessive dieting, and bulimia, which is characterized by bingeing and purging, are common eating disorders mainly among women (although some adolescent boys can become obsessed with weight, as well).
- Steroid abuse occurs more often with boys, but can happen among girls as well. As with eating disorders, it reflects poor self-esteem and an unhealthy obsession with body image.

Overview

This section expands on the concern adolescents often feel about body image. Students explore some of the negative ways in which teenagers try to change themselves to fit unrealistic ideals. Anorexia and bulimia are two of the eating disorders that are often associated with negative self-image, especially in girls. Although boys can be anorexic or bulimic, it is less common. Steroid abuse, on the other hand, is more common among boys than girls. All of these problems are dangerous and can create serious, sometimes deadly health problems. As a class, students develop a healthy and realistic definition of attractiveness that includes behavior and physical appearance.

Objectives

Students:

✓ examine harmful ways of changing oneself, including anorexia, bulimia, and steroid use.

✓ define attractiveness as more than looks.

✓ recognize that being attractive and sexy are not the same.

Vocabulary

anabolic steroids, anorexia, bulimia

Student Materials

Activity 7-1: What Is Attractiveness?

- Activity Report

Teacher Materials

Activity 7-1: What Is Attractiveness?

- Activity Report Answer Key

Advance Preparation

See Activity 7-1 in the student edition.

Interdisciplinary Connections

Language Arts Role-playing and discussion groups help students develop communication skills and can lead to essay or journal writing.

Background Information

The issue of weight and body image must be placed in proper perspective. At its most general, most societies have loosely defined standards of physical attractiveness, of which body weight is an important component. (There is also some evidence that certain universal characteristics underlie sexual attractiveness. For example, in our culture, a waist to hip ratio of 7 to 10 is generally judged to be most attractive in women.)

Since we are all part of our culture, adherence to such standards is usually taken for granted (though one can always reject them too).

Within this broad group there are some that are especially preoccupied with their weight. These persons fall into a gray area in terms of the normality of their self-image. Also, there is a small group of lout of 100,000 persons who suffers from anorexia. Since the term anorexic has come to be so loosely used, it is important not to alarm students by suggesting that any preoccupation with the body (unnecessary as it may be) indicates a case of anorexia.

8.2 Using Harmful Ways of Changing Yourself – Student Edition (Human Biology)

Start by asking the students where they think they got their idea of what it is to be attractive or beautiful. Ask them how important it is. Point out that sometimes students take their desire to look a certain way to an extreme that is harmful.

Read the material on anorexia, bulimia, and steroid use (pp. 00-00).

Conduct *Activity 7-1: What Is Attractiveness?* and conclude by creating a new, healthy, class definition of attractiveness.

A suggested response will be provided upon request. **Please send an email to teachers-requests@ck12.org.**

Apply Your KNOWLEDGE

When is dieting healthy, and when is it unhealthy?

What Do You Think?

Have you ever dieted? Do you know someone else who has dieted? How do you know when you are finished with your diet?

Mini-Activity

How Can You Get Your Friends to Eat Healthily, Too? Students think of three new ideas for social events with friends that encourage healthy eating.

A suggested response will be provided upon request. **Please send an email to teachers-requests@ck12.org.**

Apply Your KNOWLEDGE

Suppose that you know a friend at school who seems to be losing weight very, very quickly, and also seems to be exercising at every opportunity-jogging to and from school, as well as exercising during lunch and after school. What other symptoms might you look for if you suspect anorexia? What would you do if you suspected this person had anorexia? What resources are available for help? If you don't know, how can you find out?

Journal Writing

What do you think creates the unrealistic and often unhealthy body image that is so popular these days?

What Do You Think?

How do people get to the point of abusing their bodies in such unhealthy ways? What causes us to hurt ourselves-overeating, drinking, drugs, violence? Are these problems of the individual or of society as a whole? What should society do to help people avoid choosing these destructive paths?

8.3 Activities and Answer Keys

Activity 7-1: What Is Attractiveness?

PLAN

Summary Students talk about what it means to be attractive, focusing on behavior and not just physical appearance. At the end of the activity they will be able to demonstrate what attractive and unattractive behaviors look like.

Objectives

Students:

✓ define attractiveness as more than looks.

✓ recognize that being attractive and sexy are not the same.

Student Materials

- Activity Report

Teacher Materials

- Activity Report Answer Key

Advance Preparation

None required

Estimated Time 45 minutes

Interdisciplinary Connections

Art Have the class create two collages, one of people from magazines and ads who are supposed to be attractive, the second of real people that they know, love, and find attractive. Everyone could contribute two pictures, one to each collage, or they can draw pictures if they have no photographs to share.

Prerequisites and Background Information

None needed

IMPLEMENT

Introduce Activity 7-1 by going over *Step 1* of the Activity Report with the students. Remind the class about the proper way to conduct discussions. They are to listen attentively and respectively. They should respond positively when possible and express differing views calmly, without resorting to insults or put-downs.

Step 2 Divide the students into four discussion groups. If your class is large, you might consider eight discussion groups. Ask each group to choose a discussion leader, a recorder to take notes, and a spokesperson who will report back to the entire class. As the groups conduct their discussions, walk around the classroom and stop to listen to each group. Facilitate when necessary. Allow them about 8-10 minutes, but extend or cut short the time based on how the discussions are going.

Step 3 Reconvene the class and have the groups take turns comparing their findings. Give each group a set period of time, such as 2 minutes, to report to the class, and give the class 3 minutes to respond before moving on to the next group. You might want to appoint a timekeeper. After the discussion, send them back to their small groups to prepare their demonstration, as described in Step 3 of their Procedure. All about 4 minutes.

Step 4 Take turns having each group present its version of attractive and unattractive behavior.

Conclude Activity 7-1 by creating a class definition of attractive behavior.

ASSESS

Use the discussion groups and group presentations to assess if students can:

✓ define attractiveness as more than looks.

✓ recognize that being attractive and sexy are not the same.

✓ identify the influence of the media on our perceptions.

Activity 7-1: What Is Attractiveness? – Activity Report Answer Key

- Sample answers to these questions will be provided upon request. **Please send an email to teachers-requests@ck12.org to request sample answers.**

Discussion Topics

Group A: How is being attractive different from being sexy? Who decides what is attractive about the way that people look? Who decides what is attractive about the way that people behave? Is it possible for your group to describe what you think it means to be an attractive person, following the dictionary definition of the word?

Group B: Are males and females judged by the same standards when it comes to attractiveness? Try to describe an attractive male. Next describe an attractive female. Have you focused on the same types of characteristics? Have you looked more at physical appearance or behavior?

Group C: Do television, magazine, and other media images reflect or create our attitudes toward what is attractive? In other words, do we think people are attractive if they look like the people we see on TV, or are the people on TV chosen because how they look is what we find attractive? Should people on television and in ads do a better job of reflecting what real people look like?

Group D: What if someone simply doesn't fit the physical definition of attractive. Can they still be attractive? How? Sometimes people dress in ways that go against the usual standard for attractiveness. What are some of the reasons? Does it matter? Should we judge people more by the way that they look or the way that they behave? Should we judge people at all?

Journal Writing

What are some physical traits about yourself that you think are nice? (hair, eyes, shape of your fingers, skin . . .) Remember, they don't have to be perfect! What are the behavior traits that you think help to make you an attractive person? What things do you like to be valued for? Try to write an objective and positive paragraph about yourself. This isn't bragging, and it doesn't mean that there might not be some things you'd like to change . . . it's just focusing on what is already good.

Review Questions/Answers

- Sample answers to these questions will be provided upon request. **Please send an email to teachers-requests@ck12.org to request sample answers.**

1. Create a Venn diagram of the similarities and differences between anorexics and bulimics?
2. What are five possible harmful side effects of steroid use:
3. What are three things eating disorders and steroid use have in common?
4. What does negative self-image mean, and how does it relate to the topics discussed in this chapter?
5. Where do you go for help if you or someone you know needs help?

Activity 7-1 Report: What Is Attractiveness? (Student Reproducible)

Discussion Topics

Group A: How is being attractive different from being sexy? Who decides what is attractive about the way that people look? Who decides what is attractive about the way that people behave? Is it possible for your group to describe what you think it means to be an attractive person following the dictionary definition of the word?

Group B: Are males and females judged by the same standards when it comes to attractiveness? Try to describe an attractive male. Next describe an attractive female. Have you focused on the same types of characteristics? Have you looked more at physical appearance or behavior?

Group C: Do television, magazine, and other media images reflect or create our attitudes toward what is attractive? In other words, do we think people are attractive if they look like the people we see on TV, or are the people on TV chosen because how they look is what we find attractive? Should people on television and in ads do a better job of reflecting what real people look like?

Group D: What if someone simply doesn't fit the physical definition of attractive. Can they still be attractive? How? Sometimes people dress in ways that go against the usual standard for attractiveness. What are some of the reasons? Does it matter? Should we judge people more by the way that they look or the way that they behave? Should we judge people at all?

CHAPTER 9 Feeling Good about Yourself - Teacher's Guide (Human Biology)

CHAPTER OUTLINE

9.1 PLANNING

9.2 USING FEELING ABOUT GOOD YOURSELF – STUDENT EDITION (HUMAN BIOLOGY)

9.3 ACTIVITIES AND ANSWER KEYS

9.1 Planning

Key Ideas

- Self-esteem is how you feel about yourself. It comes from your feelings about your attractiveness, body, accomplishments, personality, values, social interactions, family, ethnicity, talents, and interests.
- Puberty can be a challenging time of life, and sometimes it is hard to feel good about yourself. Improving self-esteem doesn't just happen. You have to work at it, by choosing positive activities and/or setting realistic goals.
- Keeping your body looking and feeling at its best through exercise, good nutrition, and good health habits will help build self-esteem and a positive sense of identity, which will help you cope with the challenges of puberty.

Overview

This section focuses on positive ways that adolescents can handle the stress brought on by the changes of puberty. Students explore the ways in which a balanced diet, exercise, and good health habits contribute to well being. As a group, students use what they have learned throughout this unit to create an ad campaign designed to show adolescents how to stay healthy and develop a positive self-image. Students culminate this unit by identifying their own special qualities, and by acknowledging the good in others through their writing.

Objectives

Students:

✓ examine the effects of diet, exercise, and good health habits on well-being.

✓ identify healthy body images.

✓ devise a campaign to promote positive self-esteem.

Vocabulary

body image, self-esteem

Student Materials

Activity 8-1: Healthy Bodies and Feeling Good

- Activity Report
- Old magazines for examining typical ads or cutting up for brochures; Construction paper; Scissors; Markers or crayons; Glue; "Props" brought in by students

Activity 8-2: What Makes You Special?

- Activity Report
- 1 set of note cards per student

Teacher Materials

Activity 8-1: Healthy Bodies and Feeling Good

- Activity Report Answer Key

Activity 8-2: What Makes You Special?

- Activity Report Answer Key
- Blank set of note cards for making a personalized class set of note cards.

Advance Preparation

See Activities 8-1 and 8-2 in the student edition.

Activity 8-1: Healthy Bodies and Feeling Good

- Decide how detailed you want the final projects to be and how much time you will allow for completion. For example, to expand the project you could tell students to prepare their presentations for videotaping or have them combine their final products into a health magazine. To simplify the project, you could limit the students to making a poster only, which could be completed during the first class time or given as homework.
- Decide how large you want the groups to be and how you want to divide the students.
- Gather the student materials. Students could be asked to bring in magazines ahead of time.
- If possible, have resource books available for students to use.

Activity 8-2: What Makes You Special?

- You will need to create a personalized set of note cards for your class.
- Copy enough Activity Report pages to give you one blank space for each student. (For example, with 30 students you will need to run four Activity Reports to create 30 blank spaces.)
- In the small space at the top of each box write in the names of your students, one in each box. You will then have a master copy of notes for your class.
- Copy one class set of note cards for each student.
- If you wish, you can copy blank notes and have the students fill the names in. However, this will take more class time and can be confusing to the students.
- Decide whether or not you will let the students skip any classmates.

