Learner Outcomes

W-7.3 Examine the human reproductive process, and recognize misunderstandings associated with sexual development

How To Use

This lesson plan contains several activities to achieve the learner outcome above. You may choose to do some or all of the activities, based on the needs of your students and the time available. Some of the activities build on the ones that come before them, but all can be used alone.

For a quick lesson, combine activities A, B and F.

Classroom Activities & Timing

A. Ground Rules (5-10 minutes)
B. Reproductive System Diagrams (20-30 minutes)
C. Reproduction Process (20-40 minutes)
D. Reproductive System Infographics (20-30 minutes)
E. Sexual Reproduction Kahoot! Quiz (15-20 minutes)
F. Question Box (5-10 minutes)

Required Materials

HANDOUT and ANSWER KEY: Male Reproductive System
HANDOUT and ANSWER KEY: Female Reproductive System
CARDS: Reproduction Process
DIAGRAMS: Menstrual Cycle, Sperm Production, Fertilization, Implantation
Background Information for Teachers

This lesson deals with the biological processes of sexual intercourse and reproduction. There are many additional ways that families are created, including in vitro fertilization, adoption, surrogacy, fostering, and using donor eggs or sperm.

Students need to be able to identify the basic components of the human reproductive systems and to describe how they function in order to discuss human sexual reproduction. This lesson provides students with an overview of human sexual anatomy and physiology, menstruation, sperm production, fertilization and implantation. This material is part of the Grade 5 learning outcomes, so for many students it will be a review rather than new information.

Inclusive Language

Language is complex, evolving, and powerful. In these lessons, gender-neutral language is used to be inclusive of all students, including those with diverse gender identities and sexual orientations. This includes the use of ‘they’ as a singular gender-neutral pronoun. The lesson plans use the terms ‘male’ and ‘female’ when referring to biological sex (sex assigned at birth), such as when discussing reproductive anatomy. A person’s reproductive system can be male, female or intersex (not clearly defined as either male or female).

People are assigned a sex at birth based on their reproductive anatomy. Sex assigned at birth is independent of gender identity. Gender identity is a person’s internal sense of identity as female, male, both or neither, regardless of their biological sex assigned at birth.

For many people, their gender matches the sex they were assigned at birth (cisgender). Others may identify as being transgender or gender diverse if their gender identity does not match the sex they were assigned at birth. A person’s gender identity can be girl, woman, boy, man, transgender, gender fluid, gender queer, agender or others. The intention in this material is to use language that reflects these many possibilities.
Grade 7 Reproduction

Reproduction

The following are some key concepts regarding reproduction. More detailed information about the female and male reproductive systems and sexual reproduction can be found in the Grade 5 lesson plans.

Egg (ovum)

- The egg is produced and stored in the ovaries.
- An egg is released once a month after puberty begins (ovulation). Occasionally two or more eggs (ova) are released.
- The egg travels down the fallopian tubes to reach the uterus.
- If the egg is not fertilized in a day or so, it dissolves.

Ovulation

- Ovulation may alternate from one ovary to the other each month, may be mostly from one ovary, or may be random from one month to the next.
- People can experience varying degrees of sensation during ovulation from nothing at all to pain similar to that of menstrual cramps.

Menstruation

- Menstruation is the part of the menstrual cycle where the uterine lining is shed through the vagina.
- The uterus prepares for growth of a baby each month, in case fertilization occurs.
- Hormones from ovaries send a message to the uterus to grow a thick, soft lining of tissue and blood.
- If the egg is not fertilized in the fallopian tube, the lining is not needed to nourish the baby, so the uterus will shed the lining.
- It takes 2-7 days to shed the lining. Five days is the average.
- A cycle of 28 days is most common; however it can vary from 24-38 days. Some people have regular cycles, and some do not. It is common for periods to be irregular in the first few years.
- Menstruation is a normal part of puberty. It is not dirty or bad.
- Menstruation is not a sickness. People can participate in their regular daily activities during their period.
- If menstrual symptoms are severe, a person can speak with a health care provider.

