

## Growing Up and Liking It: Pondering Puberty

### Description

Learn the science behind the changing adolescent body and find out what to expect on the road to adulthood. Students will meet a professional health educator and discuss physical and chemical changes that occur in the body during puberty. With the aid of fun demonstrations, models and specimens, we will discuss human reproductive anatomy, menstruation, nocturnal emissions and other issues.

NOTE: This lesson is designed for boys and girls to experience together, but if you prefer single-gender groups please specify this when scheduling your program.

### Objectives

- Describe the relationship between hormones and the physical/mental changes humans experience throughout puberty.
- Identify typical physical and emotional changes that occur during adolescence.
- Compare and contrast changes in male and female bodies during childhood, adolescence, and adulthood.
- Identify major structures and functions of female and male reproductive systems.
- Describe the processes of ovulation, menstruation, sperm production, ejaculation, and conception.
- Recognize that individuals will experience puberty differently and still be normal.

### National Health Education Standards

**Grades 3-8:** Standards 2, 7, 8

- Students will analyze the influence of family, peers, culture, media, technology and other factors on health behaviors.
- Students will demonstrate the ability to practice health-enhancing behaviors and avoid or reduce health risks.
- Students will demonstrate the ability to advocate for personal, family and community health.

## How You Can Help Make This Virtual Program a Success...

- If you are joining us from your classroom computer, please arrange your room and projection screen so everyone can see us clearly.
- If you and your students are joining us from your homes, we will have an educator monitoring the Chat feature for questions. We request that you or another staff person serve as a Co-Host to help monitor students for any inappropriate Chat or camera behavior.
- If you will have a hybrid class (some at school, some joining from home), our educator will monitor the Chat and camera behavior, and we reserve the right to temporarily move any disruptive students to our Waiting Room so we or school staff can correct the undesired behavior.
- If you prefer, we can turn off all cameras and interact solely via the Chat feature.
- With this topic, students are often shy to ask questions aloud. Before our connection, invite your students to anonymously write relevant questions they would like to have answered onto slips of paper and put the slips of paper into a container. You may select any questions that are appropriate and read them aloud during the program for us to answer.
- Share the last pages of this guide, our **Q & A About 'Growing Up And Liking It'**, with any parents or teachers who have questions about this program.

## Vocabulary

**adolescence** – period of transition from childhood to adulthood marked by physical, mental and emotional changes that indicate readiness for sexual maturity (reproduction) and psychological independence. See “puberty.”

**endocrine system** – a group of glands throughout the body that produce hormones, which control many aspects of life, including growth, metabolism and reproduction. These glands include the pituitary, thymus, thyroid, pancreas, adrenals, testes and ovaries.

**endometrium** – inner lining of the uterus that produces extra blood vessels and tissue in order to nourish a developing embryo.

**ejaculation** – muscular contractions that send semen out of the penis.

**erection** – enlargement and stiffening of the penis due to blood flow into the tissues of the penis.

**estrogen** – female sex hormone produced by the ovaries that signals development of female characteristics and induces menstruation and the growth of the endometrium during the first half of the menstrual cycle.

**hormone** – a chemical messenger in the body produced by glands and carried by the bloodstream to another organ, where it signals something to happen in that organ.

**mammary glands** – milk producing organs of female mammals, which provide food for infants; breasts.

**menstrual cycle** – regular cycle of hormone changes from the beginning of menstruation to the beginning of the next menstruation; occurs every 28 days on average during a woman’s reproductive years.

**menstruation** – the periodic shedding of the lining of the uterus which results in tissue and blood flow out of the vagina. Occurs approximately once a month about two weeks after ovulation, and marks the beginning of the menstrual cycle.



**nocturnal emission** – ejaculation of semen during sleep, which is normal in adolescent males; commonly called a wet dream.

**ovulation** –release of a mature ovum (egg cell) by the ovary; occurs about 14 days before menstruation.

**ovum** – female sex cell, or egg, released by the ovary during ovulation.

**progesterone** – female sex hormone produced by the ovaries that signals development of the lining of the uterus during the second half of the menstrual cycle in preparation for implantation of the fertilized ovum (egg).