Interdisciplinary Connections

Language Arts Mini Activities provide several Journal Writing opportunities. The creation of an ad campaign will involve writing and presenting skills.

Social Studies AIDS is a serious societal problem. Activities discuss the issues raised by the epidemic.

Art Students create an ad campaign.

Background Information

Unfair as this may seem, there is good evidence that people who are physically attractive are also assumed to be more intelligent, competent, trustworthy, and so on.

Most adolescents don't believe the argument that looks don't or should not matter. The best we can do with young people is to help them place physical attractiveness in a proper perspective. This means judging people as a whole and not simply by how they look, not being duped by appearances, and finding ways to make the most of what we have.

Who the person is matters as much as how he or she looks. Especially relative to men, social or psychological factors are usually judged by women to be more important than looks. And when it comes to the choice of a mate, clearly much more is at stake than looks. Attitude towards these issues during adolescence has a critical impact on these key life choices.

There is no solid body of science to help you teach these subjects. As teachers we must be careful not to impose our own personal values, perspectives, and prejudices on our students. However, there is still much room for the judicious use of our own life experiences (and common sense) in teaching these subjects.

It also may be reassuring to know that there is no right answer to many of these questions. Especially in a diverse and pluralistic society such as ours, there are many ways of developing into healthy and happy adults. Our task is to facilitate that passage, whatever reasonable path our students choose.

9.2 Using Feeling about Good yourself – Student Edition (Human Biology)

In the last section students addressed negative ways of dealing with self-image. In this section they concentrate on positive ways of dealing with stress and change. Start by asking students what positive things they do to regain control when the world seems to be too tough to deal with.

Read the material on Taking Care of Your Body. Have students give examples of ways they already do these things, or point out those suggestions that are hard to follow and examine why.

Conduct *Activity 8-1: Healthy Bodies and Feeling Good.* This might work well as a cooperative effort with the Language Arts class.

Read the material on self-esteem. Conclude with *Activity 8-2: What Makes You Special?*

Summarize the changes identified in the unit and ask students what they have learned about coping with those changes.

How Does What You Eat Make You Feel? Students keep a journal for a month and see how they feel and react to outside influences and internal functions.

Who Are You? Students choose the five most distinguishing characteristics they see about themselves. They then choose the five most distinguishing characteristics that they think others see about them.

Beauty from the Inside Students think about a boy and a girl at school who they feel are attractive. They identify the behavior traits and personality traits that make these people attractive. They then examine whether these traits are different for boys and girls.

The Messages You Send Students look around at people and examine what messages people send out about themselves and how they feel about themselves based on what they wear and how they use their natural features.

9.3 Activities and Answer Keys

Activity 8-1: Healthy Bodies and Feeling Good

PLAN

Summary Students develop an ad campaign to let others know about healthy ways to improve body image and self-esteem. They also warn others about the dangers of making bad choices.

Objectives

Students:

✓ identify healthy body images.

✓ develop a campaign to promote positive self-esteem.

Student Materials

- Activity Report
- Magazines for examining typical ads or cutting up for brochures
- Construction paper
- Scissors
- Markers or crayons
- Glue
- Props brought in by students

Teacher Materials

- Activity Report Answer Key

Advance Preparation

Decide how detailed you want the final projects to be and how much time you will allow for completion. For example, to expand the project you could tell students to prepare their presentations for videotaping, or have them combine their final products into a health magazine. To simplify the project, you could limit the students to making a poster only, which could be completed during the first class time or given as homework.

Decide how large you want the groups to be and how you want to divide the students.

Gather the student materials. Students could be asked to bring in magazines ahead of time.

If possible, have resource books available for students to use.

Estimated Time

Day 1 30-40 minutes to work in teams and plan (Additional time may be needed outside of class.)

Day 2 20-40 minutes to complete projects and rehearse

Day 3 Approximately 8 minutes per group to present ad campaigns

This schedule could be condensed or expanded by simplifying the final product.

Interdisciplinary Connections

Art Find three examples of ads that show extremely thin women or overly bulked-up males and re-do them to reflect more natural bodies.

Language Arts Have the class put the ads they created together in a magazine. Have them tide the magazine with a creative name. Each team should be responsible for researching and writing articles on topics of adolescent health. The magazine could include information from previous sections as well as Section 8.

Prerequisites and Background Information

Students read the text of Section 8 as their research.

IMPLEMENT

Introduce Activity 8-1 by reading or reviewing the first half of Section 8 with the students. Review the Procedure. Let them know that Section 7 can also serve as a resource.

Steps 1-6 Divide the students into teams (5-6 students per team). Distribute the supplies. Give the students time guidelines for each step of the project. You may want to note the times on the board. As the teams work, offer suggestions and keep them on track. Make sure the teams make plans to evenly and fairly divide up any work that might need to be done at home.

Step 7 On the day of the presentations, remind students about the rules for being a good audience. Set a time limit for each presentation depending on the number of teams. Ask students who are watching to evaluate each presentation based on how accurate the information is and how persuasive and convincing the campaign is.

Conclude Activity 8-1 with a discussion about the best ways to convince young people to make healthy choices.

ASSESS

Use the chart, the advertising plan, and the presentations to assess if students can

✓ identify healthy body images.

✓ develop a campaign to promote positive self-esteem.

✓ identify both positive and negative ways of trying to change self-esteem and body image.

✓ plan and work efficiently as a group.

Activity 8-1: Healthy Bodies and Feeling Good – Activity Report Answer Key

- Sample answers to these questions will be provided upon request. **Please send an email to teachers-requests@ck12.org to request sample answers.**

TABLE 9.1: Positive Ways of Changing Your Image and Your Self-esteem

Physically	Mentally

TABLE 9.2: Negative Ways of Changing Your Image and Your Self-esteem

Physically	Mentally

"Healthy Bodies and Feeling Good"

Plan for Advertising Campaign

1. In the following space, develop an advertising plan, explaining what you would do and why you think it would work with young people. Refer to your instruction page for more details.
2. In this space, sketch or describe the three actual ads that you will create. Attach extra paper if needed.

What Do You Think?
Do you believe in the underlying story of "Beauty and the Beast"? Why or why not?

I Like Myself Because . . . Students think about three traits they like in themselves and whether or not other people can see these traits. They then think of ways to highlight these traits.

I'm Not Crazy about . . . Students think about one or two qualities that they do not value about themselves and how other people see these traits. They then think of ways to improve these aspects.

Next Time I'll . . . Students choose to (1) Do something positive for themselves, or (2) Do something for others the next time they find themselves dwelling on themselves. They keep a list of actions taken.

What Do You Think?
What makes people shy? Do you think shyness is biological (and therefore genetic) or a learned social behavior? What can you do about shyness?

Activity 8-2: What Makes You Special?

PLAN

Summary Students practice giving and receiving compliments through notes written to one another.

Objectives

Students:

✓ identify positive qualities in classmates.

✓ communicate effectively.

✓ practice giving and receiving compliments.

✓ listen and respond to classmates with empathy.

Student Materials

- Activity Report
- Set of note cards

Teacher Materials

- Activity Report Answer Key
- Blank set of note cards for making a personalized class set of note cards

Advance Preparation

You will need to create a personalized set of note cards for your class.

Copy enough Activity Report pages to give you one blank space for each student. (For example, with 30 students you will need four Activity Reports to create 30 blank spaces.)

In the small space at the top of each box write in the names of your students, one in each box. You will then have a master copy of notes for your class that looks like this.

TABLE 9.3:

Sue	**Bob**	**JaRhome**
Angela	**Chester**	**Miriam**
Manisha	**Miguel**	**Josh**

Sample Activity 8-2 Report

Copy one class set of note cards for each student.

If you wish, you can copy blank notes and have the students fill the names in. However, this will take more class time and can be confusing to the students.

Decide whether or not you will let the students skip any classmates.

Estimated Time

Day 1 30 minutes to write

Day 2 15 minutes to distribute notes and reflect (This can be done on the same day if the teacher has the time to screen and cut up messages.)

Interdisciplinary Connections

Music Compose and perform a song, dedicated to someone special.

Language Arts Write a letter to someone who did something nice for you that you never got around to thanking. It's never too late!

Physical Education/Health Set up a relay in which students must tag each other with a compliment before the next runner can run.

Social Studies How do people in other cultures feel about giving and receiving compliments? What is proper etiquette in different countries?

Prerequisites and Background Information

None required

> **Helpful Hints**
> This is a good activity to do on Valentine's day or near Thanks giving, if you have the option.

Everyone in the class gets a little special recognition and thanks.

IMPLEMENT

Introduce Activity 8-2 by giving three compliments to your class. Explain that thanking people or letting them know that we appreciate them is something we often forget to do. Explain that this activity will give them a chance to make someone else feel good. Review the Procedure. Give some samples of appropriate comments they might make and those they should avoid, keeping the nature of your class in mind. Discuss reasons many people have a hard time giving or receiving compliments.

Steps 1-2 Allow 20-30 minutes to write, or if you prefer, assign this as homework so that they can give a little more thought to what they write.

Step 3 Collect the notes and screen them for inappropriate or hurtful comments. Then cut the notes up and redistribute them to the class.

Step 4 Ask students to reflect on what their classmates wrote about them.

Conclude Activity 8-2 by asking students to think about someone outside of the classroom that they could say something nice to later in the day. You may want them to report back to the class what reactions they received to their comments.

ASSESS

Use the notes and the discussions to assess if students can

✓ identify positive qualities in classmates.

✓ communicate effectively.

✓ practice giving and receiving compliments.

✓ listen and respond to classmates with empathy.

Activity 8-2: What Makes You Special? – Activity Report Answer Key

Journal Writing

In your last journal entry you focused on the positive things you already are. Now add to this by writing about what the kind of person you would like to become. Think about all aspects of your life as well as how you relate with others.

Review Questions/Answers

- Sample answers to these questions will be provided upon request. **Please send an email to teachers-requests@ck12.org to request sample answers.**

1. What are three things you can incorporate into your daily life to improve how your body looks and feels?
2. What does "You are what you eat" mean?
3. What are three elements of good health habits?
4. How do self-esteem and body image work together?
5. What are some ways of building self-esteem?
6. How does taking control of your life relate to self-esteem?

Activity 8-1 Report: Healthy Bodies and Feeling Good (Student Reproducible)

TABLE 9.4: Positive Ways of Changing Your Image and Your Self-esteem

Physically	Mentally

TABLE 9.5: Negative Ways of Changing Your Image and Your Self-esteem

Physically	Mentally

1. In the following space, develop an advertising plan, explaining what you would do, and why you think it would work with young people. Refer to your instruction page for more details.

2. In this space, sketch or describe the three actual ads that you will create. Attach extra paper if needed.

Activity 8-2 Report: What Makes You Special? (Student Reproducible)

CHAPTER 10 Additional Resources Your Changing Body - Teacher's Guide (Human Biology)

CHAPTER OUTLINE

10.1 USING GROUPWORK ACTIVITIES

10.2 PROJECTS

10.3 ADDITIONAL RESOURCES

10.4 YOUR CHANGING BODY GLOSSARY

10.1 Using GroupWork Activities

These GroupWork activities are the same for the three unit s in HumBio that fall under the heading Adolescent Topics. These three units are titled *Your Changing Body, Sexuality,* and *Reproduction.* If you choose to do all three units, we suggest you implement the GroupWork activities after you have completed the last of the three units. If you choose to do only one of the units, such as this one, we suggest you do the GroupWork activities after you have completed this unit. It is not necessary to do all of these units. However, if you choose to do all three units, it is not necessary to do them in any specific order.

