

It's All about the Hormones

A Lesson Plan from Rights, Respect, Responsibility: A K-12 Curriculum

Fostering responsibility by respecting young people's rights to honest sexuality education.

NSES ALIGNMENT:

PD.5.CC.3 - Explain common human sexual development and the role of hormones (e.g., romantic and sexual feelings, masturbation, mood swings, timing of pubertal onset)

PD.5.CC.4 - Describe the role hormones play in the physical, social, cognitive, and emotional changes during adolescence and the potential role of hormone blockers on young people who identify as transgender

TARGET GRADE: Grade 5

TIME: 40 Minutes

MATERIALS NEEDED:

- Computer with access to PowerPoint
- LCD projector and screen
- **PowerPoint: "It's All About the Hormones"**
- White board with markers
- Extra pencils in case students need one

LEARNING OBJECTIVES:

By the end of this lesson, students will be able to:

1. Describe at least three ways in which people may develop sexually over the course of their lifespan [Knowledge]
2. Explain the roles estrogen and testosterone have on a person as they develop, physically and emotionally [Knowledge]
3. Explain what "puberty blocker" medications are and the role they play with transgender young people [Knowledge]

LESSON RATIONALE:

This lesson explores the role hormones play in the sexual development of young people and their impact on many of the common changes that occur during puberty. Additionally, the lesson overviews what puberty blockers are and how they stop the impact of naturally occurring hormones for a youth who is transgender. This lesson is helpful in establishing the role hormones play in many of the changes associated with puberty.

ADVANCED PREPARATION:

- Review the Teacher's Guide, "It's All about the Hormones" in advance of class.

PROCEDURE:

STEP 1:

Have the PowerPoint open to the first slide, "Human Development: What Happens When?"

Note to the Teacher: Be sure your PowerPoint is in Slideshow mode so that each time you advance the slide will reveal an additional answer to the activity.

Explain to students that today's lesson is going to look at not just the changes of puberty, but when these changes may happen and what causes them. Ask for someone to remind the class what puberty is, probing for, "The time in a person's life when their body goes through a great deal of growth in preparation for adulthood." Explain that you are going to begin by doing an activity.

(2 minutes)

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STEP 2:

Divide the class into groups of 3. Once they are in their groups, explain that in a moment you are going to come around the room with a timeline that indicates from birth (starting at zero) into early adulthood. At the bottom of each sheet are some of the common changes people go through during puberty. Tell students they are to work in their small groups to figure out when each change first begins. If something happens and then continues for a few years, or throughout one's life, they can indicate that with a line and arrow. Explain that you will now show them an example.

Go to the next slide, which will show the timeline with the heading "Human Development." Click to advance one more, and the word "Acne" should appear in red with a line and arrow going to the right. Using the Teacher's Guide, say something like **"Everyone is different, but usually acne begins around age 11 and 12, and can continue throughout puberty. Some people have acne into adulthood. For other people, acne goes away at the end of puberty."**

Explain that they should do the same with all the other changes listed on their sheets. Answer any questions about the directions, and distribute the worksheets to each small group. As they begin to work, circulate around the room to answer any questions they may have.

(12 minutes)

STEP 3:

After about 10 minutes, or when most of the groups have finished, call time. Go through each of the remaining terms on the list, asking for different groups to share their answers. As each answer is given, advance the PowerPoint, which will remain on the same slide but reveal the age range for the next characteristic. Use the Teacher's Guide to provide additional information as needed.

(16 minutes)

STEP 4:

Go to the next slide titled, "It's All About the Hormones!" Say something like, **"You may recall that all of these changes in our bodies happen because of two different kinds of hormones. Can someone remind me what hormones are?"** If students don't come up with the correct answer, explain that hormones are the natural chemicals in our bodies that are responsible for different parts of our growth and functioning. Ask, **"Can anyone remind me of the two main hormones responsible for the changes of puberty?"** If students do not share, reveal the responses on the PowerPoint slide: Estrogen and Testosterone.

Say something like, **"Estrogen is produced in the ovaries, and testosterone is made in the testicles."**

(5 minutes)

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STEP 5:

Go to slide #4 titled, "What If...?" Explain the difference between being cisgender and transgender using the definitions there. Say something like, **"If someone is transgender, that means they may have a vulva and ovaries and start going through puberty – but it doesn't make sense to them, because they know that they're not female, they're male or non-binary or another gender. How do you think it might make someone who is not cisgender feel when their body does this?"**

Probe for responses such as sad, confused, angry, out of control, etc. Explain that for young people who are not cisgender, there are medications they can take that basically stop their body from going through puberty. Go to slide #5 and explain that these medications are called "puberty blockers." These medications stop the testicles or ovaries from making testosterone or estrogen and then the young person can take the hormone for the gender they know themselves to be. For example, someone assigned female at birth but who knows inside that he's a boy could take puberty blockers to stop their body from making estrogen, and then begin to take testosterone so their body will develop physically as a boy. Explain that this only applies to some of the changes of puberty – such as muscle and body hair growth, voice changes, etc. This young person's body would not be able to make semen or sperm.

