

PURPOSE

To teach students body literacy, in order to understand their hormonal biomarkers and chart their cycles.

LEARNING OBJECTIVES

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

1. Understand the connections between hormones, the brain, and the body.
2. Know the specific roles of estrogen and progesterone in their health.
3. Know how to read and chart the cycle.

MATERIALS & RESOURCES

- Lesson 5 teenFEMM powerpoint
- **Worksheet: Fill in the Blanks** + Teacher's Answer Key
- **Worksheet: Chart Hormonal Biomarkers** + Teacher's Answer Key
- **Handout: Period Pointers**
- **Worksheet: Charting** (coloring supplies required)

VOCABULARY

- **Charting:** A way to write down health observations.
- **Biomarkers:** Signs of hormones and other changes in your body. Can take the form of menstrual bleeding, cervical fluid, and other physical or emotional signs that help you understand your body.
- **Cervical Fluid:** Fluid secreted by the cervix which changes in consistency (dry to moist) based on changing hormone levels.
- **Menstruation/Period:** At the end of each cycle the lining of the uterus sheds, which causes bleeding.

PREPARATION

- ☐ Print the **Fill in the Blanks Worksheet** for each student.
- ☐ Print the **Chart Hormonal Biomarkers Worksheet** for each student.
- ☐ Print the **Period Pointers Handout** for each student.

PROCEDURE

As we've discussed in the previous lessons, hormones begin and direct all of the physical changes of puberty. The two main female hormones, estrogen and progesterone, impact your whole body, including the organization of the still-developing teen brain. The brain is the command center, directing the ovulatory cycle.

*When groups are finished, review the answers as a class using the following slide or with the **Answer Key** provided in the materials.*

Answers: Fill in the blanks:

	Estrogen	Progesterone
uterus	lowers, constricts	relaxes
uterine lining	grows	maintains
breasts	grows	maintains
bones		
blood vessels	thickens, increases flow	relaxes, normalizes
brain cells	stimulates	maintains and helps
well-being	normal levels promote well-being, high levels increase anxiety	promotes sleep and relaxation, decreases anxiety

Estrogen and progesterone don't just influence parts of the female reproductive system; estrogen and progesterone influence **every part of your whole body**. The two hormones need each other to balance the effects of the other.

Estrogen and Progesterone help your whole body



Because Estrogen and Progesterone impact our overall health, it is important to learn to track or “chart” our cycles. What is *charting*? **Charting** is simply *a way to write down health observations*.

Charting the cycle: Biomarkers



Biomarkers are signs that the body gives us, like menstrual bleeding, cervical fluid, and physical or emotional symptoms, to tell us what our hormones are doing inside the body.

Remember: **right now, as you enter puberty, some of you will see signs of estrogen and**

progesterone before other girls do, and that’s completely normal and healthy. If you have not yet begun to menstruate (you have not experienced your first period), your hormones may be rising and falling a little bit but it’s unlikely that you will have high enough hormone levels to be ovulating yet. But, as you grow through your teen years, charting your biomarkers will help you understand your hormones and their impact on your mood and behaviors.

Step 2 (10 minutes): *Review biomarkers; Learning to Chart Hormones*

Today, we are going to start to chart (to record on paper) the **biomarkers** that can be observed in the body. By recording these, we can understand what our hormones are doing and know that they are healthy!

First, we will review the different hormonal changes and the color we use to chart them. Let’s fill in our worksheet and see if you can remember the different colors that we use for each biomarker.

Hand out the **Worksheet: Learning to Chart Hormones** from the materials and begin to fill it in together as a class, reviewing the biomarkers and colors.

Worksheet: Learning to Chart Hormones

teenFEMM

Worksheet: Learning to Chart Hormones
teenFEMM – Grade 7 | Lesson 5

Color	Symbol	Color name	Biomarker observation
pink		pink	bleeding
		white	ovulation
		blue	ovulation
		grey	ovulation

The first observed biomarker on the worksheet is bleeding. This is maybe an obvious sign and easy to chart. Hormonally, bleeding means that the lining of your uterus, called the **endometrium**, is shedding. You will know and experience this as your period, or menstruation. This is a normal sign of reproductive health. On the chart what color do we use to note bleeding?

Students should answer “red” and fill in the appropriate box on their worksheet.