Sperm

- The male reproductive cells are made every day in the testicles.
- The sperm mature in the epididymis, travel up the vas deferens and mix with fluid from the seminal vesicles and prostate to form a white sticky fluid called semen.

Semen

- The combination of sperm and fluid from the seminal vesicle and prostate that is ejaculated from the penis.
Erection
- The brain sends a message to the body to increase blood flow to the penis which fills the spongy area in the penis making it hard (erect) and often stand out from the body.
- People may have erections at any age. During puberty, they may occur more often. Erections are sometimes due to a sexy thought or feeling and sometimes because of hormone changes or as a reflex reaction to certain sights, sounds, smells, thoughts or touch.
- Erections are a normal process of growing up.
- Erections can go away by themselves or after ejaculation.

Ejaculation
- Ejaculation is the release of semen and sperm from the penis, usually as a result of an orgasm.
- Although people may experience erections at any age, they do not ejaculate until puberty, when their bodies begin producing sperm and semen.

Nocturnal emissions
- Nocturnal emissions (wet dreams) occur when a person ejaculates in their sleep.
- This is the body’s way of adapting to the start of sperm and semen production.
- Some people have wet dreams and others do not. Wet dreams usually end later in puberty once the body is used to producing sperm and semen.

A. Ground Rules

Ensure ground rules are established before beginning this lesson. For classes that have already established ground rules, quickly reviewing them can help ensure a successful lesson.

B. Reproductive System Diagrams

Students identify the basic parts of the human reproductive systems and describe how they function.

1. Show students the Reproductive Systems diagrams, which show the location of the reproductive systems in the body and help students to understand the more abstract internal diagrams that come after.

2. Distribute the Male Reproductive System handout.
Grade 7 Reproduction

3. Ask students to label the diagram according to the instructions. You may choose to do this activity together with the students using a projector while student volunteers read from the handout.

4. If you didn’t do the activity together, ask students to correct their diagrams using the answer key.

5. Repeat the same process using the Female Reproductive System handout and answer key.

C. Reproduction Process

*Students demonstrate a basic understanding of the process of reproduction. This is a review of grade 5 Human Sexuality.*

1. Print the Reproduction Process cards onto separate sheets of paper.

2. Make a large ‘Y’ shape on the wall or floor using masking tape, about 2-3 m tall. Label one part of the top of the Y ‘Male’, and the other ‘Female’, and label the bottom of the Y ‘Pregnancy’, as shown below.

3. Give out the Reproduction Process cards that belong on the Male and Female arms (see below for answers) to six students.

4. Have the students with cards arrange the events that occur during menstruation and sperm production in the proper order along each of the top lines of the Y.

5. Instruct the students that did not have cards to rearrange the order if they think there are any cards misplaced.

6. Go through the cards together, and make corrections according to the answer key provided.

7. Now distribute the remaining cards, having to do with sexual intercourse, fertilization and implantation, to seven other students.

8. Have students with cards arrange the events in the correct order, along the bottom line leading to ‘Pregnancy’.

9. Instruct the students that did not have cards to rearrange the order if they think there are any cards misplaced.

10. Go through the cards together, and make corrections according to the answers below.
11. Use the **Menstrual Cycle, Sperm Production, Fertilization** and **Implantation** diagrams as needed to review the concepts.

**Answers**

**Female**
1. Lining of uterus thickens with blood
2. Ovulation occurs (egg released from ovary)
3. Egg enters fallopian tube

**Male**
1. Sperm is made in the testicles
2. Sperm exit the testicles and travel up the vas deferens
3. Sperm cells mix with semen

**Pregnancy**
1. Erect penis is inserted into vagina (sexual intercourse)
2. Sperm cells leave the penis (ejaculation) and enter vagina
3. Sperm travel through the cervix, uterus, and into fallopian tubes
4. One sperm cell attaches to an egg and forms one cell (fertilization)
5. Cell starts to divide
6. Cells travel through fallopian tube to uterus
7. Cells attach to wall of uterus (implantation)