Learning science is a process that is both individual and social. Like researchers, engineers, mathematicians or physicians who work in teams to answer questions and to solve problems, students in science classrooms often need to interact with their peers to develop deeper knowledge of scientific concepts and ideas. The GroupWork activities were developed to foster an environment in which groups of students work cooperatively to:

- plan experiments,
- collect and review data,
- ask questions and offer solutions,
- use data to explain and justify their arguments,
- discuss ideas and negotiate conflicting interpretations,
- summarize and present findings,
- and explore the societal implications of the scientific enterprise.

The Group work environment is one in which students are "doing science" as a team. Suggestions about when to introduce these group activities are included in the Teacher Activity Notes.

Format and Organization of GroupWork Activities

Each GroupWork activity includes teacher activity notes, an activity guide, an individual report, resource materials, and at times, data sheets. The activity guide contains instructions for the group's task and questions to be discussed as students plan for and work on a group product. Resource materials are varied. They might include textual information, visual resources such as photos, drawings, graphs or diagrams, video, or audiotapes. Individual reports by students are an integral part of each activity to be completed in class or as part of a homework assignment. Planning information for the teacher is found on the Teacher Activity Notes page.

Sets of GroupWork activities are organized around a central concept or a basic scientific question-a "big idea." Ideally, as students rotate to complete these activities, they encounter this central idea, question, or concept in different scientific contexts or in different social settings. These rotations provide students with multiple opportunities to grapple with the material, explore related questions and dilemmas, look at different representations, and think of different applications. Figure 1 shows how students rotate from activity to activity around the "big idea."

The GroupWork activities were designed to be open-ended to foster the development of higher-order thinking skills. Such open-endedness allows students to decide as a group how to go about completing the task, as well as what the final group product might be. Open-ended group activities increase the need for interaction as students serve as resources for one another, draw upon each other's expertise and knowledge, and take advantage of their different problem-solving strategies. When groups are heterogeneous and include students with many different intellectual abilities, the repertoire of strategies and previous experiences is rich and diverse. As students interact with their peers, they learn how to communicate effectively, justify their arguments when challenged, and examine scientific problems from different perspectives. Such interaction scaffolds students' knowledge of scientific concepts and principles.

These GroupWork activities then are quite different from traditional lab activities that include more step-by-step

procedures and are crowded with details. In addition to reading, writing, and computing (the traditional academic abilities), students use many different intellectual abilities to complete their task. They make observations, pose questions, plan investigations; they use and create visual models, access and interpret scientific information from different sources and from different media, and convey scientific findings in diagrams, graphs, charts, or tables. The use of a wide array of resource materials provides students with additional ways to access and use information, as well as with additional opportunities to demonstrate their intellectual competence and be recognized for their contributions. We have included in the Teacher Activity Notes a partial list of some of the multiple abilities students might be observed using in these group activities.

When group activities are open-ended, rich, and intellectually demanding, a single student will not be able to complete the task in a timely fashion by himself or herself. Making students responsible as a group to interpret a challenging task and to design a common product or group presentation increases group interdependence. Teachers know, however, that it is also important to hold each student personally accountable for contributing to the group's success and for mastering the concepts or the big idea of the activity. To do so, students are required to complete individual written reports in which they respond in their own words to key discussion questions and summarize what they have learned in the group activity. These written responses can be useful for teachers in gauging and monitoring student understanding and progress.

Role of the Teacher Planning ahead and organizing the classroom for GroupWork is important for the successful implementation of group activities. We suggest that you refer to Elizabeth Cohen's book, Designing GroupWork: Strategies for Heterogeneous Classrooms, published by Teachers College Press in 1994. (See also Lotan, R.A., J.A. Bianchini, and N. C. Holthuis (996). "Complex Instruction in the Science Classroom: The Human Biology Curriculum in Action," in R. J. Stahl, (Ed.) *Cooperative Learning in Science. A Handbook for Teachers,* Addison-Wesley Publishing Company)

Many teachers have realized that when students work in groups, direct instruction is no longer practical. The teacher can't be everywhere at once, telling students exactly what to do and how to do it. Thus, teachers delegate authority to students and students take responsibility for their own behavior and their own learning. Rather than constantly turning to the teacher for help, students talk with each other to find out what they should be doing and to solve the challenging problems assigned to them. Teaching students to work collaboratively and to be responsible to one another as a group is an important prerequisite for successful GroupWork. Students also support the smooth operation of groups when they have learned to play different roles in their groups effectively. For example, the facilitator sees to it that everyone in the group knows what has to be done and gets help when necessary. The recorder keeps notes of the group's discussions and checks to see if individual reports have been completed. The materials manager sees to it that the group has all the equipment necessary and that the tables are cleared at the end of the lesson. The reporter presents the findings of the group during wrap-up time. When the activity involves hazardous materials, a safety officer might be needed. Every student must have a role to play, and roles rotate so students learn how to perform each role competently.

Delegating authority doesn't mean that the teacher with draws from the class or completely stays out of the action. Instead of being the focal point of the classroom, the teacher carefully observes the students as they work in the groups, stimulates and extends their thinking, and provides specific feedback.

Equalizing Participation among Members of the Group Making sure that all members of the group have access to the materials and that one group member doesn't take over or dominate the group while another withdraws are among the principal challenges of GroupWork. Teachers can increase participation of students by explaining how the different intellectual abilities are relevant to the successful completion of the task. The teacher states that while no one group member has all the abilities, everyone in the group has some of the intellectual abilities necessary to complete the task successfully. Furthermore, after careful observation of the students' work in groups, the teacher can publicly acknowledge those students who have made relevant contributions and explain specifically how these contributions made the group move forward and become more successful. It is important that the teacher be able to notice the intellectual contributions of students who have low academic or peer status, and who are frequently left out of group interactions. These strategies are particularly relevant in untracked classrooms, where students have a wide range of previous academic achievement (mainly in reading) or where significant proportions of students are

English-language learners. Teachers, classmates, and the low-status students themselves need to understand that when many different intellectual abilities are necessary to complete a task successfully, every body's contribution becomes critical to the success of the group. As more previously low-achieving students feel and are expected to be competent, their participation in the group increases, and subsequently their learning achievements increase as well.

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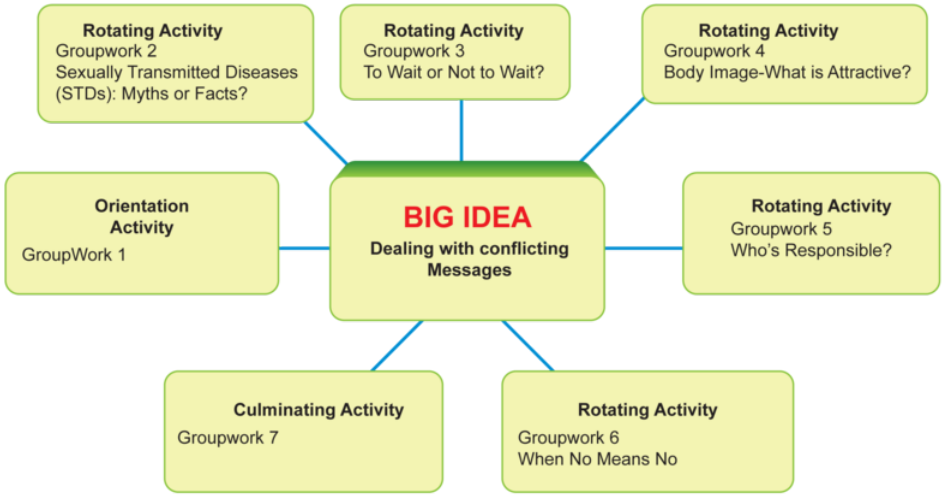

Figure 1 Activity Rotation in GroupWork

GroupWork Contents

TABLE 10.1:

Activity	Duration	Materials	Activity Summary
1. Orientation Activity:	30 minutes	None required	Students analyze decisions made by teenagers in popular TV shows about sexually related issues.
2. Sexually Transmitted Diseases (STDs):Myths or Facts?	50 minutes	Art supplies, props, costumes, and written materials about STDs	Students learn about STDs by identifying and distinguishing the facts about STDs from commonly held beliefs about STDs.
3. To Wait or Not to Wait?	50 minutes	Art supplies, props, and costumes	Students learn about the pros and cons of abstaining from sexual intercourse by analyzing quotes and statistics that show contradictions between what teenagers say and what they do.

TABLE 10.1: (continued)

Activity	Duration	Materials	Activity Summary
4. Body Image-What Is Attractive?	50 minutes	Art supplies, props, and costumes	Students learn about society's varying perceptions of body image by examining magazines and medical charts. They can then determine their personal definition of attractiveness.
5. Who's Responsible?	50 minutes	Individual surveys, props, and costumes	Students analyze their own and their peers' perceptions of gender roles often associated with sexual relationships between men and women by performing role-play that attempts to break down gender stereotypes.
6. When No Means No	50 minutes	Props and costumes	Students learn about the prevalence of and attitudes or stereotypes towards acquaintance rape by analyzing a poem and data. Then the students write and perform a role-play in which they recommend prevention strategies for their peers.
7. Culminating Activity	50 minutes	Poster paper, marking pens, crayons, or colored pencils	Students learn how to make decisions based on varying opinions and advice by assuming the role of an interest group and recommending strategies for students who are dealing with conflicting messages about sex.

GroupWork 1: Teacher Activity Notes - Orientation Activity

Big Idea: Dealing with Conflicting Messages

PLAN

Summary As a class, students analyze decisions made by teenagers about sexually related issues in popular TV shows. After discussing the various perspectives and decisions of the teens, students create their own definition of the term "conflicting messages".

Group Size 4 to 5 students

Objectives

Students:

- define the term "conflicting messages."
- analyze and demonstrate the decision-making process.
- explain their own personal values and opinions on sexually related issues.

Student Materials

- None required

Estimated Time 30-minute period

Multiple Abilities

- Retelling a situation, explaining clearly and fully, using words precisely (communication skills)
- Considering multiple perspectives, making connections between ideas! concepts, logically analyzing the problem, applying previous knowledge (reasoning skills)

Suggested Use

- This set of activities works well at the end of the unit.

IMPLEMENT

1. This activity is intended to set the stage for the rest of the GroupWork activities in this unit. The TV programs are used because it seems that students often find it easier to express their feeling and/or opinions when it appears that they are talking about someone else.
2. After the activity you may want to share with your students the common steps for making decisions. You can refer students to Section 8 in the HumBio unit *Reproduction* and the end of Section 8 in the unit *Sexuality*.

Assessment

Use the group discussion to assess if students can

- clarify the problem, generate options or alternatives, decide on a plan of action, and predict the consequences.
- identify the conflicting messages presented on sexually related issues.
- explain their own personal values and opinions on sexually related issues.

Extension Questions

- Some people believe that television and movies have a very strong influence over adolescents and their behavior, and therefore should promote only a safe and positive perspective regarding sex. Do you feel that you and your friends are heavily influenced by the media? Do you think the media has a responsibility to promote positive messages about sex to adolescents?

GroupWork 1 Activity Guide: Orientation Activity (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

Introduction

Someday you'll have to make decisions about whether or not to become sexually active. When you do, you need to carefully consider all of the information that is available, your options, and the consequences of your behavior in order to make an informed decision. You can make a plan of action ahead of time, so you won't have to make a last-minute decision about such an important issue.

Materials

- None required

Procedure

1. Brainstorm a list of TV shows you have seen recently that involve teenagers. Describe the situations that focused on the topics of sexual relationships, abstinence, birth control, sexually transmitted diseases, or unwanted pregnancy.

2. With your group, discuss the following questions.

- What was the situation in the TV program?
- What options were available to the characters in making a decision about sex?
- What people or things influenced the characters as they tried to decide what to do?
- What decisions did the characters on the show make about sex?
- How did the characters arrive at their decision?
- What were the consequences of the decisions that they made?
- Does your group agree or disagree with the decisions made by the characters on the show? Why or why not?

