

Grade 5

Reproduction



Learner Outcome

Students connect puberty to the capacity for human reproduction.

[Knowledge, Understanding, and Skills and Procedures](#) for this outcome that are covered in this lesson are listed at the end.

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 and E.

Classroom Activities & Timing

See also the [Differing Abilities](#) lesson plan on [Reproduction](#).

- A. Ground Rules (5-10 minutes)
- B. An Egg Meets a Sperm (15-20 minutes)
- C. Step-by-Step Reproduction (10-15 minutes)
- D. Reproduction Crossword (15-20 minutes)
- E. Question Box (5-10 minutes)

Required Materials

HANDOUT and ANSWER KEY: An Egg Meets a Sperm

[DIAGRAMS](#): Menstrual Cycle, Sperm Production, Fertilization, Implantation

CARDS: Step-by-Step Reproduction

HANDOUT and ANSWER KEY: Reproduction Crossword

All the student handouts are also available in the [Grade 5 Workbook](#).

All the diagrams are also available as slides in [Grade 5 Diagrams](#).

Background Information

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

The process of sexual reproduction begins in the individual bodies with ovulation (Journey of an Egg lesson) and sperm production and ejaculation (Journey of a Sperm lesson).

Fertilization

During sex, the erect penis is inserted into the vagina. Sperm are ejaculated into the vagina and begin swimming up past the cervix, through the uterus and into the fallopian tubes. The tail of each sperm cell acts as a propeller to move the sperm forward. The first sperm will enter the fallopian tube minutes after ejaculation, and can live in the fallopian tubes/uterus for up to five days. If the sperm encounter an egg in the fallopian tube, each sperm cell will attempt to penetrate the egg. Only one sperm will succeed in penetrating the egg, which is called fertilization. Once one sperm has penetrated the egg, the outer membrane of the egg changes and prevents fertilization by any other sperm.

Implantation

After the sperm cell and the egg unite, the fertilized egg is called a zygote. The zygote travels down the rest of the fallopian tube and into the uterus. It also begins dividing, so that the single fertilized cell becomes two cells, the two cells become four, etc. About 5-7 days after fertilization, the zygote implants into the lining of the uterus, creating a pregnancy. The cells are now called an embryo.

If more than one egg is released at the same time, each egg can be fertilized by a different sperm. This will result in fraternal twins. If a zygote divides into two distinct entities, this will result in identical twins. Why the zygote divides into two at this stage is unknown. About 3% of births in Canada are twins, triplets, or more.

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 assigned at birth as male or female. Some people are intersex (the reproductive, sexual or genetic biology of a person is unclear, not exclusively male or female or otherwise does not fit within

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traditional definitions of male or female). Assigned sex is independent of gender.

Gender identity is a person's internal sense of identity as girl/woman, boy/man, fluid among genders or no gender (regardless of what sex they were assigned at birth).

For many people, their gender is the same as the sex they were assigned at birth (cisgender). For others, their gender identity is different from 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 when talking to or about individuals, it is important not to assume that all boys or girls have certain anatomy, and to consistently use inclusive language. Learning to discuss anatomy without gendering people, parts or processes is a shift for many people. These lessons use language that can help you and your students make this shift, so that everyone, including people who are intersex and gender diverse, are included and feel seen.

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. An Egg Meets a Sperm

This story explains how sperm production, ovulation and pregnancy are related. It walks through the stages of fertilization and implantation, and provides a detailed explanation of how each step fits into the process.

1. Distribute **An Egg Meets a Sperm** handout to students.
2. Display the **Sperm Production, Fertilization and Implantation** diagrams.

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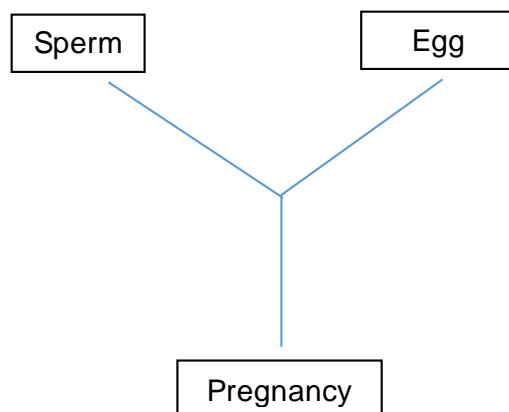
- Have students follow along with their handouts and fill in the blanks as you review the processes of sperm production and ovulation, and continue the story with fertilization and implantation.