Debrief this activity using the following questions:

**What else do you know about menstruation?**

- Menstruation usually begins sometime between ages 8 and 16.
- Usually one egg is released each menstrual cycle. If more than one egg is released, and if they are fertilized, it means there may be a multiple pregnancy (twins, triplets, etc.). If two eggs are released and each one is fertilized by a sperm, the result is fraternal twins. Identical twins happen when a fertilized egg (zygote) splits into two in the first few days after fertilization.
- Eggs can live 12-24 hours from the time of ovulation.
People can use tampons, pads or menstrual cups to deal with menstrual flow. People can still shower or bathe during their period.

Some people get cramps before or during menstruation. Exercise, a warm bath, gentle massage, hot compress or over the counter medications such as ibuprofen may help with menstrual cramps and discomfort. Do not take any medication without asking a parent or guardian first. If you take pain medications be sure not to take more than the recommended amount. Getting enough sleep, eating a balanced diet according to Canada's Food Guide, reducing caffeine intake and quitting smoking may also help relieve or prevent cramps.

Severe cramping or very heavy or long periods can be a sign of a problem so it is important to talk to a health care provider.

The menstrual cycle lasts about 28 days; however it can vary from 24-38 days. It is common for periods to be irregular in the first few years. The first day of bleeding is considered the first day of the menstrual cycle.

What else do you know about sperm production?

Sperm production begins in puberty. Ejaculation can occur once sperm production begins. Males usually start puberty sometime between ages 9-14. Some people don’t ejaculate until later in puberty.

Nocturnal emissions (wet dreams) are ejaculations that occur while sleeping. It is normal to experience these, or not to experience these.

As many as 200-500 million sperm can be released during each ejaculation.

Sperm can live inside the uterus and fallopian tubes for 3-5 days from the time of ejaculation.

Will a pregnancy occur every time sexual intercourse occurs?

No. Pregnancy only happens if a sperm fertilizes an egg and if the fertilized egg implants in the uterine wall.

People often do not know when they are ovulating, and some people ovulate more than once in a cycle.

A person can get pregnant from sex that happens up to a week before they ovulate.
People can reproduce, or make babies, once they start periods and ejaculation. But most people wait until they are much older. Why?

- Discuss issues surrounding the need to be emotionally, educationally or financially ready to parent.

- Babies born to teen mothers are more likely to have health problems.

D. Reproductive System Infographics

*Students will summarize their understanding of the male and female reproductive systems by creating infographics - highly visual representations of information.*

1. Provide students with a paper or digital copy of the two-page Reproductive Systems Infographic handout.

2. For a simple review assignment, ask students to complete the graphic by labelling each of the four numbered elements with the correct name, on the male and female diagrams.

3. For a more complex assignment, ask students to include notes about the function of each labelled part on their infographic, or add additional labels.

4. Answers/exemplars can be found in the Grade 7 Diagrams file.

E. Sexual Reproduction Kahoot! Quiz

*This quiz can be a great review, wrap-up of the unit, or a fun energizer in between other activities. For more information on using Kahoot!, visit getkahoot.com*

1. Open the Kahoot! Quiz: Grade 7 Reproduction

As a class, answer the quiz questions and discuss the answers together. You can play the quiz in individual or team mode.

F. Question Box

*Answer any questions from the question box in the previous lesson. Have students submit any new questions and address them next class.*

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Addressing the questions at the next class allows you time to review the questions and prepare responses.

Self-Reflection

During the lesson, were:
- ground rules being followed?
- good practices established regarding group work and discussion?

What will you change for future classes with this group?
What will you change for future use of this lesson?

Student Assessment

During the lesson, did students:

Knowledge:
- identify the basic parts of the human reproductive systems?
- describe the process of sperm production?
- describe the process of menstruation?
- describe how pregnancy can occur?
- identify misunderstandings associated with sexual development?

Skills:
- participate in class discussion and exhibit appropriate listening and speaking skills?