**puberty** – period of growth and development during which sexual characteristics form and an individual becomes capable of reproduction. See “adolescence.

**semen** – fluid containing nourishing and protective substances that transports sperm out of the penis during ejaculation.

**sperm** – male sex cells produced by the testes.

**testosterone** – male sex hormone produced by the testes that signals development of male characteristics and production of sperm.

## Extension Activities

### 1) Reproductive Anatomy Worksheets

Have the students work in groups or individually to label the names and functions of the reproductive anatomy parts shown on the attached worksheets.

### 2) KidsHealth.org Web Search Option

Have the students work in groups or individually to search [www.KidsHealth.org](http://www.KidsHealth.org) to find the names and functions of the reproductive anatomy parts shown on the attached worksheets. On the worksheets, label the parts. If this activity is done at home, please encourage them to do this with their parents or guardians.

## Online Resources for Teachers and Students

Click the link below to find additional online resources for teachers and students. These websites are recommended by our Museum Educators and provide additional content information and some fun, interactive activities to share with your class.

Cleveland Museum of Natural History <https://cmnh.org/edlinks>

CMNH Educators regularly review these links for quality. Web addresses often change so please notify us if any links have issues.

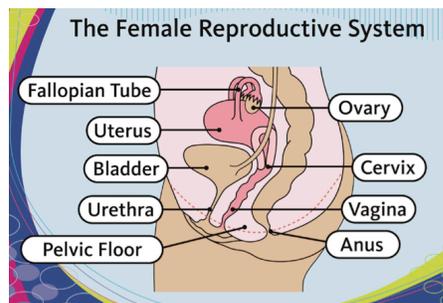
## Parent and Teacher Information about This Program

### THE FORMAT

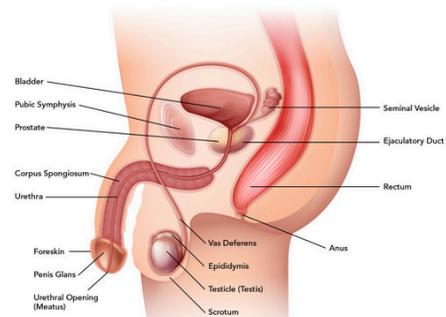
We will use a slideshow to guide the discussion, and invite students to ask questions during our talk. Two slide examples are shown below.

We will have realistic models and specimens on display during the presentation, including:

- Plastic models of male and female reproductive anatomy (similar to images below)
- Replicas of human pelvis bones and an infant skull
- Preserved specimens – uterus & endocrine glands
- Commercial hygiene products (menstrual pads, tampons, deodorant, acne products, athletic cup)



Male Reproductive System



### THE QUESTIONS

As any educator who handles this topic can tell you, most students will ask specific, health-related questions. Occasionally, we do receive written questions about sexual behavior or slang terminology; the school representative in the room always has ‘veto power’ over student questions, and our educators will always answer in a scientific, non-judgmental manner.

### QUESTIONS WE’VE HEARD FROM 5<sup>TH</sup> AND 6<sup>TH</sup> GRADE STUDENTS, AND OUR ANSWERS

**Q:** When will I start growing pubic hair / getting my period / having ‘wet dreams’?

**A:** “Everyone develops in a slightly different way, and the range of ages for kids entering puberty is from 9-15. Girls generally begin seeing physical changes before boys. Scientists call pubic and underarm hair ‘secondary sexual characteristics’, which means that it indicates your body is approaching sexual maturity but doesn’t affect the actual ability to reproduce.”

**Q:** What is a condom / tampon for?

**A:** “A condom is a thin rubber tube that is put over a man’s penis to avoid his semen touching another person’s body. It’s used to reduce the chance of a girl getting pregnant, and to reduce transmission of germs. A tampon is a small cotton plug that is placed in a girl’s vagina to absorb menstrual blood.” [With any questions about specific products, we stick with a short definition.]