C. Step-by- Step Reproduction

Students demonstrate knowledge of the components of the human reproductive systems and the process of reproduction. This activity will be much easier if Activity B is done first.

To do this activity individually, print smaller versions of the cards, and give each student their own set. Ask them to draw the Y on a blank page, and place or glue each card in the correct order.

- Print the **Step-by-Step Reproduction** cards onto paper or cardstock. Consider laminating the cards for reuse.
- Use masking tape to mark out a 'Y' shape on the floor. Use the cards to mark one arm of the Y as 'Egg', the other arm as 'Sperm', and put the 'Pregnancy' card at the end, as shown below.
- Give all the other cards to the students, in random order.
- Have students place each step in order along the Y. If you completed the previous activity, encourage the students to refer to their **An Egg Meets a Sperm** handout for help in getting the cards in the correct order.
- Use the answers below to ensure all steps are in the correct order.



Answers

Egg

- Lining of uterus thickens with blood
- Ovulation occurs (egg released from ovary)
- Egg enters fallopian tube

Sperm

- Sperm is made in the testicles
- Sperm exit the testicles and travel up the vas deferens

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3. Sperm cells mix with semen

Pregnancy

1. Erect penis is inserted into vagina during sex
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 (zygote) travel through fallopian tube to uterus
7. Zygote attaches to wall of uterus (implantation)

D. Reproduction Crossword

Use the crossword puzzle as a homework assignment, assessment option, or just a fun activity to wrap up the lesson.

1. Give each student a copy of the crossword.
2. Encourage students to work with a partner to complete the crossword.

E. 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?

Learning Outcomes

This lesson addresses the following Grade 5 [Physical Education and Wellness curriculum](#) outcomes:

Knowledge

- Each part of the human reproductive system serves a specific function.
- Human reproduction occurs when a sperm cell and egg cell join together (fertilization) and implant in the uterus (implantation).
- Fertilization is more likely to occur at a specific point in the menstrual cycle.

Understanding

- Human reproduction includes a sequence of biological processes.
- Puberty signals changes in a person's reproductive capability.

Skills and Procedures

- Identify the components of the human reproductive system.
- Describe the functions of the components of the human reproductive system.

An Egg Meets a Sperm

Read the following story and fill in the blanks using the words provided. Words from the word bank can be used more than once.

Once upon a time there were two important cells, the sperm and the egg.

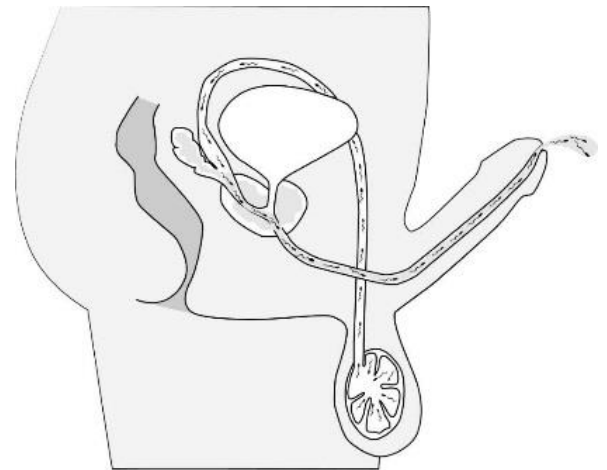
The _____ cell was made and stored in a testicle. The _____ cell was stored in an ovary. These two cells had a very important journey to make! For if they were to meet each other a powerful event could happen.

Word Bank

<i>fertilization</i>	<i>implantation</i>
<i>ovary</i>	<i>ovulation</i>
<i>egg</i>	<i>penis</i>
<i>semen</i>	<i>sperm</i>
<i>testicle</i>	<i>tubes</i>
<i>uterus</i>	<i>zygote</i>

The sperm cell had the longer journey to make. During sex, the sperm traveled from the _____ through the vas deferens all the way to the urethra and out of the end of the _____ into the vagina, past the cervix, through the uterus, and into the fallopian tube.

