Learner Outcomes

W-5.3 Identify the basic components of the human reproductive system, and describe the basic functions of the various components; e.g. fertilization, conception

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, C, D and G.

If you choose not to do all the activities, use your professional judgement to assess which outcomes you have covered and which may need additional activities.

Classroom Activities & Timing

A. Ground Rules (5-10 minutes)
B. Anatomy Vocabulary Matching Game (15-20 minutes)
C. Anatomy Diagrams (15-20 minutes)
D. The Sperm’s Journey (20-30 minutes)
E. Class Discussion (5-15 minutes)
F. Sperm and Testicles Kahoot! Quiz (15-20 minutes)
G. Question Box (5-10 minutes)

Required Materials

POSTERS: Anatomy Definitions
CARDS: Anatomy Vocabulary
HANDOUT and ANSWER KEY: Reproductive System Diagrams
HANDOUT: The Sperms’ Journey

See also the Differing Abilities lesson plans on Puberty and Reproduction.
Background Information for Teachers

Inclusive Language
Language is complex, evolving and powerful. In these lessons, inclusive language is used to be inclusive of all students, including those with diverse gender identities, gender expressions and sexual orientations. This includes the use of ‘they’ as a singular gender-neutral pronoun.

A person’s sex can be male, female or intersex (not clearly defined as either male or female). Sex is independent of gender identity. Gender identity is a person’s internal sense of identity as female, male, both or neither, regardless of their sex assigned at birth.

For many people, their gender matches the sex they were assigned at birth (cisgender). For others, their gender identity does not match the sex they were assigned at birth. They may use terms like transgender, trans, non-binary, gender fluid, gender queer, agender or others, to describe their gender identity. The umbrella term ‘trans’ is primarily used here, to describe people whose gender identity and sex assigned at birth differ. While this umbrella term does not fit everyone, the intention is to be inclusive as possible.

In these lessons, you will notice that body parts and processes are not labelled as male or female. While it is ok to use the terms boy/girl/male/female, it is important not to assume that all boys or girls have certain anatomy. This approach is more inclusive of intersex and gender diverse people.

The parts of the sperm-producing reproductive system (anatomy)

External Genitals

Penis

- The external sex organ.
- Semen and urine are discharged from the penis.
- It is made up of spongy material that fills up with extra blood (becomes erect) when sexually aroused.
- There is no bone in the penis.
- During puberty, the penis grows as does the rest of the body. Size varies from person to person.
Foreskin

- The skin on the end of the penis that retracts during an erection.
- This skin may be partially removed in a procedure called circumcision. Circumcision is a procedure to remove the foreskin from the penis. It is usually done soon after birth by a doctor or trained religious person. Some people are circumcised and some are not. It doesn’t affect the function of the penis.
- If the penis has not been circumcised, it is necessary to clean beneath the foreskin of the penis regularly.

Scrotum

- The sac that holds the testicles.
- The testicles are kept just below body temperature in order to produce healthy sperm. The scrotum pulls the testicles closer to the body if it is cold and lowers away from the body if it is hot.

Testicles

- The sex glands that produce sperm and testosterone.
- They are held in the scrotum.
- They are on the outside of the body so that they can stay cooler than body temperature for healthy sperm production.
- It is normal for one to hang lower.
- This is a very sensitive area of the body. It is important to protect the testicles during contact sports, etc.

Anus

- The opening at the end of the digestive tract where feces leaves the body.
- The anus is part of the digestive system, not part of the reproductive system.

Internal reproductive organs

Epididymis

- A long coiled tube that connects a testicle to a vas deferens.
- Where sperm matures and is stored.

Vas Deferens

- A narrow tube that carries sperm from the testicles to the urethra.

Seminal Vesicles

- Two small pouches behind the bladder that produce and store seminal fluid.
- This fluid mixes with sperm and other fluid to produce semen.

Prostate Gland

- Enlarges to block urine from leaving the bladder when sperm is ejaculated.
Grade 5 The Journey of a Sperm

- Produces fluid that is part of semen. The fluid feeds and protects sperm when they are ejaculated.