Tracking your bleeding pattern will be easy and obvious and is something that every

woman can do to understand and manage her body. Each day that you have your period, you simply color in “red” on your chart. If the bleeding is heavy, you can write the letter **H** on your chart. If it is moderate, you use the letter **M**. If it is light, use **L**. If you have bleeding that is very light, irregular, or is outside the time of your normal menstruation, you call that kind of bleeding spotting and write an **S** on your chart.

If your bleeding is heavy, you might find that sometimes it will get on to your bed sheets or onto your clothes. Sometimes, it’s just a matter of finding the right product for you. Other times, it might be good to talk to your parents or doctor about this, especially if you have bleeding that lasts for more than 7 days each month.

The next biomarker (in other words “what you notice” during the day as you use the bathroom or when you change your clothes after playing sports) is listed as “pasty.” The hormone Estrogen is what causes the cervix to produce cervical fluid. Low levels of estrogen produce low levels of cervical fluid. You might notice this as a pasty or crumbly observation on the inside of your underwear. What color do we note on our chart if we see this? *Students answer “yellow.”* This represents the presence of low estrogen in our body.

As estrogen rises you may feel this fluid/slippery sensation when you wipe. Instead of wondering what it is, why it’s there, and if there might be something wrong with you, tracking your cycle will help you recognize that this mucus appears every month and is very normal and healthy! *It’s a sign that estrogen is reaching peak levels and impacting every part of your body. High levels of estrogen equal high levels of cervical fluid.* Do you know which color we put on our chart for this fluid? *Students should answer blue.*

Lastly, we see the biomarker observation “dry”. Dry days after ovulation are a sign of progesterone in your body. You may also have dry days before ovulation as your estrogen is not yet rising. *What color do we put on our chart when we feel this sensation? Gray.*

Answers: Learning to Chart Hormones

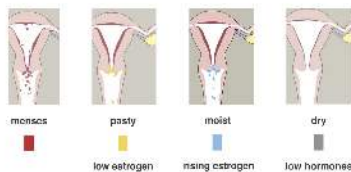
teenFEMM

Worksheet: Learning to Chart Hormones
teenFEMM – Grade 7 – Lesson 5

Color	Symbol	Hormone	Biomarker observation
Red	H.M.U.L.S	very low estrogen + progesterone	bleeding
Yellow		low estrogen	pasty
Blue		Estrogen	moist or slippery
Grey		Progesterone	dry

Now that you have this handy chart filled in, you have a great reference sheet to understand the hormones inside your body and how you can observe them.

Charting normal changes



Knowing these hormonal biomarkers is called body literacy. It's about being able to read the different signs of your body.

Step 3 (5 minutes): *Introduce Menstrual Products; Handout: Period Pointers*

There are many different choices when it comes to the products you can use during your period. At first, many girls prefer to use pads, which come in varying sizes, shapes, and thickness depending on how heavy the bleeding. There are pads for heavy and medium flow and then there are panty liners which are much thinner for light days of bleeding. Other girls might use tampons, which also come in different sizes. Tampons are inserted into the vagina and removed and changed throughout the day as needed. It is really important to change your pads and tampons frequently; using one pad or tampon for more than 8 hours can cause serious bacterial infection. There are a lot of chemicals and plastics in ordinary menstrual products and so some teens also find that using cotton pads or tampons is less irritating.

If you haven't begun to menstruate yet, this might be a good time to talk to a trusted adult about the different products and which ones may be right for you. Do you have a trusted adult you can speak to about this?

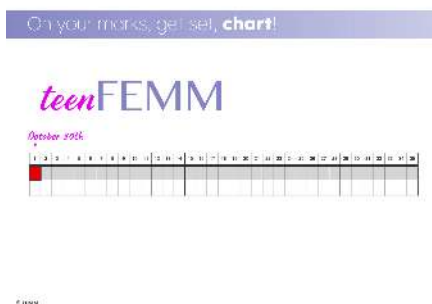
Give students the **Handout: Period Pointers** for them to read and keep.

Remember, your period is a healthy, normal part of your hormonal cycle. This bleeding that happens each month may sometimes feel overwhelming or inconvenient, but it is nothing to be embarrassed about. In fact, it is sort of like your very own superpower; it can tell you a lot about your health and gives you a reminder and a window into your body's hormones. In the handout provided, you'll see that there are some recommendations for when you're on your period or how you can feel more confident and prepared.

