

PURPOSE

To help students confidently understand the hormonal biomarkers they will observe in their cycles and how to chart. To teach students about how the three pillars of health impact their hormones and health.

LEARNING OBJECTIVES

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

1. Chart their cycles, regardless of their stage of puberty.
2. Recognize healthy cycles.
3. Understand the important impact of hormones on their physical development.
4. Know how to make healthy nutrition choices to support their health.

MATERIALS & RESOURCES

- Lesson 6 teenFEMM powerpoint
- Worksheet: Amira and Faizah (coloring supplies needed)
- Checklist: Healthy Choices Challenge
- teenFEMM Chart

VOCABULARY

- **Hormones:** Chemical signals that travel in the bloodstream, directing the activity of every system in the body.
- **Health Pillars:** Nutrition, exercise, and sleep are three essentials in maintaining good health.
- **Nutrition:** Foods that nourish the body, necessary for health and growth:
 - **Proteins:** build and maintain cells, help make hormones.
 - **Carbohydrates & fats:** provide energy, balance hormones.
 - **Vitamins & minerals:** build and maintain cells, balance hormones.
 - **Water:** carries nutrients, energizes muscle, clears waste.

- **Habit:** Something you do so often that it becomes natural to you.

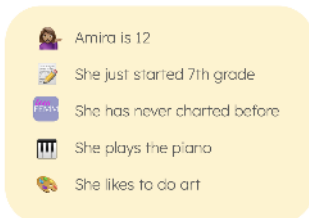
PREPARATION

- ☐ Print the **Amira & Faizah Worksheet** for each student. Students will require coloring supplies.
- ☐ Print the Checklist: **Healthy Choices Challenge** and Notes page for each student.
- ☐ Print a **teenFEMM chart** for each student.

Step 1 (5 minutes): Amira & Faizah

In this lesson, we are going to look at what would be a normal and healthy chart for a girl during puberty.

Meet Amira!



Meet Amira and Faizah

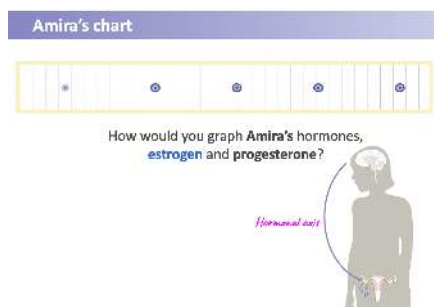
Amira is 12 years old and just started 7th grade. She has never charted before. But, one day, she found a chart in the bedroom that she shares with her sister, Faizah. Faizah learned about teenFEMM at school and had already started to chart. Faizah is a year older and has already had her first period. Amira is really close with Faizah (even though they fight... a lot!) and thinks that pretty much everything Faizah does is cool. So, Amira wants to know everything about her body, too, and what all of the changes she is seeing mean.

When Amira asked Faizah about her chart, Faizah explained everything. Their mom came into their room and the three of them had a great chat. Faizah explained that when she was first learning to chart, there were times where she wondered if it was even worth it to chart! She felt like nothing was changing. Then she started to notice more changes. Faizah told Amira that it's important not to give up and that it's worth it to get into the habit of charting to see how everything is developing.

Step 2 (10 minutes): Worksheet: Amira and Faizah

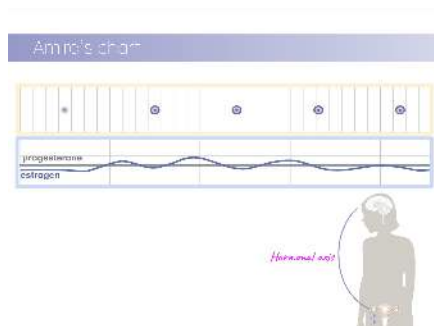
Hand out the **Amira and Faizah Worksheet**. Let's try to chart what Amira might be starting to see. On your worksheet, draw the levels of estrogen and progesterone, based on what we see in the ovary. Then, fill in Amira's chart.

Give students a couple of minutes to complete the first page of their worksheet and then show the following slide:



In puberty, as your brain is learning to communicate with your ovaries more, this produces small rises in **estrogen**, while progesterone stays the same. Remember: progesterone is produced after we ovulate. So, no ovulation, no progesterone. However, these small rises in estrogen happening in the ovary, as the follicle starts to grow are important. It indicates that the body is strengthening its brain-ovary communication, which we call the *hormonal axis*.