**Urethra**
- Urine and semen pass through this tube to the outside of the body.
- Urine and semen cannot come out at the same time. There are two branches to the urethra, one from the bladder and the other from the vas deferens. When the penis is ready to release semen, a valve blocks off the branch to the bladder so urine cannot escape. This process is similar to the way a person is prevented from swallowing and breathing at the same time. Air goes to the lungs and food goes to the stomach but both pass through the esophagus.

**Bladder**
- The sac that holds the urine produced by the kidney.
- The bladder is part of the urinary system, not the reproductive system.

**How the reproductive system functions (physiology)**

**Erection**
- The brain sends a message to the penis causing it to become larger, longer and firmer. It will stand out from the body.
- Although people may experience erections when they are younger, they seem to occur more often and unexpectedly during puberty.
- Erections are a normal process of growing up.
- They can happen at different times (first thing in the morning, during sleep, vibrations from riding a bicycle, sexual arousal).
- Erections will go away by themselves or after ejaculation.

**Sperm**
- The reproductive cell that, if it fertilizes an egg, can create a baby.
- Each sperm is very small; there are over 300 million sperm in 5 ml of semen.
- Millions are made every day in the testicles. Sperm that are not released through ejaculation are reabsorbed by the body.
- The sperm travel up the vas deferens and mix with fluid from the seminal vesicle and prostate to form white sticky fluid called semen.

**Semen**
- The combination of sperm and fluid from the seminal vesicle and prostate that is ejaculated from the penis.
Ejaculation

- Although people may experience erections at an early age, they are not able to ejaculate until their bodies begin producing sperm and semen during puberty.
- The first ejaculation normally occurs around the ages 13 to 17.
- The volume of semen ejaculated is usually about 2-5 ml.
- Nocturnal emissions (wet dreams) are when a person gets an erection and then ejaculates while sleeping. This is the body’s way of adapting to the commencement of sperm and semen production. Some people have nocturnal emissions and others do not. Nocturnal emissions 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. Anatomy Vocabulary Matching Game

Students identify the basic components of the reproductive system and can describe the basic functions of the various components.

1. Display the Anatomy Definitions posters around the room.
2. Divide students into teams of 3-4 students.
3. Distribute the Anatomy Vocabulary cards to each team.
4. Have teams decide which vocabulary word matches each definition. They post their word on the matching poster. Encourage groups to decide each match on their own and not worry if they make a different choice than another group.
5. Review the correct definition-word matches as a class, and move vocabulary words to the correct definitions as needed.
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Answer Key:

<table>
<thead>
<tr>
<th>Word</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anus</td>
<td>The opening at the end of the digestive tract where feces leave the body.</td>
</tr>
<tr>
<td>Bladder</td>
<td>A sac inside the body that holds urine.</td>
</tr>
<tr>
<td>Ejaculation</td>
<td>Release of semen from the penis.</td>
</tr>
<tr>
<td>Erection</td>
<td>The penis becomes larger, longer and firmer because of sexual arousal.</td>
</tr>
<tr>
<td>Foreskin</td>
<td>The skin of the penis tip.</td>
</tr>
<tr>
<td>Penis</td>
<td>The external sex organ that releases semen and can become erect.</td>
</tr>
<tr>
<td>Scrotum</td>
<td>External sac containing the testicles.</td>
</tr>
<tr>
<td>Semen</td>
<td>Thick fluid containing sperm.</td>
</tr>
<tr>
<td>Seminal Vesicles</td>
<td>Where semen is produced and stored.</td>
</tr>
<tr>
<td>Sperm</td>
<td>Reproductive cell made in the testicles.</td>
</tr>
<tr>
<td>Testicles</td>
<td>Sperm producing glands.</td>
</tr>
<tr>
<td>Urethra</td>
<td>Urine and semen pass through this tube to the outside of the body.</td>
</tr>
<tr>
<td>Vas Deferens</td>
<td>Narrow tubes that carry sperm from the testicles to the urethra.</td>
</tr>
</tbody>
</table>

C. Anatomy Diagrams

The diagrams of anatomy help students learn the vocabulary associated with reproduction. Students may need help understanding the difference between the internal and external, or side and anterior views of the reproductive systems. Showing the diagrams that orient the internal organs inside the body help students understand what the diagrams represent.