3. As a group, identify and list the various messages related to sexual issues with which teenagers are bombarded on TV and in the movies.

- Who is the source of each of these messages?
- Why might the source of the messages want to send these messages to teenagers?

4. Based on what you've discussed, create a definition for the phrase "conflicting messages."

GroupWork 2: Teacher Activity Notes - Sexually Transmitted Diseases (STDs): Myths or Facts?

Big Idea: Dealing with Conflicting Messages

PLAN

Summary Students learn about STDs by identifying and distinguishing the facts about STDs from commonly held beliefs about STDs.

Group Size 4 to 5 students

Objectives

Students:

- distinguish between myths and facts about STDs.
- identify the conflicting messages presented on the topic of STDs.

- analyze information on STDs with a critical eye.
- explain their own personal values and opinions on the prevention of STDs.

Student Materials

- Resource
- Individual Report
- Art supplies, props, and costumes

Multiple Abilities

- Clearly articulating a position, explaining clearly and fully, using words precisely, being persuasive (communication skills)
- Making connections between ideas/concepts, applying previous knowledge, considering multiple perspectives, logically analyzing the problem (reasoning ability)
- Creating a role-play, taking the role of another person, expressing emotions, imagining an experience you have never experienced (creative/dramatic ability)

Estimated Time 50-minute period

Suggested Use

- This set of activities works well at the end of the unit.

IMPLEMENT

1. It is important for students to read information about STDs, such as Sections 6 and 7 of the unit titled *Sexuality*. These sections provide valuable background information for students. You may wish to assign the reading as homework, or ask students to read the section in groups during class. Provide these sections as resources during the activity.
2. You may wish to divide students into single-sex groups for this activity. The material is very sensitive and students may feel more comfortable with members of their own gender.

Assessment

Use the group role play, individual report, and group discussion to assess if students can

- distinguish between myths and facts about STDs.
- identify the conflicting messages presented on the topic of STDs.
- research the sources of material to determine the reliability of the information.
- analyze information on STDs with a critical eye.
- explain their own personal values and opinions on the prevention of STDs.

Extension Questions

- What kind of symptoms might lead a person to suspect that they have an STD?
- How can a person avoid contracting an STD?

GroupWork 2 Activity Guide: Sexually Transmitted Diseases (STDs): Myths or Facts? (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

Introduction

Often people don't feel comfortable talking about sex. This is especially true for the topic of sexually transmitted diseases (STDs). Therefore, the boundary between myths and facts about STDs becomes blurred. A sexually transmitted disease is an infection caused by microorganisms (bacteria or viruses) transmitted through the exchange of bodily fluids, typically through sexual contact. What are the facts about STDs and how can we distinguish the facts from the myths?

Materials

- Resource
- Individual Report
- Art supplies, costumes, props, and written materials about STDs

Procedure

1. How can you tell the difference between a myth and a fact?

2. Analyze the statements about STDs found on the Resource. Using as many sources of information as you can, decide which statements are facts and which are myths. Discuss the following question.

What are myths about STDs?

3. Your team was hired by a popular music video channel to create a TV commercial aimed at a young audience. As a group, create a script for a role-play that dramatizes the conflicting messages relating to the myths and facts about STDs. Be sure to include several examples from your resource materials, and advise the audience on how to deal with these conflicting messages.

4. Present your role-play to the class using costumes and/or creative props.

GroupWork 2 Resource: Sexually Transmitted Diseases (STDs): Myths or Facts? (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

Using as many sources of information as you can, decide which of the following statements are facts and which are myths (and not true).

1. "I take birth control pills, so I don't have to worry about STDs."
2. "She looks so healthy, I couldn't possibly get AIDS from her."
3. "The best way to protect myself against AIDS is not to have sex now at all."
4. "I would know it if I had an STD."
5. "Since Anna has AIDS, her unborn baby can also get AIDS."
6. "I never swim at the community swimming pool because someone there might have AIDS."
7. "Although my blisters have disappeared, I will never get rid of herpes."
8. "My boyfriend and I practice safe sex-we use the withdrawal method."
9. "If it's true love, I won't get STDs."
10. "I've only had sex once. I won't get AIDS."
11. "My first thought that I might have syphilis is that I have a rash all over my body."
12. "It doesn't matter if I get an STD-they're all easily treated by a doctor."
13. "I'm too young to get an STD."
14. "I know that a condom doesn't guarantee that I won't get AIDS, but it's the best birth control method to protect me besides not having sex at all."

GroupWork 2 Individual Report: Sexually Transmitted Diseases (STDs): Myths or Facts? (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

1. What were the different messages and the sources of messages you included in your role-play?
2. What strategies do you recommend for dealing with the conflicting messages?
3. What would you say to someone who said, "I've only had sex with one person, so I know I won't gets AIDS."?

GroupWork 3: Teacher Activity Notes - To Wait or Not to Wait?

Big Idea: Dealing with Conflicting Messages

PLAN

Summary Students learn about the pros of abstaining from sexual intercourse by analyzing quotes and statistics that show contradictions between what teenagers say and what they actually do.

Group Size 4 to 5 students

Objectives

Students:

- identify conflicting messages on the topic of abstinence.
- explain their own personal values and opinions on abstinence.

Student Materials

- Resources 1 and 2
- Individual Report
- Art supplies, props, and costumes

Multiple Abilities

- Clearly articulating a position, explaining clearly and fully, using words precisely, being persuasive (communication skills)
- Making connections between ideas/concepts, applying previous knowledge, considering multiple perspectives, logically analyzing the problem (reasoning ability)
- Creating a role-play, taking the role of another person, expressing emotions, imagining an experience you have never experienced (creative/dramatic ability)
- Analyzing data, constructing bar graphs, making inferences about the data (calculating ability)

Estimated Time 50-minute period

Suggested Use

- This set of activities works well at the end of the unit.

IMPLEMENT

1. It is helpful to have students read information about the choice of abstaining from sexual intercourse, such as Section 6 of the unit titled *Reproduction* or Sections 4, 7, and 8 of the unit titled *Sexuality*. You may wish to assign the reading as homework or ask students to read the section in groups during class.
2. You may wish to divide students into single-sex groups for this activity. The material is very sensitive and students may feel more comfortable with members of their own gender.

Assessment

Use the group role-play, individual report, and group discussion to assess if students can

- list reasons to abstain from sexual intercourse.
- analyze and present data in graphical format.
- identify the conflicting messages on the topic of abstinence.
- explain their own personal values and opinions on abstinence.

Extension Questions

- How can you avoid making a rushed decision about whether or not to have a sexual relationship?
- What are the most common reasons adolescents choose abstinence?

GroupWork 3 Activity Guide: To Wait or Not to Wait? (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

Introduction

There is an overwhelming amount of evidence that shows that abstinence is a healthy decision for a young person. Abstinence means choosing not to have sexual intercourse for the immediate future. Your values and/or personal choice are factors that help you to decide to wait. The decision to abstain from sexual intercourse prevents the risks of an unwanted pregnancy and the transmission of STDs, including AIDS. Why are there so many people who are NOT waiting? How do *you* deal with these conflicting messages?

Materials

- Resources 1 and 2
- Individual Report
- Art supplies, props, and costumes

Procedure

1. Using the resource materials, create bar graphs to illustrate the rates of pregnancies, venereal diseases, and AIDS.

2. What patterns do you see in the graphs for:

- teenage pregnancies?
- venereal diseases?
- AIDS?

Discuss possible explanations for these patterns.

3. On Resource 2, middle school students gave reasons for being responsible in making decisions about sex. How would you explain the contradiction between what students *say* and the trends shown in the *data?*

4. Your brother or sister is seeking your advice about whether or not to have sex. As a group, create a script for a role-play that dramatizes the discussion between two siblings and the conflicting messages related to making this decision. Be sure to include all the viewpoints presented in your resource materials and demonstrate the strategies you would suggest to your sibling for dealing with these conflicting messages.

Present your role-play to the class using costumes and/or creative props.

GroupWork 3 Resource 1: To Wait or Not to Wait? (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

TABLE 10.2: Table 1: Birth Rates from 1983 to 1991 (per 1,000 women)

	1983	1984	1985	1986	1987	1988	1989	1990	1991
10 to 14 years old	1.1	1.2	1.2	1.3	1.3	1.3	1.4	1.4	1.4
15 to 19 years old	51.4	50.6	51.0	50.2	50.6	53.0	57.3	59.9	62.1

TABLE 10.3: Table 2: Disease Reported from 1970 to 1992

	1970	1980	1985	1987	1988	1989	1990	1991	1992
AIDS	N/A	N/A	8,249	2,107	31,001	33,722	41,595	43,672	45,472

TABLE 10.4: Table 3: Reported Disease from 1970 to 1992 (per 1,000 people)

	1970	1980	1985	1987	1988	1989	1990	1991	1992
Gonorrhea	600	1004	911	781	720	733	690	620	501
Syphilis	91	69	68	87	103	111	134	129	113

Statistics are from Statistical Abstract of the United States 1994, U.S. Department of Commerce, Economic and Statistics Administration, Bureau of the Census, 114th Edition, pages 76 and 138.

GroupWork 3 Resource 2: To Wait or Not to Wait? (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

I want to be responsible in making decisions about sex because...

- "Sex could change your life because if you get your partner pregnant, then she won't be able to go to college, and you'll be paying child support." (male)
- "I want to live a long life." (female)
- "When I get older I'm planning to go to college and get a lot of money, and I don't want anything to interfere." (female)
- "I want to be responsible for my decisions about sex, because if I do the wrong decisions I could get AIDS or something." (male)
- "I need to decide when I'm ready to do sex." (male)
- "I want to make sure I love the boy and don't catch an STD." (female)
- "I don't want to get pregnant or catch any type of disease." (female)

- "I don't want to have to deal with a baby." (male)

Quotes are from students at a middle school in California.

GroupWork 3 Individual Report: To Wait or Not to Wait? (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

1. How would *you* explain the contradiction between what students say and the trends shown in the data?

2. How can you avoid making a rushed decision about whether or not to have a sexual relationship?

3. How would you complete the following phrase?

I want to be responsible in making decisions about sex because...

GroupWork 4: Teacher Activity Notes - Body Image-What Is Attractive?

Big Idea: Dealing with Conflicting Messages

PLAN

Summary Students learn about society's varying perceptions of body image by examining magazines and height/weight charts. They can then determine their personal definition of attractiveness.

Group Size 4 to 5 students

Objectives

Students:

- define the term attractiveness.
- identify the conflicting messages relating to the issue of body image.
- explain their own personal values and opinions on the issue of attractiveness.

Student Materials

- Resource
- Individual Report
- Art supplies, props, and costumes, magazines containing pictures of male and female models

Multiple Abilities

- Clearly articulating a position, explaining clearly and fully, using words precisely, being persuasive (communication skills)
- Analyzing visuals, detecting subtle messages, making connections between ideas/concepts, applying previous knowledge, considering multiple perspectives, logically analyzing the problem (reasoning ability)
- Creating a role-play, taking the role of another person, expressing emotions, imagining an experience you have never experienced (creative/dramatic ability)

Estimated Time 50-minute period

Suggested Use

- This set of activities works well near the end of the unit.

IMPLEMENT

1. Have students bring in popular magazines with many pictures of male and female models approximately 2-5 days before the day of the activity.
2. Have students read Sections 6, 7, and 8 of the unit *Your Changing Body*. You may wish to assign the reading as homework or ask students to read the section in groups during class time.
3. You may wish to divide students into single-sex groups for this activity, as the material is very sensitive and students may feel more comfortable with members of their own gender.

Background Information

Sections 6, 7, and 8 of the unit *Your Changing Body*

Assessment

Use the group role-play, individual report, and group discussion to assess if students can

- define the term "attractiveness."
- identify the conflicting messages relating to the issue of body image.
- explain their own personal values and opinions on the issue of attractiveness.