**Q: What do the words ‘virgin’ and ‘sex’ mean?**

**A:** “The dictionary definition of the word ‘virgin’ is, ‘One who has never had sexual intercourse’. There are a lot of activities between two people that are called ‘sexual behavior’, but during this program we use the word ‘sex’ specifically referring to a male and a female being together, because this is how a girl can get pregnant. Anytime two people are involved with contact between their reproductive parts, it is going to affect them both physically and mentally; you really need to think about all the consequences before deciding to be that intimate with another person.”

**Q: Is it okay to masturbate?**

**A:** “First, we need to define the word—it means touching your own genitals for pleasure. Other animals do this—dolphins, horses, dogs, birds, monkeys and other animals have been documented masturbating. Some cultures have rules and taboos against this act, others do not. If a adult in your family has told you that it is wrong to touch your own body parts, then I recommend that you ask them for the reason why, and use that information to decide if you think it is okay or not.”

We handle all ‘right or wrong’ questions in this same manner—referring students back to the trusted adults in their family or religious group. For example, if a student were to ask, “Is it wrong to be gay?” we first define ‘gay’ as a term referring to homosexuality, or being attracted to members of the same sex. We then explain that some people see nothing negative about these feelings, and others are uncomfortable with them. It is up to the individual student to decide their stance on this aspect of human behavior, with advice from their trusted adults.

**Q: Why do people enjoy the ‘feeling’ of sex?**

**A:** “If we think about why male and female animals would want to mate, it is to create babies. The process of natural selection ensures that any activity helping to keep a species alive tends to be passed on to the offspring. It makes sense that mating would need to be pleasurable for the animals, or they wouldn’t want to do it and they would eventually go extinct. The same is true for humans, since we are animals. The activity of mating, or, as we call it, sex, should be a safe and non-threatening activity for both the male and the female, or we’d go extinct!”

### For More Details about “Growing Up and Liking It”

- Parents are welcome to learn about the content and format of “Growing Up and Liking It” by viewing our short video. We show the specimens and educational materials used during the program, and share answers to the most common questions that parents often ask about this program. Please contact us at 1-216-231-8002 or [eduinfo@cmnh.org](mailto:eduinfo@cmnh.org), and we will send you the link.
- VIDEOCONFERENCE Q & A WITH MUSEUM HEALTH EDUCATORS
  - Our health educators are happy to discuss these programs with your school’s staff and parents of students before the event. This discussion will take place via our videoconferencing studios; you will need a computer, webcam and microphone to connect with us. Please contact our Scheduler at 216-231-8002 for available dates and times, and for details on how to set up this virtual meeting.



## Details About the Educator Resource Center (ERC)



### Educator Resource Center

CLEVELAND MUSEUM OF NATURAL HISTORY

Celebrating 30 years of supporting science education

The Educator Resource Center is dedicated to providing teachers with the classroom resources and professional development they need to create dynamic, enriching, and inquiry-based experiences for their students.

Contact the ERC at 216-231-2075 for information on individual or school membership and/or to schedule an appointment to borrow materials.

Visit the ERC website for more information on workshops <https://www.cmnh.org/educator-workshops>

#### ERC Hours

- By Appointment Only Curbside or Browsing Appointments
- **Wed, Thurs & Fri 2 pm to 5 pm**
- Call or email ([erc@cmnh.org](mailto:erc@cmnh.org)) to schedule an appointment
- Closed major holidays & some Professional Development days.

#### Materials for Loan

With close to 100 dioramas and over 130 thematic teaching kits, our lending library has the materials you need to make science come alive for your students.

If you're interested in additional resources be sure to browse our lending library collection at <https://cmnherc.myturn.com/library/>



#### Educator Professional Development

Get connected to trending teaching methods, best practices in science education, and hot topics in current scientific research.