1. Distribute the Reproductive System diagrams handout. Explain the relationship between the external and internal views of the reproductive system.
Grade 5 The Journey of a Sperm

2. Ask the students to fill in as many of the blanks as they can. You may wish to have the students work individually, in pairs, or in their small groups from the previous activity. Emphasize that they will not know all the answers and that is ok.

3. Display the correct answers so all students can assess and correct their diagrams and discuss.

4. If the class has already completed the Journey of an Egg lesson, ask the students which parts of the anatomy are the same for everyone, or which have similar functions. If that lesson has not been completed, ask them to predict which parts/functions will be the same.

D. The Sperm’s Journey

This activity builds on the students’ understanding of reproductive anatomy and links the anatomy to the physiology of how the reproductive system functions.

1. Distribute The Sperm’s Journey handout.

2. Have students complete the activity by filling in the blanks with the appropriate terms. This activity can be done individually or using a small group technique such as think-pair-share.

3. You may wish to provide resources such as the Reproductive System diagrams handout or Sperm Production handout if students do not have them from the previous activity.

4. Correct the handout together.

Answers

1. testicles
2. scrotum
3. sperm
4. penis
5. vas deferens
6. seminal vesicle
7. semen
8. urethra
9. ejaculation
E. Class Discussion

Students review their knowledge of the reproductive system and sperm production, develop resiliency skills around anatomy issues, and identify support people.

Discuss the following questions as a class and share the responses below if they are not mentioned by the class:

**What are some reasons people might get an erection?**
- Sexual arousal
- Pleasant thoughts or feelings
- Hormone changes
- Excitement
- Vibrations
- Nocturnal emission
- Some erections seem to be random, or not related to any clear cause.

**How do you think a person might feel if they get a nocturnal emission or an unwanted erection?**
- Embarrassed
- Shy
- Excited

**What are some ways to cope with an unwanted erection?**
- Focus on something else until it goes away.
- Sit down.
- Put your hands in your pockets to try to hide it.
- Wear baggy pants if it keeps happening.
- Remember that it is probably more noticeable to you than to anyone else and this is a normal part of growing up.

**What are some ways to cope with a wet dream?**
- Change your sheets.
- Wash your pajamas or underwear.
- Remember that nocturnal emissions are a normal and healthy part of growing up.

**What do you think is most interesting about sperm production?**

If you still have questions about anatomy or physiology, puberty changes, or sexuality who can you ask?
- Parent or other trusted adult
- Teacher or guidance counsellor
- Health care provider
F. Sperm and Testicles System 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 5 Sperm and Testicles

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

G. Question Box

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

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 parts of the reproductive system using scientific terminology?
- describe the basic functions of the various parts of the reproductive system?
- describe the process of sperm production?
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Skills:
- participate in class discussion and exhibit appropriate listening and speaking skills?
- discuss coping skills around puberty issues?
- identify support people?

Attitudes:
- demonstrate awareness and understanding of the changes that occur during puberty?
- recognize that sperm production could lead to pregnancy?
The opening at the end of the digestive tract where feces leaves the body.
A sac inside the body that holds urine.
Release of semen from the penis.
The sex organ that releases semen and can become erect.
The penis becomes larger, longer and firmer because of sexual arousal.
The skin of the penis tip.
External sac containing the testicles.
Thick fluid containing sperm.
Where semen is produced and stored.
Reproductive cell made in the testicles.
Sperm producing glands.
Urine and semen pass through this tube to the outside of the body.
Narrow tubes that carry sperm from the testicles to the urethra.
Anus
Bladder
Ejaculation
Erection
Foreskin
Penis
Scrotum
Semen
Seminal Vesicles
Sperm
Testicles
Urethra
Vas Deferens
Answer Key