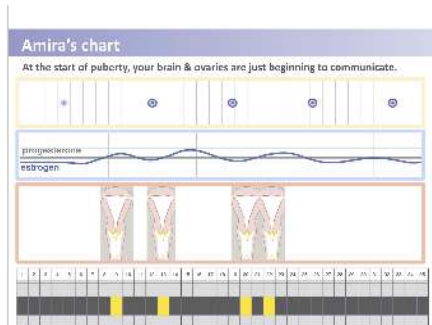
Based on this slight rise of estrogen in her body, what would Amira's hormones look like? Show the following slide, showing a straight line for progesterone and a slightly wavy line for estrogen.



What will this look like if Amira is charting her observations each day? Well, we can see

that her body may be producing pasty/crumblly mucus. What would she chart?

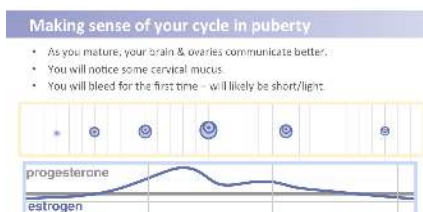
For Amira, this slight rise in estrogen would mean that she would see or feel crumbly, pasty mucus, which she would chart with the color *yellow*. Her chart would look something like this:



Now, take a couple of minutes to fill in the second page of the worksheet. *Give students a couple of minutes to answer the questions about Faizah.*

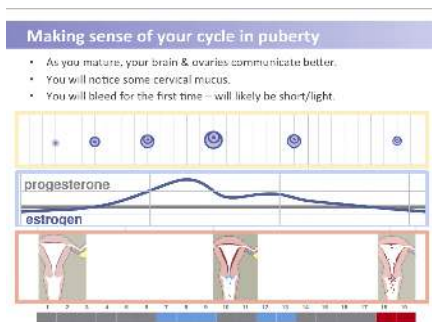
As you can see from the activity in the ovary, Faizah's hormonal axis is a bit more developed, as she's older. She notices more moisture, and not just a pasty or crumbly feeling or observation.

What would Faizah's estrogen and progesterone look like?



Her estrogen levels were more steadily rising, but then they declined. Faizah did not ovulate. Since she isn't ovulating yet, her progesterone levels remain the same and so this would be drawn as a flat gray line.

Based on her hormones, what would Faizah be seeing or experiencing? What would her chart look like? It would look something like this:



Let's talk through this chart. Moving from left to right, we can see that Faizah's hormone levels are low at the beginning of this chart. On her first day of charting she doesn't notice anything; there is no mucus and so she charts *gray* for dry. It's the same for six days. Then on her day 7 of charting, as her estrogen is rising she feels a sensation of moistness and observes this biomarker in her underwear. She knows this indicates a higher level of estrogen. She experiences this on day 7, 8 and 9 and charts *blue* each day. Then she has two dry days, then another two days of moist. Faizah doesn't actually ovulate here, but her chart is normal. Her observations indicate that her brain and ovaries are communicating more, which is a sign of her body's hormonal health.

In the two charts of Amira and Faizah, you can see that estrogen is the main hormonal biomarker. *Why does it all start with estrogen?* We can think of estrogen as a hormone that proliferates, builds and develops. It helps to build your bone density and is critical to forming the pathways in your brain. **It literally affects how you think as you grow!**

If you want to have healthy skin, hair, and the body shape that is just right for you depending on your genetic makeup, you will want to chart, to take note of this progression from early cycles where estrogen is the main active hormone, to ovulating cycles where progesterone begins to balance out the effects of estrogen.

Ovulation Balances Estrogen and Progesterone:

	estrogen	progesterone
uterus	tones, contracts	relaxes
uterine lining	grows	maintains
breasts	grows	normalizes
bones	tones	remineralizes
blood vessels	dilates, increases flow	relaxes, normalizes clotting
brain cells	stimulates	maintains and heals
well-being	normal levels promote well-being; high levels increase anxiety	promotes sleep and relaxation; decreases anxiety

"Ovulation is a sign of health" means that if you're ovulating it's a good health indicator that your body is getting both estrogen and progesterone in the right amount!

Ovulation is a sign of health because it indicates that your body is getting both estrogen and progesterone in the right amount. As you can see from this slide, estrogen and progesterone do very different things in the body, which is why you need both to feel good and be healthy.

Step 3 (15 minutes): Health Pillars; Nutrition and Hormones

To help our bodies, there are three important things we can do. Do you know what they are?