To learn more visit

<https://www.cmnh.org/learn/educator-resource-center/educator-workshops>

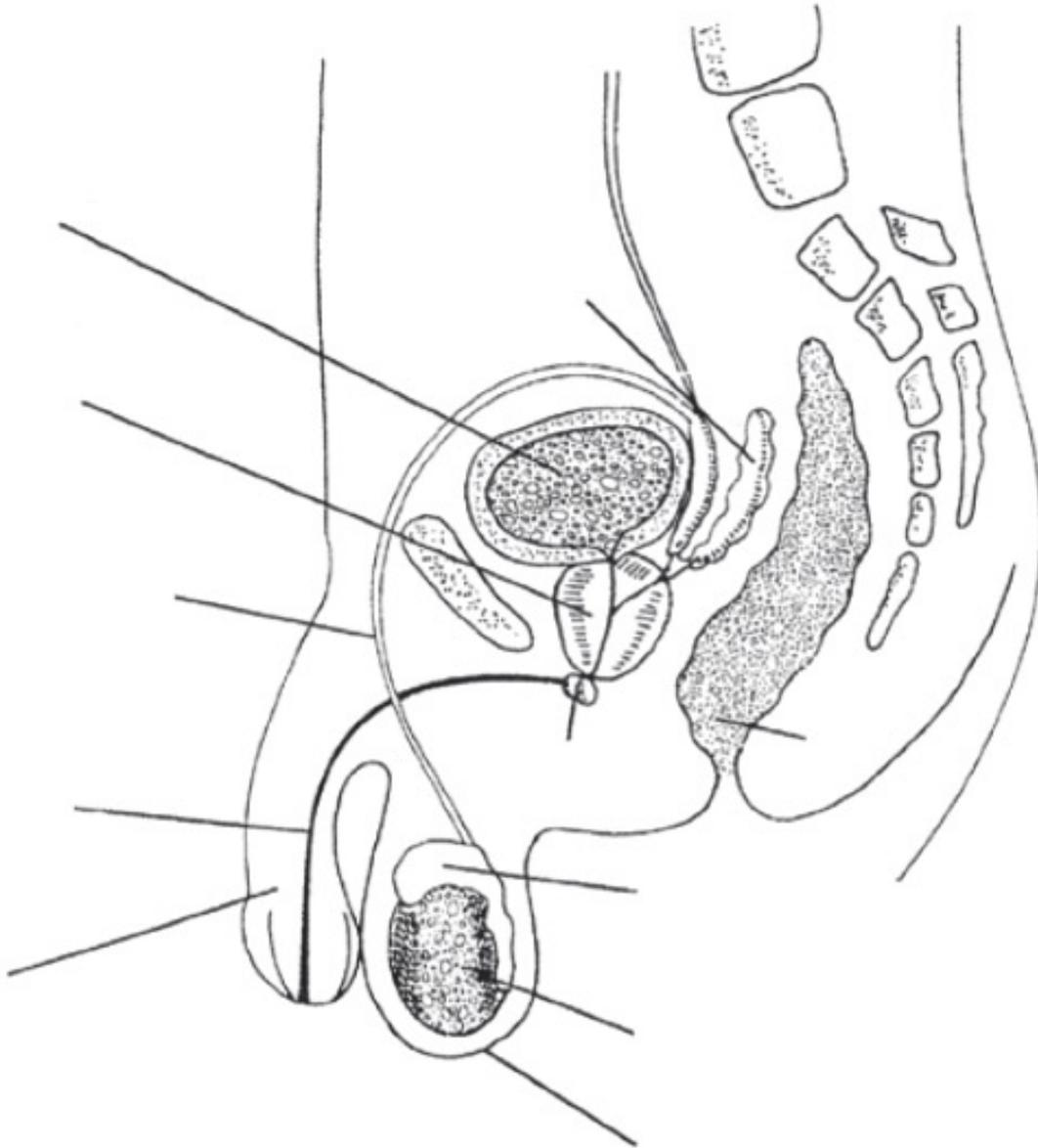
Email inquiries to [erc@cmnh.org](mailto:erc@cmnh.org) or call 216-231-2075 to speak with an ERC staff member.