Diagram of male reproductive system:
- Bladder
- Seminal vesicle
- Prostate gland
- Rectum
- Anus
- Epididymis
- Testicle
- Scrotum
- Vas deferens
- Penis
- Urethra

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teachingsexualhealth.ca
Once upon a time, there was a pair of testicles (1). They were held in a special sac called the scrotum (2). This sac could hold the testicles close to the body to keep them warm, or let them hang away from the body to keep them cool. The testicles made special reproductive cells called sperm (3). Once these cells were made, they would wait to be released from the testicles. Sometimes, they would wait so long that they dissolved. Other times, they would be released from the testicles, make a journey through the reproductive system and leave the body.

On the day in question, it just so happened that the sperm got to be released from the body. First, the penis (4) became larger, longer and firmer until it stuck out from the body. When the penis gets this way it is called an erection. The sperm travelled up the vas deferens (5). Along the way, it mixed with fluid from the prostate gland, and with seminal fluid, which was made in the seminal vesicles (6). Once these fluids mixed, they decided to call themselves seminal (7). Together they travelled from the vas deferens into a tube called the urethra (8).

By this time, the semen was almost at the end of the journey. After travelling through the vas deferens and the urethra, the semen was released from the penis in a process called ejaculation (9). The erection went away and the penis became smaller and softer.
Sperm Production

- Seminal vesicle
- Prostate gland
- Rectum
- Anus
- Vas deferens
- Bladder
- Penis
- Urethra
- Epididymis
- Testicle
- Scrotum
ANSWER KEY: Grade 5 Sperm and Testicles

Correct answers are in bold text.

1. The internal parts of this reproductive system include the:
   - bladder, kidneys and urethra
   - scrotum, penis and testicles
   - anus, penis and rectum
   - **vas deferens, seminal vesicles and epididymis**

   The bladder and kidneys are part of the urinary system. The penis, testicles and scrotum are external parts of the reproductive system. The anus and rectum are parts of the digestive system.

2. The external parts of this reproductive system include the:
   - prostate and scrotum
   - urethra and penis
   - **penis and scrotum**
   - bladder and anus

   The prostate and urethra are internal parts; the bladder is part of the urinary system and the anus is part of the digestive system.

3. The sac that contains the testicles is called:
   - the vas deferens
   - **the scrotum**
   - the penis
   - the testes

   Testes is another word for testicles.

4. Release of semen from the penis is called:
   - erection
   - circumcision
   - testiculation
   - **ejaculation**

5. The testicles:
   - are held in the scrotum
   - produce sperm
   - are a very sensitive area of the body
   - produce semen

   Semen is the combination of sperm and fluids produced by the seminal vesicles and prostate gland.
6. Semen is:
   - the same thing as sperm
   - made of urine and sperm
   - stored in the vas deferens
   - a thick fluid containing sperm

Semen is the combination of sperm and fluids produced by the seminal vesicles and prostate gland. These fluids feed and protect the sperm. A 5 ml sample of semen contains about 300 million sperm cells.

7. Sperm are produced in the:
   - testicles
   - seminal vesicles
   - urethra
   - penis

The sperm are produced in the testicles, and then leave the body through the urethra in the penis. The seminal vesicles produce the fluid that combines with sperm to make semen.

8. Sperm travel from the:
   - prostate gland through the vas deferens and out the rectum
   - urethra past the penis and out the bladder
   - testes through the vas deferens and out the urethra
   - seminal vesicle through the vas deferens and out the urethra

Sperm make the journey from testes and out of the body during ejaculation.

9. Sperm that are not released by ejaculation are:
   - released when urinating
   - reabsorbed into the body
   - held in the testicles forever
   - released with feces

The body makes millions of sperm each day, and reabsorbs them to recycle if they are not ejaculated.

10. Wet dreams (nocturnal emissions):
    - are a normal and healthy part of growing up
    - often begin in puberty
    - only happen when a person dreams about sex
    - happen every night

Many people experience wet dreams during puberty, but the frequency varies. People of any sex can experience wet dreams but they are most common in people with penises.