Extension Questions

- In your opinion, why have doctors developed these types of charts?
- Where do you think the magazine images fit into the chart?

This is a wonderful time to reinforce for students that there are healthy ways to make changes to your appearance through the use of a nutritious diet and exercise.

GroupWork 4 Activity Guide: Body Image-What Is Attractive? (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

Introduction

During adolescence your body is growing and changing. This usually changes your own perception of your body. This is also the time that you become acutely aware of how other people perceive you. We all want to be attractive, but what does it mean to be attractive? In this activity, you determine what it means to you to be attractive.

Materials

- Resource
- Individual Report
- Art supplies, props, and magazines that include pictures of male and female models

Procedure

1. What is "attractiveness"? With your group, brainstorm a list of qualities that defines an attractive male and an attractive female. How did the list for females compare with the list for males?

2. Discuss the following questions with your group.

- How do the magazine images in the resource materials compare to your group's definition of attractiveness?
- How do the magazine images compare to an average person as defined by the medical charts?
- Why have the magazines selected these types of body images? What messages are being sent in these images?

3. Imagine that a good friend is seeking your advice about his or her body image. As a group, create a script for a role-play that dramatizes the conflicting messages related to body image. Be sure to include all the viewpoints presented in your resource materials and demonstrate the strategies you would suggest to your friend for dealing with these conflicting messages.

4. Present your role-play to the class using costumes and/or creative props.

GroupWork 4 Resource: Body Image-What Is Attractive? (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

Height VS. Weight Chart displayed at doctor's offices, fitness clubs

TABLE 10.5: Women's Weight/Height Chart

Height Feet/Inches	Small Frame	Medium Frame	Large Frame
4′10″	102-111	109-121	118-131
4′11″	103-113	111-123	120-134
5′0″	104-115	113-126	122-137
5′1″	106-118	115-129	125-140
5′2″	108-121	118-132	128-143
5′3″	111-124	121-135	131-147
5′4″	114-127	124-138	134-151
5′5″	117-130	127-141	137-155
5′6″	120-133	130-144	140-159
5′7″	123-136	133-147	143-163
5′8″	126-139	136-150	146-167
5′9″	129-142	139-153	149-170
5′10″	132-145	142-156	152-173
5′11″	135-148	145-159	155-176
6′0″	138-151	148-162	158-179

TABLE 10.6: Men's Weight/Height Chart

Height Feet/Inches	Small Frame	Medium Frame	Large Frame
5′2″	128-134	131-141	138-150
5′3″	130-136	133-143	140-153
5′4″	132-138	135-145	142-156
5′5″	134-140	137-148	144-160
5′6″	136-142	139-151	146-164
5′7″	138-145	142-154	149-168
5′8″	140-148	145-157	152-172
5′9″	142-151	148-160	155-176
5′10″	144-154	151-163	158-180
5′11″	146-157	154-166	161-184
6′0″	149-160	157-170	164-188
6′1″	152-164	160-174	168-192
6′2″	155-168	164-178	162-197
6′3″	158-172	167-182	176-202
6′4″	162-176	171-187	181-207

GroupWork 4 Individual Report: Body Image-What Is Attractive? (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

1. Which resource contained the most appealing message for your group? Why?

2. How did the images make you feel about your own body?

3. According to the medical chart, what is your weight range for your specific height and frame?

4. Why do you think some people (girls and guys) go to extreme measures such as eating disorders to attain an ideal body image?

GroupWork 5: Teacher Activity Notes - Who's Responsible?

Big Idea: Dealing with Conflicting Messages

PLAN

Summary Students analyze their own and their peers' perceptions of gender roles that are often associated with sexual relationships between men and women by performing a role-play that attempts to break down gender stereotypes.

Group Size 4 to 5 students

Objectives

Students:

- describe stereotypes about gender roles that may exist in their peer group and/or society.
- identify the conflicting messages on the topic of gender roles.
- explain the need for equality between males and females in all steps of a relationship, from dating, to issues of intimacy, sex, and birth control, to parenting.

Student Materials

- Data Sheet
- Individual Report
- Props, costumes

Multiple Abilities

- Clearly articulating a position, using words precisely, explaining clearly and fully (communication skills)
- Making connections between ideas/concepts, analyzing data, considering multiple perspectives (reasoning ability)
- Creating a role-play, expressing emotion, assuming the role of another person (creative/dramatic ability)

Estimated Time 50-minute period

Suggested Use

- This set of activities works well near the end of the unit.

IMPLEMENT

1. It would be helpful to have the following sections from the text available to students during this activity. You may also wish to assign Section 2: Dating and Romantic Feelings, Section 4: Adolescent Sexual Behavior, and Section 5: Sexual Abuse and Coercion in the unit *Sexuality,* as well as Section 3: Pregnancy and Childbirth in the unit *Reproduction* as reading for homework before completing this activity.
2. Keep students' surveys as each group completes this activity, so that students can analyze and compare the responses of girls and boys once there are enough surveys to see trends.

Assessment

Use the group role-play, individual report, and group discussion to assess if students can

- describe stereotypes about gender roles that may exist in their peer group and/or society.
- identify the conflicting messages on the topic of gender roles.
- explain the need for equality between males and females in all steps of a relationship, from dating, to issues of intimacy, sex, and birth control, to parenting.

Extension Questions

- What is one gender stereotype in your group that was counteracted by completing this activity?
- Students could give the survey to other students at school and their parents, comparing their results and analyzing variables in their subjects such as gender, age, or year in school.

GroupWork 5 Activity Guide: Who's Responsible? (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

Introduction

Across cultures and throughout history, there has been a wide variation in the way people think about the roles of men and women in romance, reproduction, and parenting. We develop ideas about what men and women are supposed to do, depending on the messages we get from society, our parents, our friends, and each other. In this activity you identify and break down some of the common messages/attitudes/stereotypes held by men and women about who is responsible for issues surrounding sex.

Materials

- Individual Report
- Props, costumes

Procedure

1. Each person in the group should fill out the Individual Survey on "Who's Responsible?" without discussing it.

2. After all group members have finished their surveys, compare your survey answers using the following guidelines.

- In what ways were your answers similar to one another? In what ways were they different? Was there a difference between male and female responses?
- Why did each of you answer the way you did? What experiences or people in your life influenced your answers to the survey?
- What would you like members of the opposite sex to know about who's responsible for these issues? This is your chance to educate each other!

3. As a group, choose one of the issues from the "Individual Survey on Who's Responsible?" Create a script for a role-play that dramatizes and breaks down the stereotypes or misperceptions that men and women might have about that issue. Be sure to include all the viewpoints presented in your resource materials. Make sure you consider realistic situations and provide/demonstrate strategies on how men and women can share responsibility for issues surrounding dating, sex, and parenting.

4. Present your role-play to the class using costumes and or creative props.

GroupWork 5 Individual Report: Who's Responsible? (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

Individual Survey on Who's Responsible?

Put a check mark in the appropriate column for who you think is responsible for each action.

TABLE 10.7:

	Male	Female
DATING		
1. Making the first move (or asking someone out)		
2. Deciding where you will go and what you will do on the date		
3. Paying for the date		
4. Initiating physical contact		
5. Deciding how intimate you will become		
6. Proposing a more serious relationship or marriage		
REPRODUCTION		
7. Initiating conversation about whether or not to have sexual intercourse		
8. Bringing up the subject of birth control in your conversation		
9. Deciding whether or not you have sexual intercourse		
10. Finding out about purchasing birth control devices		
11. Making decisions about an unwanted pregnancy		
PARENTING		
12. Taking care of the child, or deciding what kind of child care you will use		
13. Financially supporting the child		
14. Helping a child with schoolwork		
15. Teaching life skills to a child		

GroupWork 6: Teacher Activity Notes - When No Means No

Big Idea: Dealing with Conflicting Messages

PLAN

Summary Students learn about the prevalence of and attitudes/stereotypes towards acquaintance rape by analyzing a poem and data. They then write and perform a role-play recommending prevention strategies for their peers.

Group Size 4 to 5 students

Objectives

Students:

- define what is meant by "acquaintance rape" or "date rape."
- describe gender stereotypes associated with acquaintance rape.
- explain how confidence and awareness can prevent acquaintance rape from happening to them.

Student Materials

- Resources 1 and 2
- Individual Report
- Props, costumes

Multiple Abilities

- Clearly articulating a position, using words precisely, explaining clearly and fully (communication skills)
- Making connections between ideas/concepts, analyzing data, considering multiple perspectives (reasoning ability)
- Creating a role-play, expressing emotion, assuming the role of another person (creative/dramatic ability)

Estimated Time 50-minute period

Suggested Use

- This set of activities works well near the end of the unit.

IMPLEMENT

1. You may wish to divide students into single-sex groups for this activity, as the material is very sensitive and students may feel more comfortable with members of their own gender.
2. Have students read Section 5: Sexual Abuse or Coercion in the unit *Sexuality* as preparation for this activity.
3. According to the statistics, it is very likely that some of your students are rape victims. Be very sensitive to any jokes or stereotypes about rape in the classroom. You may wish to offer an alternative assignment to anyone who feels very uncomfortable completing this activity or for anyone who behaves inappropriately.
4. You may want to continue a discussion on this issue, making sure not to alienate the boys in the classroom. Young men are a common target for rape just as women are, and boys should not be made to feel accused or responsible for violence against women unless they encourage it.

Assessment

The group role-play, individual report, and group discussion can be used to assess whether students can

- describe gender stereotypes associated with acquaintance rape, such as blaming the victim, and their own misconceptions about what kind of person gets raped, and what kind of person rapes another.
- identify ways to communicate their feelings about sexual intercourse to peers.
- explain how confidence and awareness can prevent acquaintance rape from happening to them.

Extension Questions

- Imagine you are a member of the opposite sex. How would your view of acquaintance rape change?

GroupWork 6 Activity Guide: When No Means No (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

Introduction

Young men and women receive conflicting messages about sex not only from the media and other sources, but also from each other. How can you tell if someone is interested in you? How can you tell someone that you are interested in him or her without feeling embarrassed? How do you let someone know what behaviors you DON'T like? In this activity you analyze quotes and statistics about acquaintance rape. This will allow you to identify and combat some commonly held beliefs and attitudes about how this tragedy occurs and how to prevent it.

Materials

- Resources 1 and 2
- Individual Report
- Props, costumes

Procedure

1. Read your Resources carefully, taking turns reading the quotes aloud, and discuss the following questions:

Analyze the information reported in Resource 1.

- What does the poem "Date Rape" tell you about how the girl felt?
- How does this poem illustrate the idea of informed consent?
- Could a boy have written this poem? Why or why not?

Analyze the information reported in Resource 2.

- What are the three most important messages that you found in these quotes?
- How did your group decide what was more or less important?
- From your understanding of the information, what rules of behavior would you follow when you are interested in someone? What rules of behavior would you follow when, you are not interested in someone?

2. You are the columnist for a newspaper advice column for teens. The poem "Date Rape" was sent to you in a letter asking for advice. Write a response letter with advice to your readers on how both males and females could prevent a similar situation from happening.

3. Present your work to the class by summarizing the poem "Date Rape" in your own words and then reading your advice letter.

GroupWork 6 Resource 1: When No Means No (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

Voices Speaking about Date Rape

Date Rape

It was the night of the prom

The evening of romance

I knew he would want sex

So all I did was prance

When the time did come

I was no longer sure

"No" is what he heard

Cuz "No" is what I said

But "Yes" is what he wanted

Yet "No" is what I flaunted

Cuz "No" is what I meant

And "No" is what I fought

But "Yes" is what he got

- 8th grade student

Other Voices:

"Why should I have to be afraid to go places? It's not right! Why should I be the one to give up doing what I want, just because there are a few jerks around?"- *Annie's Promise, p. 118*

"I hate it that when I walk around at night, women start to walk faster and look scared when they see me. I'm a good person! I want to walk up to them and tell them, Hey, I'm not a monster, I'm just a guy. Not all men are rapists."-*adult male*

"I know it when someone wants to have sex with me even if they don't say it. You can just tell. They dress a certain way, they act a certain way-It's obvious that they want it." - *adult male*

GroupWork 6 Resource 2: When No Means No (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

Facts About Sexual Assault

"Adolescent victims (less than 20 years old) were more likely to be assaulted by an acquaintance or relative and to delay medical evaluation than were women 20 years of age and older."