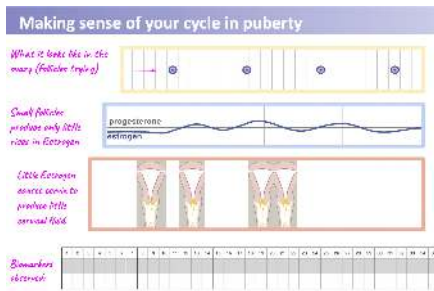
Step 4 (10 minutes): Charting Worksheet; review chart together.

Did you know that FEMM has a free app to support you in your charting? The app is available for android and apple devices and is easy to use, so you can chart your biomarkers, physical symptoms and emotions. For today, we'll use a paper chart, but the concept is the same.

Let's take a look at this practice chart together. The left side is the first day of this girl's chart and moves from left to right, each square representing one day. In this example, the first day of her period is charted as red, and she also notes the calendar date as October 30th.



On the next slide, at the top of the page, you can see the follicle. There is not much happening with it yet! Then, there is a graph of the level of progesterone in gray and estrogen in blue. The graph shows that progesterone stays the same, but the estrogen is just beginning to rise a little and then fall in her body.



Even though estrogen levels are low, these levels are still important to help her body to grow and mature. In the third row, we see the impact of the estrogen rises on the cervix, producing some small amounts of cervical mucus. What biomarkers do you think she would observe?

Hand out the **Charting Worksheet** for students to fill in with pencil crayons. If needed, students can use the **Worksheet: Learning to Chart Hormones** filled in at the beginning of the class for reference.

Charting Worksheet

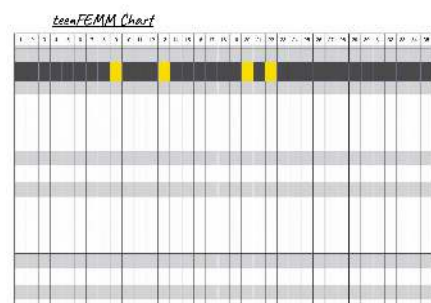
teenFEMM

Charting Worksheet
teenFEMM - Grade 7 | Lesson 5

It is time again to use the map of the cervix you would use for days 1-8! What should she chart when she experiences "dry" days? (What signs or biomarkers occur?)

The worksheet is a 28-day cycle chart. It includes a map of the cervix for days 1-8, showing the cervix as a small, dry, and closed. The rest of the chart is blank for students to fill in.

Give students a few minutes to fill in the practice chart on their own. Once students are finished, show the following slide:



Talk through the answers as a class. You can see from days 1-8 she doesn't notice anything, and feels dry. What color should you have filled in for those days? *Students should answer Gray.* On day 9, she notices something sticky in her underwear. What

color should she chart that with on day 9? *Yellow. Low estrogen.* On days 10, 11, and 12, she doesn't feel anything when she wipes. Dry. What color do we use? *Gray.* On day 13, she notices something similar to what she saw on day 9. What color? *Yellow.* On days 14-19, she doesn't notice anything. *Gray.* On day 20, she notices a crumbly mucus again. *Yellow.* On day 21 she feels dry again. *Gray.* Then, on day 22, she notices something pasty again. *Yellow.* After that, as you can see, progesterone remains the same and estrogen drops down. What do you think she is feeling/seeing when there is no hormonal activity? *Dry. Gray for the rest of this cycle.*

CONCLUSION

Review

- Charting helps you to create your very own health record.
- This means you to see what your hormones are doing inside of your body! *Obviously you have to admit that's pretty cool!*
- Taking time to learn to track your biomarkers helps you to understand what's going on in your body, feel confident and learn what you can do to support your overall wellness.

© 2024

You did a great job charting today! Charting can be a bit overwhelming at first but once you understand what's happening in your body it's an easy habit to track your hormones! Throughout the next few lessons, we will be able to talk about what we can do to help keep our hormones and bodies healthy.

REFERENCES

teenFEMM Course Materials, Lessons 1-6

Vigil, P., Ceric, F., Cortés, M.E., & Klaus, H. (2006). Usefulness of monitoring fertility from menarche. *Journal of Pediatric Adolescent Gynaecology*, 19(3), 173-9.

<https://doi.org/10.1016/j.jpag.2006.02.003>