Explain that taking puberty blockers is a big decision and that a young person should speak with their parent, caregiver or guardian about so they can speak with their healthcare provider. These aren't medications that can be used by someone who's cisgender who just doesn't like the way they feel when they go through puberty.

Answer any remaining questions from the students and close the lesson.

(5 minutes)

RECOMMENDED ASSESSMENT OF LEARNING OBJECTIVES AT CONCLUSION OF LESSON:

Steps 1 - 3 are designed to achieve learning objective one. Step 4 is designed to achieve learning objective two. Steps 5 - 6 are designed to achieve learning objectives three.

HOMEWORK:

Watch the Amaze video, "*Puberty and Transgender Youth*" available here - <https://amaze.org/video/puberty-and-transgender-youth/>. Discuss what you learned with a trusted adult.

Human Development: What Happens When?

Instructions: At what age(s) do the following changes happen? Add in when they start on the timeline above. Draw a line to the right with an arrow for any that continue on.



CHANGES

Acne

Body hair grows (armpits, legs, around genitals)

Breasts grow

First boyfriend/girlfriend/partner

Growth spurt (get taller)

Mood swings

Muscle growth

Period begins

Sperm production begins

Sweat starts to smell

Voice cracks/deepens

Wet dreams

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Teacher's Guide

Instructions: Use this guide to go through and supplement the responses to the timeline activity.

Acne – Everyone is different, but usually acne begins around age 11 and 12, and can continue throughout puberty. Some people have acne into adulthood. For other people, acne goes away at the end of puberty.

Body hair grows – This can start around age 9 or 10, or begin later. This type of body hair isn't just the hair on our heads or arms. This body hair will be thicker and darker, even if we have lighter hair, and appear on the legs, in the armpits and around the genitals.

Breasts grow – Breast growth can begin at age 9, but may not start until someone is in their teens. Once in your teens, breasts won't grow any larger. Someone who is assigned male at birth may experience temporary breast growth during puberty, but it usually goes away on its own.

First boyfriend/girlfriend/partner – Around age 10, some people start to have their first interest being with a girlfriend, boyfriend or partner. Other people don't have that interest until they're in their teens or adulthood – and some people are never interested in being in a relationship like that. Everyone's different, and it's normal to be different!

Growth spurt (get taller) – Most people continue to grow from the time they are infants. During puberty, we tend to see a bigger growth spurt which can result in achy joints, clumsiness and having trouble sleeping temporarily. Most people are the height they are going to be by their late teens, although some people may grow a little more in the year or two that follows.

Mood swings – Some people are moody throughout their lives – but in this case, moodiness and mood swings can be really strong during puberty. This can happen anytime from around age 11 (or younger) and continue up into our early 20s (unless we discover we are just naturally moody people!). This could look like feeling up and down without a particular reason or being super sensitive to how people are/talk with you.

Muscle growth – Muscles are also parts of our bodies that grow from childhood, but in puberty we gain more muscle. Everyone is different, so some people may have more or less muscle growth. This tends to be concentrated during the teen years and end by the early 20s, although people can develop their muscles well into their adult years.

Period begins – If someone has a uterus, one of the biggest changes of puberty is starting to menstruate or have a period. This tends to begin at ages 10 – 14, but can begin earlier than that. Periods tend to continue until around age 45 – 55, and ends with “menopause.” While some cisgender girls celebrate periods as part of growing older, transgender and other young people who were assigned female at birth, but do not identify as female, can find getting a period very upsetting.

Sperm production begins – Sperm are one of the two cells used to reproduce. During puberty, testicles begin to make sperm. This tends to start at around age 12 – but again, everyone is different. Testicles continue to make sperm until a person's death, although they tend to make fewer in old age.

Sweat starts to smell – We all sweat from the time we're infants – it's part of our bodies' process regulating our temperature. Once we get to about age 9 or so, our sweat changes and starts to smell. This is a normal part of puberty and growing older, and continues throughout our adult lives.

Voice cracks/deepens – Younger children tend to have higher pitched voices. As we go through puberty, our voices start to get deeper, although how deep can range from person to person. Some people continue to have higher voices, and some have particularly lower voices. As our voices figure out where they're going to land, they may crack a bit or sound a little froggy or raspy. This is normal! This can start at around age 10 or 11 and usually settles by our late teens/early 20s.

Wet dreams – For people who have testicles, one of the first signs that puberty is beginning is possibly having a wet dream, or “nocturnal emission.” This is when the penis releases semen, the sticky fluid that will eventually contain sperm, during sleep. This can feel embarrassing because people think this means they've wet the bed, but that's not the case. It's a normal part of growing up. While it tends to begin when puberty begins, around age 11 or 12, it isn't something that happens every night or to everyone with testicles going through puberty. Wet dreams happen far less often in the late teens/early 20s, and although they can happen to adults, are really infrequent.