CHAPTER 1

The Menstrual Cycle - Teacher’s Guide (Human Biology)

CHAPTER OUTLINE

1.1 Planning
1.2 Using The Menstrual Cycle - Student Edition (Human Biology)
1.3 Activities and Answer Keys
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 woman “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.
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.
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 relationship 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.

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**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.

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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)?

What Do You Think?

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?

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**Journal Writing**

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

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1. What is happening in the ovaries?
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