[Obstetrics and Gynecology, 1994]

"A study of 114 women college students showed that 28% acknowledged that they were victims of rape or attempted rape, and the majority reported multiple victimizations. Of 108 men college students, 17% admitted to committing acts that meet the legal definition of sexual assault, and about 30% admitted that they continue to make sexual advances even after a woman says no."

[Social Work, 1992]

"Of a mostly heterosexual sample of 204 college men, 34% reported that they had experienced incidents of coercive sexual contact since age 16: 24% from women, 4% from men, and 6% from both sexes. In 88% of the incidents, sexual contact was pressured by tactics of persuasion, intoxication, threat, promise of love, withdrawal, and bribery.

In 12% of the cases, contact was forced through physical restraint, physical intimidation, threat of harm, or harm."

[Archives of Sexual Behavior, 1994]

"In the evaluation of a sexual assault prevention program, it was found that the program was effective in decreasing the incidence of sexual assault for women without a sexual assault history. The program also led to a decrease in dating behaviors found to be associated with acquaintance rape and an increase in knowledge about sexual assault."

[Journal of Consulting and Clinical Psychology, 1993]

"In a study about acquaintance rape and high school students, 20% of students reported they had experienced forced sex. Of those students, only half had told about the experience."

[Journal of Adolescent Health, 1993]

"Advocates of self-defense training assert that this kind of training will help to prevent future violence by developing traits such as assertiveness and confidence in individuals. There is evidence that women who convey such characteristics are less likely to be victimized."

[Journal of American College Health, 1992]

"Sexual assault continues to represent the most rapidly growing violent crime in America. Vital legal reforms are underway, but statistics prove a persistent rise in rape incidence with poor conviction rates. This knowledge, along with the vast multitude of emotional crises that come with rape and the self-perceived inferior legal status of women, results in a high percentage of unreported cases."

[Obstetrical and Gynecological Survey, 1993]

"Estimates are that one in four women will be sexually assaulted at some time during her life."

[Primary Care, 1993]

GroupWork 6 Individual Report: When No Means No (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

1. Why do you think people sometimes have differing views about how acquaintance rape occurs?

2. Why do *you* think date rapes occur?

3. Imagine you are a member of the opposite sex. How would your view of acquaintance rape change?

4. Based on what you learned from this activity, what rules of behavior would you personally follow when you are interested in someone? When you are not interested in someone?

GroupWork 7: Teacher Activity Notes - Culminating Activity

Big Idea: Dealing with Conflicting Messages

PLAN

Summary Students learn about and analyze different viewpoints regarding what students should learn about sex. They assume the role of an interest group and develop strategies for students to deal with the conflicting messages about sex.

Group Size 4 to 5 students

Objectives

Students:

- describe the controversial issues that arise when developing a sex education course.
- identify each interest group's viewpoint on the topic of sex education.
- demonstrate the decision-making process by synthesizing various viewpoints.

Student Materials

- Resources 1, 2, 3, 4, 5, and 6
- Individual Report
- Paper, marking pens, crayons, or pencils

Multiple Abilities

- Clearly articulating a position, using words precisely, explaining clearly and fully (communication skills)
- Making connections between ideas/concepts, analyzing data, considering multiple perspectives (reasoning ability)

Estimated Time 50-minute period

Suggested Use

- This set of activities works well near the end of the unit.

IMPLEMENT

1. Use this activity as an opportunity to make sure students understand the topics under discussion-abstinence, birth control, the reproductive system, fetal development, AIDS, and other sexually transmitted diseases. The units *Reproduction* and *Sexuality* contain information on all these topics which students could read as background. They could also research in detail the topic their Task Force group chooses.

2. This activity is structured as a jigsaw activity that follows these phases.

- Phase 1: Students begin in "expert groups" where they learn about one perspective on the issue of sex education in depth. Assign each group an interest group to represent: A) Planned Parenthood, B) School nurses/Health care providers, C) Students, D) Teachers/Administrators, E) Representatives from local religious groups, F) Parents. Emphasize that they will need to explain their perspective to others in the next phase, and so they should make sure they are well versed on their group's expert point of view.
- Phase 2: Have students form new groups composed of one representative from each of the expert groups. You may want to tell students to form groups including one person with each letter A-F.

Assessment

Use the group role-play, individual report, and group discussion to assess if students can

- describe the content of various controversial issues that can be included in a sex education course.
- identify each special interest group's viewpoint on the topic of sex education.
- explain the decision-making process that is required to make important life decisions: gathering, evaluating, and synthesizing information from various sources to come to a conclusion.
- develop strategies to use when faced with making decisions about sexually related issues.

Extensions

- What is the policy about sex education in your school district?
- How can you find out about who decided what content would be included in your sex education curriculum? How was this decided?

GroupWork 7 Activity Guide: Culminating Activity (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

Introduction

Teenagers, parents, teachers, health care providers, and religious leaders might all have different views about sex. These different views send very different messages to young people about what they should see, hear, and learn about sex. In this activity you analyze the perspectives represented by different groups and make suggestions about what *you* think students should learn.

Materials

- Blank paper, marking pens, crayons, pencils

Procedure

The topic of "What Should Our Students Learn in Sex Education?" will be discussed at the upcoming board meeting in your school district. The following groups are organizing to present their opinions on the topic.

A) Planned Parenthood volunteers

B) School nurses/Health care providers

C) Students

D) Teachers/Administrators

E) Representatives from local religious groups

F) Parents

Phase 1

You represent one of these groups. Review your resources and discuss the following.

- Why does it seem your group is interested in what students learn in sex education?
- What does your group feel is important about each of the following issues? (If the information does not address an issue directly, what can you infer from what is available?)
- Teaching young people about abstinence
- Teaching young people about other birth control methods (e.g., condoms)
- Teaching young people about pregnancy, fetal development, and abortion
- Teaching young people about AIDS and people who are HIV positive

Phase 2

Rearrange groups to form Task Force committees. Make sure each interest group is represented. Pick one issue from those listed above and create a pamphlet to distribute to students in your district. The goals of the pamphlet are to:

- identify the varying viewpoints represented in your group regarding the issue you've chosen, and
- offer strategies for students to use when faced with making decisions about that issue.

GroupWork 7 Resource 1: Culminating Activity (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

Planned Parenthood Clinics

Planned Parenthood Is Here for You

We're Here for Your Health

Taking care of yourself shouldn't be a financial burden. We offer all of our services at a cost you can afford.

Birth Control

We can explain all available birth control methods clearly so that you can understand and choose the one that's right for you. Our flexible appointment schedule offers morning, daytime, and evening appointments. Many services are available on a drop-in basis, and some are offered on Saturdays as well. We provide exams, services, and supplies for most methods including:

- Birth control pills
- Diaphragms
- IUDs
- Foam, inserts, jellies
- Cervical caps
- Condoms
- Norplant
- Depo Provera
- Natural family planning
- Sterilization for women

Testing and Treatment for Infections and STDs

We provide medical exams to check for infections and sexually transmitted diseases (STDs) such as herpes, gonorrhea, chlamydia, and genital warts. If you have an STD, we can treat it for you and we teach you how to protect yourself from future infections.

HIV (AIDS) Testing

We do anonymous HIV testing. You get one-on-one consultation at the time of your test and when you return for your results.

Exams, Preventive Care, and Treatment

- Pap smears
- Breast exams
- Mammography referral
- Blood pressure screening
- Testicular/Prostate exams
- Cervical cancer screening
- Treatment of precancerous conditions
- Colon cancer screening
- Tests for tuberculosis, diabetes, anemia, and cholesterol level

Pregnancy Testing

We will test you as soon as you've missed a period. Make an appointment or drop in during pregnancy testing hours, and we can give you same-day results.

We're Here to Support Your Choices

Pregnancy Options Counseling

When you need help making a decision about your pregnancy, we will discuss your options with you so that you understand each of them, and you can decide what's best for you.

Abortion

If you decide not to continue your pregnancy, we provide safe abortion services during the first 14 weeks of your pregnancy. Your decision will be kept confidential. We will give you complete care after your abortion as well.

Adoption Referral

If you are considering adoption, we can put you in touch with organizations that can give you complete information.

Prenatal Care

We can provide medical services and referrals to help you have a healthy baby. We also have a wide range of counseling services to help you when you're expecting a baby or when you're a new parent. Our full-service clinics provide complete care for pregnant women, including medical exams, ultrasound, health education, and counseling.

We're Here for Teens

Expanded Teen Counseling Program (ETCP)

As a teen visiting any of our clinics you can get extra counseling and support to help you cope with problems at home, at school, or in relationships, and to help you take positive steps for your health and future.

Groupwork 7 Resource 2: Culminating Activity (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

School Nurses and Health Care Providers

The following is a copy of the Table of Contents from the booklet, "A Doctor Discusses What Teenagers Want to Know," provided by doctors and pediatricians for teens asking for information about sex and related issues.

This book does not take the place of your doctor. Different people react differently to the same treatment, test, or procedure. You should always consult your doctor before undertaking any course of treatment.

Neither the author nor the publisher take responsibility for any possible consequences of any course of action suggested in this book. Always call your doctor if you have a question.

GroupWork 7 Resource 3: Culminating Activity (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

Students

The following are responses to a survey about sex education in a seventh grade science class, right after their study of sex education.

"I learned about sex from my sister. But I learned a lot from sexed this year compared to last year, and I understand more now."

- *7th grade boy*

"I learned about sex mostly from my friends in school."

- *7th grade girl*

"I think students felt pretty comfortable asking questions in sex ed."

- *7th grade boy*

"If I had questions about sex, there is one teacher I would talk to. She's really cool."

- *7th grade boy*

"I don't like the way sex ed is taught. You don't explain it right. You don't tell us what it's really like. If we ask a question, you don't answer the whole thing, only bits of it."

- *7th grade girl*

"I don't really feel like there is any adult here at school that I could talk to about sex."

- *7th grade girl*

"Kids should get sex education in school at about 1st or 2nd grade."

- *7th grade girl*

"I think teachers should talk about sex ed with students in third grade. Kids need to hear about the facts early."

- *7th grade boy*

"I think condoms should be available here at school."

- *7th grade boy*

"I think kids should be able to get condoms from the school nurse."

- *7th grade girl*

GroupWork 7 Resource 4: Culminating Activity (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

Teachers and Administrators

The following is a letter sent out by the principal, school nurse, and science teachers of a middle school one week before they implemented their school's Family Life unit in the science classes.

Dear Parents of 7th and 8th Grade Students,

We are pleased to inform you that your son/daughter will participate in the Family Life Education Program in his/her science class this year. This unit has been developed through a process involving parents, teachers, nurses, administrators, and board members. The goal of this unit is to provide students with the information, decision-making skills, and resources that will encourage thoughtful and responsible behavior, as well as to reinforce the values of home and family.

Five key areas are emphasized:

1. Drug, Alcohol, and Tobacco Education
2. Decision Making
3. Self-esteem
4. AIDS and Personal Safety
5. Growth/ Development and the Reproductive System

The teacher will respond to questions raised by the students. We encourage you to participate at home by talking about these important issues with your son/ daughter.

We are providing an opportunity for parents to preview films and materials used in this program. Please check one line of the form below and sign it. This form must be returned to your child's science teacher.