Attitudes:
- accept that menstruation and sperm production are positive, healthy aspects of puberty?
Male Reproductive System

On the diagrams of the male reproductive system, label the internal and external organs according to the instructions below. Vocabulary words that need to be written on the diagram are in *italics*.

Start at Figure 1, the external anatomy. The scrotum is a sac of loose skin that holds the testicles. The scrotum contains muscles that can move the testicles closer to or farther away from the body in response to changing temperatures. Label the *penis* and the *scrotum*.

Now move to Figure 2, the internal anatomy. At the bottom of the diagram is the scrotum. The scrotum contains two *testicles* and each one has an *epididymis*, which sits on top of each testicle. Each testicle contains tiny tubes that are continuously creating sperm, and the sperm move to the epididymis to mature. Label the epididymis, testicle and scrotum on your diagram.

The *vas deferens* are tubes that allow the sperm to move up to the seminal vesicle. Follow the vas deferens tube from the testicle up to the top of the diagram.

The large organ near the top of the diagram is the *bladder*. The bladder stores urine until it can be expelled from the body. It is not considered part of the reproductive system. Label the bladder. On the right side are the *rectum* and *anus*, parts of the digestive system. The rectum is where stool is held, and the anus is the opening at the end of the digestive tract where feces comes out of the body. Label the rectum and anus.

As the vas deferens curves around the top of the bladder and back down again, it passes the *seminal vesicles*. This gland is located to the right of the bladder on the diagram. The seminal vesicles produce fluids that feeds and protects sperm. Label the seminal vesicle.

The *prostate gland* is located just below the bladder. It supplies most of the liquid that combines with the sperm to make semen. When a person is sexually aroused to the point of ejaculation, the fluid from the prostate gland combines with the sperm. Strong muscle contractions in and around the prostate gland contract rapidly to force the semen out of the urethra. Label the prostate gland.

The tube down the length of the penis is called the *urethra*. The urethra is the tube that allows urine out of the bladder, and allows semen to travel out of the body during ejaculation. Urine and semen cannot be in the urethra at the same time. During an erection, a small valve at the entrance from the bladder seals the bladder so that urine cannot get into the urethra. Label the urethra.

The urethra is in the *penis*. The penis has spongy tissues containing small blood vessels and nerves. During sexual arousal, the spongy tissue fills with blood, and the penis hardens. This is called an eruption. It allows the penis to be inserted into the vagina, which enables sperm to reach the egg in the fallopian tube. Label the penis.
Figure 1. External Anatomy

Figure 2. Internal Anatomy

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Female Reproductive System

On the diagrams of the female reproductive system, label the internal and external organs according to the instructions below. Vocabulary words that need to be written on the diagram are in *italics*.

Start with Figure 1, the external anatomy. The external part of the female reproductive system is called the vulva. The vulva consists of the labia majora, labia minora, clitoris, and vaginal opening. The outer fold of flesh is called the *labia majora*. This outer fold is usually larger than the inner fold. The inner fold, called the *labia minora*, is made up of mucous membranes. Both of these folds help protect the vagina and urethra.

The *urethra* is a small tube that carries urine outside the body from the bladder, and is not part of the reproductive system. The opening for the urethra is just below the clitoris and above the vagina. The *vaginal opening* leads to the vagina. The *clitoris* is a sensitive bump located where the folds meet at the top front part of the vulva. At the bottom of the diagram is the *anus*, where feces leaves the body. Label the labia majora, labia minora, clitoris, vaginal opening, urethra and anus.

Now move to Figure 2, the internal anatomy. Two egg-shaped organs on either side of the uterus are the ovaries. An *ovary* is about the size of an almond. When a female is born, the ovaries already contain all the eggs they will ever produce. There are up to 400,000 eggs in the ovaries when a person hits puberty, but only about 500 will ever be released. The ovary releases one egg every month or so. This process is called ovulation. Label each ovary.