### Gentlemen: You Have Them, But Can You Name Them?

Using the words below label the parts of the male reproductive system.

|         |            |                 |                     |
|---------|------------|-----------------|---------------------|
| penis   | rectum     | bladder         | ductus deferens     |
| urethra | epididymus | prostate        | bulbourethral gland |
| scrotum | testicle   | seminal vesicle |                     |

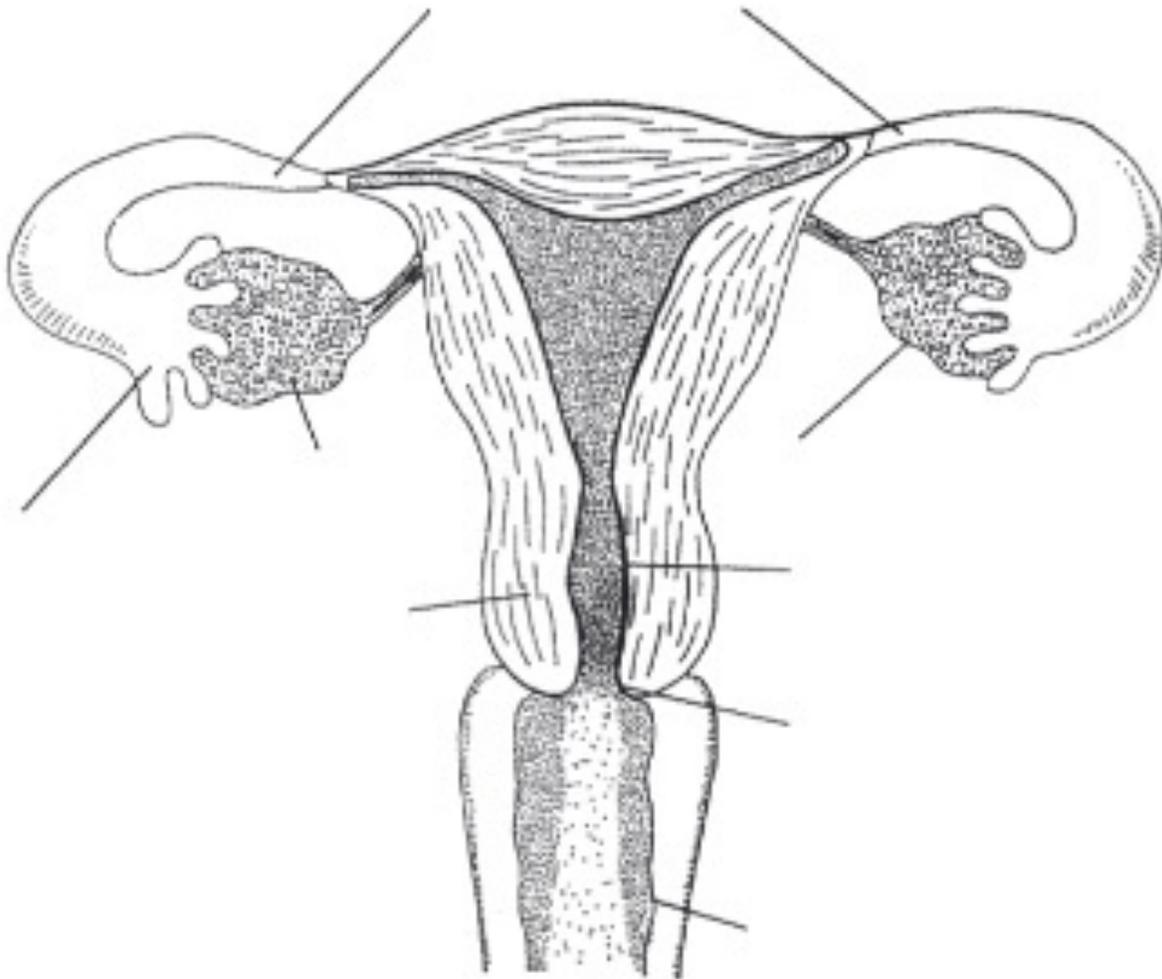


Name: \_\_\_\_\_

**Ladies: You Have Them, But Can You Name Them?**

Using the words below label the parts of the female reproductive system.

|         |        |        |                |
|---------|--------|--------|----------------|
| cervix  | uterus | ovum   | oviduct        |
| fimbria | ovary  | vagina | uterine lining |



**Name:** \_\_\_\_\_