_____ Principal _____ School Nurse

_____

To: Science Teacher

Student's Name _____ Room and Grade _____

_____ I would like my child to participate.

_____ I do NOT want my child to participate.

Parent's Signature _____

GroupWork 7 Resource 5: Culminating Activity (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

Representatives from Religious Groups

The following is a graphic from an article in a newspaper called, "Religion's Viewpoint on Sexuality."

B = Blessed

A = Morally acceptable in most cases

N = Neutral or no clear position

U = Morally unacceptable

C = Condemned

TABLE 10.8:

	Buddhism	Catholic	Methodist	Mormon	Muslim	Jewish (Reform)
Teenage Sex	U	C	C	C	U	U
Premarital Sex	A	C	U	C	C	A
Divorce	A	C	A	U	N	A
Masturbation	B	U	N	U	A	N
Abortion	N	C	N	U	N	U
Contraceptives	B	C	B	B	B	A
Homosexual Orientation	B	N	A	U	C	A
Homosexual Acts	A	C	C	C	C	C

"American Search for New Sexual Ethic." San Francisco Chronicle, November 29, 1994. Pg. 1.

GroupWork 7 Resource 6: Culminating Activity (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

Parents

"I will remove my child from class during the sex education unit. I want to personally teach my son about reproduction and the values and morals our family holds dear."

-Parent of 7th grader

"I want my child to learn the facts about how her body works in her science class. The more she understands about puberty and reproduction, the more comfortable she will be when making decisions that affect her health."

-Parent of 5th grader

"I don 't want anyone else pushing their values about sex on my child. If she has any questions, I want her to come to me to talk about them."

-Parent of 6th grader

"I haven 't had time to talk to my son about these issues, it just never seems like the right time. So I rely on the schools to teach him what he needs to know."

-Parent of 7th grader

"I'm glad my child has the chance to learn about reproduction because I learned from my friends... and a lot of the information I got was unclear and unreliable. "

- *Parent of 6th grader*

"There is no need to discuss these issues at this time in my child's life. This is premature. All you're doing is encouraging sexual experimentation. "

-*Parent of 7th grader*

"I want my child to be able to discuss these issues with her peers in a fact-based environment because so often kids are curious about sex and give each other the wrong information."

-*Parent of 7th grader*

"I don't see any need for this sex education course. All a girl has to say is no."

-*Parent of 8th grader*

GroupWork 7 Individual Report: Culminating Activity (Student Reproducible)

Big Idea: Dealing with Conflicting Messages

1. What were the conflicting viewpoints surrounding the issue your Task Force chose to focus on in Phase 2 of the activity?

2. How did your group synthesize the different viewpoints to create your pamphlet?

3. What did you learn in your group 's decision-making process that you can use when confronting these issues personally?

10.2 Projects

The following Projects are an assortment of long-term activities that can be completed individually, in groups or as a class. We have provided starting points for research and development; you and the students can work together to create a more detailed plan of action. Consider the following two recommendations. First, because of the amount of work involved in a Project, students should choose one of great interest to them. Second, to encourage excellence and promote student-student learning, students should present their finished projects to the rest of the class, to the school and to the community, if appropriate.

Project 1: Research Questions and Action Projects

Project 1 differs from the others: it is a list of possible research topics organized according to some key ideas and addressed to students.

In assigning a Research Question or Action Project, we ask that you allow students to choose their topic either one provided or one of their own. You might also:

1. Specify length of piece.
2. Make clear the purpose and the audience.
3. Suggest sources and ideas for information.
4. Provide in-class time for compiling information and writing.
5. Require students to exchange papers and provide written feedback.
6. Provide a breakdown of due dates for the following stages: choice of topic, outline, rough draft and final draft.
7. Permit students to supplement a written report with a skit, a piece of artwork, a piece of music, a dance, a video, or a multimedia presentation.

ASSESS

Provide the students with evaluation criteria that include:

- accuracy of the content based on guiding questions.
- clarity of writing.
- effective organization of main ideas.
- use of detailed examples or citing evidence to support their conclusions.

Project 1: Research Questions

The following projects are an assortment of long-term activities focused on research and action. You may want to assign them as research topics for individuals or group research projects. Encourage students to present their research products as a culmination of their work to their classmates.

1. **What Was Happening the Day You Were Born?** What were the important headlines during the year you were born? On the day you were born? Look locally, nationally, internationally. What were your parents doing? Have them tell a story of one day, that year in their life.

2. **Aerobic Benefits of Sports** Research aerobic benefits of sports, and put together a training program for adolescents, taking into account their changing bodies and capacities and health needs.
3. **Topics in Adolescent Health** Adolescent health issues offer excellent research possibilities. For example: "Current Treatments for Acne," "Pediatric Medicine, " "Strength and Endurance Training." Project is appropriate for group or individual work.
4. **Culture, Hairstyles, and Body Hair** What variations in hairstyles and body hair do you find in other cultures (does everyone grow facial hair)? What variations do you see in this country over time?
5. **Fact from Fiction** How do you distinguish fact from fiction in cosmetic/ hair-care/acne advertisements? Look at magazines for ads and critique them for accuracy. You may want to ask the school nurse for information. What is really good for you?
6. **A Parent's Experience** Students comfortable with the idea can discuss the changes of puberty with their parents to find out what their experiences were like. Write findings in journal, or collect anonymous anecdotes from the class.
7. **Nutrition and Health: A Historical Perspective** Look at changes in nutrition recommendations over the last hundred years compare with adolescent health problems. Is there a correlation?
8. **Girls in Sports: A Historical Perspective** Research the attitudes towards and involvement of girls in sports in the last century. Compare the rate of change in world records of men and women in last century. Plot graphs over time and draw conclusions.
9. **Human Growth Hormone** What is human growth hormone? What does it do, what are its medicinal uses? Look at hormones used in animals to increase meat or milk production. Are there health implications for humans who eat animals and animal products treated with growth hormone? Do you think growth hormones are ethical? Look at costs and benefits.
10. **Hormones : A Historical Perspective** The modern science of endocrinology is quite young. The term hormone comes from the Greek word "to excite" and was first used around the turn of this century. Research the history of hormones and what they are, and make a general chart of the body and the common hormones at work. How many do we now know of? How do they work? You could divide the class into groups, each studying one or two hormones. Act out the functions of these hormones for the class.
11. **Hormones in Medical Research** What are biotech companies doing in hormone research?
12. **Science Careers** Explore careers involving science.
13. **Reproductive Cycles of Other Species** Research how mammals and humans differ in their reproductive cycles.
14. **Nutrition and Menstruation** How does nutrition impact the experience of menstruation? That does menstruation take from your body, and how can you best replace those vitamins or minerals? What foods are rich in iron? Does the body use vitamin and mineral supplements the same way it uses them from natural foods?
15. **How Important Is Our Appearance: An Economic Perspective** What percent of our national economy do corporations spend on trying to sell you a body image through products involving exercise, eating, dieting, and health. In turn, what do we as consumers spend per year per person, on average, on these products? The reference section of your library should have books with these statistics.
16. **The Role of the Media in Defining Beauty** Explore how the media promotes beauty in various cultures, or in this culture over time. Look at TV and movie stars, magazines, books, beauty guides, etc. Do most people look that ideal? If not, is it fair?
17. **Personals Section: What Do People Really Want in a Mate?** Bring in the Personals section of the paper-note that people describe their appearance, not their behavior. Is this a solid way to look for a relationship? Write you own Personals ad describing the type of person you are interested in meeting, not the way the person looks.

Project 2: Teacher Activity Notes - Multicultural Perspective: Issues of Puberty and Adolescence

Summary The changes of puberty are universal, but the experience of adolescence varies from culture to culture. In this Project students choose a culture and research the ways in which attitudes and behaviors toward this time of life vary from ours. Suggested cultures to study include: Israeli kibbutz, Iran, India, China and/ or Japan, an African nation, Mexico, or students could choose a culture from their heritage.

Estimated Time 3-5 weeks depending on length of time you have available to spend on the unit

Student Materials

Access to library and Internet if possible for research

Students develop:

- a portfolio of research on multicultural differences regarding issues of puberty and adolescence.
- a display board showcasing what they have found.
- a presentation to the class to share their observations.

Implement

Step 1 Ask students to choose a country to research. They may work alone, in pairs, or in small groups at your discretion.

Step 2 Have each group keep a portfolio of the information they gather to save and share at the end. Designate bulletin board space for students to display their work as the unit progresses.

Step 3 As background, have students locate their country on a map and research some basic facts, such as population, size of country, type of economy (what kind of work most people do), and any interesting historical or current facts.

Step 4 Assign the specific research questions listed below as you come to the sections in this unit that cover the topic.

Step 5 At the end of the unit ask students to share what they have discovered with other members of the class by doing any or all of the following: create a display on the bulletin board, make an oral presentation, create a comparison chart, submit a written report.

- **View of Adolescents** How do adults view adolescents in your culture? Are they given a lot of adult responsibility? What degree of independence do they have? Do they choose their own activities? Jobs? What is their education like? How do they spend their after-school hours? Are there any rites of passage (physical or symbolic ceremonies) that adolescents are expected to go through?
- **Adolescent Health Issues: A Global View** Study adolescent health issues in other countries, such as growth rates, chronic disease, and acne (Is it universal?). What environmental, cultural, and economic factors contribute to the differences?
- **Gender Differences** Research gender differences in cultures around the world. Make a chart of gender issues in this country and compare with the countries researched. Some suggested topics to compare: how boys and girls are viewed- differences in opportunities, differences in expectations, differences in behavior, differences in activity choices, differences in jobs, salaries, positions of leadership; who manages the home; who takes primary care of children in the family; dress and social behavior (gender roles).
- **Adaptation Problems** Do teens in your country have problems with eating disorders and drug use? Research some of the adaptation problems teens have in the culture you are studying.
- **Beauty** What seems to be the standard of beauty in your country? What do teenage girls wear? Boys?

10.3 Additional Resources

Books

Fiction

Blume, judy. *Just as Long as We're Together,* New York: Dell Publishing, 1987.

Three friends explore the issues of puberty and adolescence together, including tests of their friendship.

Blume, judy. *Tiger Eyes,* Scarsdale, New York: Bradbury Press, 1981.

A young teenager moves to a new town and a new school, and there must figure out how she fits in and who she is.

Bode, janet. *New Kids on the Block,* New York: Franklin Watts, 1989.

Adolescent immigrants to this country talk about their lives here as compared to their native countries. These individual stories create a wonderful multicultural view of adolescence around the world.

Childress, Alice. *Rainbow Jordan,* New York : Coward, McCann #38; Geoghegen, Inc., 1981.

An African -American girl learns about what her values really are as she faces difficult decisions in school, at home, and with her friends.

Cormier, Robert, *The Chocolate War,* New York: Pantheon Books, 1974.

A powerful book ab out a young boy who dares to defy the school bully, and a school-wide power struggle that ensues.

Cosby, Bill. *Fatherhood,* New York: Berkley Publishing Group, 1987.

A humorous account of parenthood by Bill Cosby, written primarily for adults.

Crew, Linda. *Children of the River,* New York: Delacorte Press, 1989.

A young Vietnamese teen struggles with the conflicting pressures of her traditional home, a non-Vietnamese boyfriend, and her developing self-concept.

Doherty, Berlie. *Dear Nobody,* New York: Orchard Books, 1991.

A poignant account of a pregnant young girl and the relationship that resulted in her getting pregnant. The Story is told from the standpoints of the girl writing to her unborn child and from the boy writing to the girl.

Fine, Anne. *Flour Babies,* Boston: Little, Brown and Co., 1992.

A class of boys choose to do a parenthood project.

L'Engle, Madeleine. *Wrinkle in Time,* New York: Farrar Straus #38; Giroux, Inc., 1962.

A teenage girl, her brother, and a school friend go in search of her father. Part of finding him means she must come to terms with her feelings of being different from her peers, and understanding what is most important to her in her life and in her relationships with family and friends. A wonderful science fiction adventure.

Levitin, Sonia. *Annie's Promise,* New York: Atheneum, 1993.