Follow the tubes from the ovary toward the middle of the diagram. These are the *fallopian tubes*. The fallopian tube receives the egg released from the ovary. If there is sperm in the fallopian tube, one sperm may fertilize the egg. The fertilized egg then travels through the fallopian tube to the uterus. This journey usually takes about three days. If a sperm does not fertilize the egg, the egg will dissolve in the fallopian tube. Label the right fallopian tube.

The *uterus* is a pear shaped organ about the size of a fist that stretches to house the baby, placenta and amniotic fluid during pregnancy. It is very strong, muscular and stretchable. Label the uterus.

The *cervix* is the bottom of the uterus. The cervix has a very small opening to allow sperm to travel from the vagina into the uterus. When a baby is ready to be born, the cervix opens wide to let the baby through. Label the cervix.

At the very bottom of the diagram is the *vagina*. The vagina is a soft, muscular elastic tube. During sexual arousal, the walls of the vagina make a fluid that makes sex more comfortable. The vagina is the birth canal for a baby, and allows menstrual flow to exit the body from the uterus. Label the vagina.
Figure 1. External Anatomy

Figure 2. Internal Anatomy

- Bladder
- Seminal vesicle
- Prostate gland
- Rectum
- Anus
- Epididymis
- Testicle
- Scrotum
- Vas deferens
- Penis
- Urethra
- Scrotum
- Penis
- Urethra
Answer Key

Figure 1. External Anatomy

Figure 2. Internal Anatomy
Female
Lining of uterus thickens with blood
Ovulation occurs
(egg released from ovary)
Egg enters fallopian tube
Male
Sperm is made in testicles
Sperm exit testicles and travel up vas deferens
Sperm cells mix with semen
Pregnancy
Erect penis inserted into vagina (sexual intercourse)
Sperm cells leave penis (ejaculation) and enter vagina.
Sperm travel through cervix, uterus and into fallopian tubes
One sperm cell attaches to an egg and forms one cell (fertilization)
Cell starts to divide
Cells travel through fallopian tube to uterus
Cells attach to wall of uterus (implantation)
Kahoot! Quiz Answer Key

ANSWER KEY: Grade 7 Reproduction Quiz

Correct answers are in bold text.

1. This is a diagram of:
   • the female circulatory system
   • the female reproductive system
   • the male reproductive system
   • **the male and female reproductive systems**

2. The male reproductive system includes:
   • the penis, scrotum and ovaries
   • the scrotum, stomach and seminal vesicles
   • the vas deferens, vagina, and vagus nerves
   • **the testis, scrotum and urethra**

3. A body part shown in the diagram but not considered part of the reproductive system is:
   • the scrotum
   • **the bladder**
   • the stomach
   • the prostate gland

4. The structure where the baby grows is called the:
   • **uterus**
   • ovary
   • vagina
   • tummy

5. The external parts of the female reproductive system include:
   • the anus, vaginal opening, clitoris and cervix
   • the urethra, vagina, ovary and fallopian tubes
   • the penis, testicles and scrotum
   • **the clitoris, labia minora, labia majora and vaginal opening**

6. The structure that produces and stores eggs is the:
   • **ovary**
   • fallopian tube
   • uterus
   • bladder
7. Sperm travels from the:
   - prostate gland through vas deferens and out the rectum
   - urethra past the penis and out the bladder
   - testis through the vas deferens and out the urethra
   - seminal vesicle through the vas deferens and out the urethra

8. The sperm usually meets the egg in the:
   - dance hall
   - fallopian tube
   - vagina
   - uterus

9. After the sperm meets the egg:
   - the uterus sheds its lining
   - the successful sperm dies
   - the ovary releases 7 more eggs
   - the fertilized egg implants in the wall of the uterus

10. If an egg is released but not fertilized by a sperm:
    - the lining of the uterus is shed, which is called a period
    - the egg waits in the uterus until the next month
    - the sperm waits in the uterus until the next month
    - the egg implants in the wall of the uterus
Female Reproductive System

Use your knowledge of the female reproductive system to label and describe the diagram below.
Male Reproductive System

Use your knowledge of the male reproductive system to label and describe the diagram below.