The three health pillars: nutrition, exercise and sleep. Making excellent choices is important because your choices form habits. *What is a habit?*

Habit: *Something you do so often that it becomes natural to you.*

When Faizah started to chart, it was hard. She didn't know if it was worth it as she wasn't seeing much going on with her hormones. But, in practicing the habit of charting each day, it became natural to her to know what was going on inside her body. Because of this, she was able to easily explain charting to Amira.

It takes practice to make excellent choices. But, it can start with the three pillars.

1. **Nutrition** is the nourishment that your body gets from the food you eat. Good nutrition supports a healthy body and healthy brain. A lack of nutrition doesn't give our brain or our body the fuel it needs to function and grow properly. Listed here are the food groups that are important to everyone's health. Take a look and see if you think you're getting these groups in your meals each day.

Nutrition & hormones

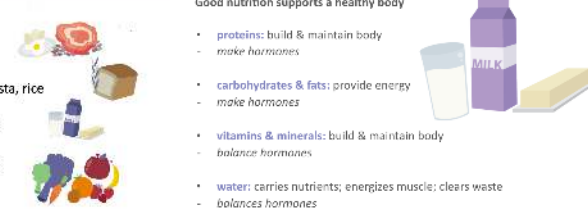
Good nutrition feeds your whole body!

- **Proteins:** meat, eggs, fish, nuts, beans
- **Carbohydrates:** whole wheat bread, pasta, rice
- **Good fats:** nut butters, olive oil, yogurt
- **Vitamins & minerals:** fruits, vegetables
- **Water** - don't forget to hydrate your body!

Nutrition & hormones

Good nutrition supports a healthy body

- **proteins:** build & maintain body
- make hormones
- **carbohydrates & fats:** provide energy
- make hormones
- **vitamins & minerals:** build & maintain body
- balance hormones
- **water:** carries nutrients; energizes muscle; clears waste
- balances hormones



Ever heard the phrase, “You are what you eat?” Well, our bodies use the energy from the food we eat to do absolutely everything. So, if you skip breakfast and eat only candy for lunch (or even worse, eat nothing at all!), you aren’t giving your body any of the fuel it needs, such as protein, carbohydrates, good fats or vitamins and minerals. Give your body the food it needs and you’ll have the energy to do more.

What about the other two pillars, exercise and sleep?

Exercise & sleep



Exercise

Your mind and body needs
60 minutes
of physical activity a day!



Sleep

Your mind and body needs
8-10 hours
of sleep each night!

2. **Exercise:** our body was made to move! Physical activity improves your blood circulation, prevents bone loss, boosts energy, reduces anxiety, improves your quality of sleep... and more! Start with an activity that you like: walking, playing a sport, biking, etc. (Some people go jogging just to listen to their favorite music!)
3. **Sleep** is so important for your mental and physical health. But did you know that getting eight hours of sleep each night can actually make you smarter, nicer and improve your skin? Studies show that getting eight hours of sleep at night sharpens your thinking and facilitates creativity. Also, when we get enough sleep, we actually read people’s emotions better and are more empathetic, which leads

to better relationships at home and at school. Staying up late raises your stress levels. When your stress levels are raised, the body produces more sebaceous oil, which causes breakouts on the skin.

CONCLUSION (5 minutes): *Healthy Choices Challenge + teenFEMM Chart*

Hand out a **Healthy Choices Challenge** and a **teenFEMM Chart** to each student.



At the bottom of the **Healthy Choices Challenge** you'll see a chart. You can start charting on this page or you can use the **teenFEMM Chart** to take home with you. You will not be required to show this in class, it is just for you to practice and gain confidence charting. The **Healthy Choices Challenge** is an opportunity to check your habits! What's your mood like? Does it change after you exercise? What kind of foods did you eat today? Did you get 8-10 hours of sleep the night before?

In this lesson, we learned more about charting and what healthy hormones look like as you journey through puberty.

Review

- Charting is a habit and we can start any time!
- Charting helps us pay attention to our **biomarkers**, the signs that our body is giving us.
- Our cycles will change over time.
- Nutrition, exercise, and sleep are key to giving us a good foundation for our health!

We also learned about how important it is to make healthy food choices, because what we eat impacts our brain and body health and how these hormonal messages are sent and received. Next lesson, we'll talk a little bit more about exercise and sleep, and how important they are to our physical and mental well-being.

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