A jewish girl goes to camp where she learns about self-reliance and resourcefulness and begins to understand her family.

Townsend, Sue. *The Secret Diary of Adrian Mole, Aged* $13\frac{3}{4}$, New York: Avon Books, 1982.

A wonderful, funny, lighthearted diary of a boy coming of age. He worries about all the things adolescents worry about-acne, his yearnings for the things he can't have, the contradictions of adulthood and childhood, his feelings

for girls, and more.

Wolff, Virginia Euwer. *Make Lemonade,* New York: Scholastic, Inc., 1993.

A girl takes a baby-sitting job for a single mom with two children. Together they learn about the difficulties of single parenthood and what it takes to survive.

Wolff, Virginia Euwer. *The Mozart Season,* New York: Scholastic, Inc., 1991.

A gifted violinist prepares for a Mozart competition, and in the process learns about her family.

Non-Fiction

Bell, Ruth. *Changing Bodies, Changing Lives,* New York: Vintage Books, 1981.

An excellent resource book for teens (geared to high school students, but also appropriate for junior high/middle school students), full of quotes from peers around the country. Well- written and well-organized, this book talks frankly about the changes and challenges of adolescence and sexuality.

Fenwick, Elizabeth and Richard Walker. *How Sex Works,* New York: Dorling Kindersly, 1994.

An excellent overview of puberty, sexuality, and issues in adolescence. Great use of illustrations and quotes.

Harris, Robie. *It's Perfectly Normal,* Cambridge, Mass.: Candlewick Press, 1994.

Written to the junior high school level, this book reviews the changes of puberty, sexuality and sexually transmitted diseases. The hand-drawn illustrations provide a warm tone and informal presentation.

Katchadourian, Herant. *The Biology of Adolescence,* 1977.

An excellent overview of the biology of adolescence- good background material for units on puberty. It is currently out of print, however, so must be found in a library.

Parker, Steve. *The Body Atlas,* New York: Dorling Kindersley, 1993.

Beautiful full-color illustrations of the body's inner-workings, organized by sections of the body and body functions. Not only does this book review how things work, but also offers fun anecdotes about body parts, some history, and some fun facts to know.

Stein, Sara. *The Body Book,* New York: Workman Publishing, 1992.

An energetic review of how the body works. It is written for the lay person-a lighthearted but very detailed look at how the body functions. Middle school students would appreciate the tone, but would need some guidance on the detailed content.

World Almanacs: Excellent sources of information about population demographics around the world, and interesting facts about world countries and cultures. Published annually.

Multimedia Resources

It's hard to recommend the most up-to-date resources, when they change so quickly. Below we list a few favorites, but suggest that you subscribe to a catalogue that will keep you up-to-date on resources available to you. Some good catalogues include:

Educorp

7434 Trade Street

San Diego, CA 92121-2410

Enhance

1-800-777-ENHANCE

This catalog also publishes some good articles on using computer technology and educational software.

Sunburst

101 Castleton Street

P.O. Box 100

Pleasantville, NY 10570-0100

1-800-321-7511

Educational Resources

1-800-624-2926

Internet Resources

SchoolHouse Mac: A resource tool for K-12 teachers that use Macs in the classroom. It offers some good ideas about teaching tools and programs available to teachers for free on the Internet, and it offers teachers a way to communicate with each other. SchoolHouse Mac, 5326 Coats Grove Rd., Hastings, MI, 49058. On the Internet, charlie@938aol. com

You might also explore the possibility of subscribing to America Online, which offers a lot of good resource listings and public domain (freeware or shareware) material on various topics. The cost runs about $10 per month.

Videos

Miracle of Life, NOVA.

I Have AIDS: A Teenager's Story, 3-2-1 CONTACT Extras, Children's Television Workshop.

A *Child Is Born,* Leonard Nielsson.

Videodisc

Anatomy and Physiology, Videodiscovery and HarperCollins, 1-800-548-3472. Appropriate for high school and college students. An in-depth exploration of body functions and anatomy. More detailed than you need, but would help students visualize what they are learning about.

Software/CD ROM Programs

World Geograph (MECC)

MacGlobe or PCGlobe (Broderbund)

Countries of the World (CDROM from the State Department)

A.D.A.M. Essentials, A.D.A.M. Software, $119.95 School edition, 1-800-777-3642. Interactive exploration of the human body.

3-D Body Adventure, Knowledge Adventure, 1-818-542-4200. Interactive, guided tours of the body and its functions. Great graphics, easy to use.

The Human Body, National Geographic, 1-800-624-2926. Uses pictures and sound effects to explore the human body.

Body Scope, MECC, School version, 1-800-777-3642. Self-directed exploration of the body systems, and good feedback on questions.

Miscellaneous

Center for Early Adolescence, University of North Carolina at Chapel Hill.

Provides excellent resource materials, information services, training, and publications for parents and people working with young adolescents.

Center for Early Adolescence

School of Medicine

University of North Carolina at Chapel Hill

D-2 Carr Mill Town Center

Carrboro, NC 27510

919/966-1148 FAX 919-966-7657

Don't Be S.A.D.: A Teenage Guide to Handling Stress, Anxiety and Depression. Susan Newman. Messner, 1992.

This book reviews strategies for coping with stressful situations and difficult outcomes, Using real-life scenarios, this book offers preventive strategies as well as suggestions on how to take apart a situation or problem to make it more manageable.

Postponing Sexual Involvement Grady Memorial Hospital. Teen leaders from senior high schools work with 8th graders to identify and talk about pressures that lead to sexual involvement. Peer counseling has been very effective in a variety of programs around the country.

Marion Howard

Grady Memorial Hospital

Box 26158

80 Butler Street, SE

Atlanta, GA 30035

ETR Associates

P.O. Box 1830

Santa Cruz, CA 95061-1830

Publishes numerous excellent brochures and catalogues about issues in adolescence and puberty. Titles include: Puberty Facts, Growing Older: Facts and Feelings, and Abstinence.

Community Organizations

Planned Parenthood

Churches

Overeater's Anonymous

Alcoholics Anonymous

Teen Hot Line

Yellow Pages of the phone book

Local, state, and federal representatives

District school offices

Parents

Teachers

Library

10.4 Your Changing Body Glossary

adolescence the time between being a child and becoming an adult when psychological and social development occur.

adrenal glands glands found on top of the kidneys. While most of the testosterone in males comes from the testes, the adrenals are the main source of testosterone in females.

aggression in one sense, to be assertive, active, bold, take the initiative, and persist; in another sense, to attack, fight, conquer, and cause pain.

anabolic steroids human-made hormones that can temporarily increase muscle size.

anemia a condition of insufficient red blood cells.

anorexia an eating disorder that involves severe dieting and weight loss.

averages (as they relate to growth and development) The ages at which adolescents reach certain stages of puberty are collected, added together, and then divided by the number of persons studied. For example, a girl may develop breasts on average by age 13, but the normal range includes ages 8 through 17.

axillary hair hair under the armpits.

body image how we see ourselves in our own mind.

bulimia an eating disorder characterized by periods of uncontrolled overeating usually followed by vomiting or the use of laxatives to avoid gaining weight.

chronic long-lasting illness.

chronological age how old you are or how many years you have lived.

development growing, as well as improving the function of a particular organ or part of the body.

developmental age how developed you are in a psychological and biological sense at a given time.

dysmenorrhea menstrual cramps.

ejaculation a sudden discharge of semen.

endocrine glands glands that produce hormones.

endurance ability to exercise hard, for a long time, and recover from the effects of exercise quickly.

environment everything around us, or the world in which we live.

estrogen a hormone that plays an important role in the sexual maturation, menstrual cycle, and reproduction.

exocrine glands a gland such as a sweat gland that releases a secretion, through a duct.

follicle in the ovary, a small cavity that contains a developing egg.

follicle-stimulating hormone (FSH) a hormone produced by the pituitary gland that flows through the bloodstream and is picked up by the gonads. FSH stimulates an egg, or ovum, to mature in its follicle, or sac, in the female. In the male, FSH stimulates the production of sperm cells in the testes.

gender maleness or femaleness.

gender identity how you see yourself as masculine or feminine.

gender role how society expects you to behave because of being male or female.

gene a segment or a piece of DNA that codes for a specific trait.

genitals external sex organs.

gonadotropin-releasing hormone (GnRH) a hormone produced by the hypothalamus that acts on the pituitary gland to release FSH and LH.

gonadotropins (FSH and LH) hormones that control the gonads. The gonads, in turn, produce their own hormones.

gonads reproductive glands that produce sex cells (either eggs or sperm) and secrete hormones.

growth an increase in size.

growth hormone (GH) an important hormone produced by the pituitary that makes the body's bones and tissues grow larger.

heredity the process of passing on traits and variations from one generation to the next.

hormones chemical substances that the body's various systems need to perform their functions.

hypothalamus a portion of the brain that controls the pituitary gland, located right above the pituitary. It is part of the nervous system as well as part of the endocrine system.

larynx voice box.

life cycle stages in life that are predictable and repeated in each generation.

luteinizing hormone (LH) a hormone produced by the pituitary gland that flows through the bloodstream and is picked up by the gonads. In the male, LH acts on cells that are between tiny tubes where sperm are produced, causing the cells to produce testosterone, which helps develop pubic hair and build muscle.

masturbation self-stimulation of the genitals.

maturation a word commonly used to describe the development of physical, emotional, and behavioral characteristics through the growth process.

menarche a girl's first period.

menopause a stage reached when a woman no longer has menstrual periods and can no longer bear children.

menstruation the flow of blood, or the shedding of the lining of the uterus, from the vagina once a month.

nervous system the brain, spinal cord, and nerves.

nocturnal emissions semen ejaculated from the penis during sleep.

normal development a function of averages, a range within which most individuals develop in specific ways.

ovaries the female reproductive organs that produce eggs and sex hormones.

ovulation time when the egg bursts out of the wall of the ovary.

peers a group of people who are alike in age or grade level.

penis the male organ through which sperm is delivered and through which urination occurs.

physical environment the air we breathe, the food we eat, the sun that shines on us, and all else we come into contact with, whether or not we are aware of it.

pituitary gland a pea-sized gland that produces many hormones, including some of the hormones of puberty, located near the base of the brain.

premenstrual tension syndrome (PMS) symptoms that occur several days before menstruation, such as slight swelling of hands and legs, a bloated feeling in the abdomen, temporary weight gain, and headache. Other symptoms of PMS may be psychological, including moodiness, irritability, anger, trouble concentrating, and lack of energy.

progesterone a hormone that plays an important role in sexual maturation, the menstrual cycle, and reproduction.

proportion the relation of one part to another or to the whole in relation to quantity, magnitude, size, or degree.

psychological changes changes in how we think, feel, and behave as we become more mature.

puberty a period of time during which physical growth and development that lead to sexual maturity take place.

pubic hair hair around the sex organs.

receptors located either within the cell or on the cell surface that recognize and bind with hormones.

reproduce produce off spring.

scrotum the sac-like structure that contains the testes.

secondary sexual characteristics characteristics that do not directly involve the reproductive organs themselves but indicate sexual maturity and distinguish male from female.

self-esteem how you feel about yourself, or how you value yourself.

semen a whitish fluid of the male reproductive system consisting of sperm and nutrient fluids.

sex-discrimination law a law that says that men and women cannot be denied access to jobs, areas of study in school, sports, or other life opportunities on the basis of their sex.

social environment the people with whom we interact.

sperm the male sex cell.

steroids a group of organic compounds that include the sex hormones.

stress feelings of anxiety.

testes male organs where sperm cells and sex hormones are produced.

testosterone a hormone that helps develop pubic hair and build muscle.

toxic shock syndrome a condition associated with tampon use. Symptoms include high fever, vomiting, muscle aches, and a rash that looks like sunburn.

uterus a female organ for containing and nourishing the embryo during development previous to birth (also called a womb).