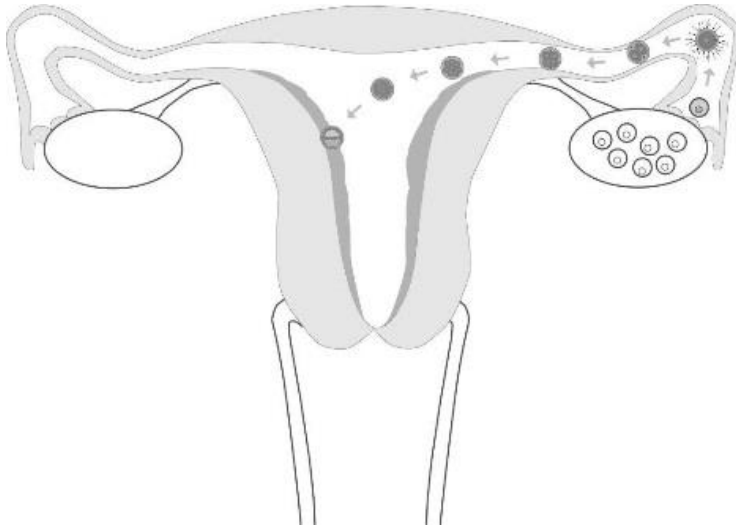
There the sperm would meet the _____. As the sperm travelled through the vas deferens it mixed with other fluid and was now called _____. Ejaculation is when semen leaves the penis.



For the two cells to meet, the egg would have to mature and leave the _____. The egg traveled out of the ovary and into the fallopian tube, a process called _____.

The meeting of the two cells happens after sex, when a penis enters a vagina. Sperm cells in semen are ejaculated out of the end of the penis and into the vagina. Hundreds of millions of sperm cells are ejaculated out of the penis, but only around 1,000 make it as far as the fallopian _____.

The semen containing sperm travelled from the vagina, through the uterus and into the fallopian tubes in search of the egg.



Once the _____ cells found the egg they started trying to break through the outer lining of the egg. One sperm cell broke through the lining and attached to the egg. This breaking through and attaching process is called _____.

The two cells now became one, called a zygote.

Once one sperm cell entered the egg none of the other sperm cells that made the epic journey could enter the egg.

The _____ began to divide into two identical cells, and those two divide into four, and those four into eight and so on.

The zygote continued to travel through the fallopian tube into the _____. Once the zygote entered the uterus, it attached itself to the wall of the uterus. This is called _____. The cells are now called an embryo.



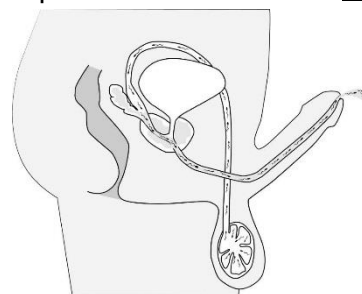
Once implantation has happened, the embryo continues to grow into a baby. The powerful event has happened, and a new journey has begun: the journey of a developing baby.

Answer Key

Once upon a time there were two important cells, the sperm cell and the egg. The **sperm** cell was made and stored in a testicle. The **egg** was stored in an ovary. These two cells had a very important journey to make! For if they were to meet each other a powerful event could happen.

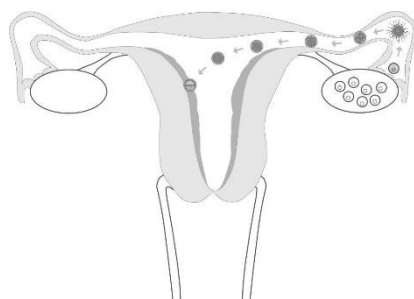
The sperm cell had the longer journey to make. During sex, the sperm traveled from the **testicle** through the vas deferens all the way to the urethra and out of the end of the **penis** into the vagina, past the cervix, through the uterus, and into the fallopian tube.

There the sperm would meet the **egg**. As the sperm travelled through the vas deferens it mixed with other fluid and was now called **semen**. Ejaculation is when semen leaves the penis.



For the two cells to meet, the egg would have to mature and leave the **ovary**. The egg traveled out of the ovary and into the fallopian tube, a process called **ovulation**.

The meeting of the two cells happens after sex, when a penis enters a vagina. Sperm cells in semen are ejaculated out of the end of the penis and into the vagina. Hundreds of millions of sperm cells are ejaculated out of the penis, but only around 1,000 make it as far as the fallopian **tubes**. The semen containing sperm travelled from the vagina, through the uterus and into the fallopian tubes in search of the egg.



Once the **sperm** cells found the egg they started trying to break through the outer lining of the egg. One sperm cell broke through the lining and attached to the egg. This breaking through and attaching process is called **fertilization**.

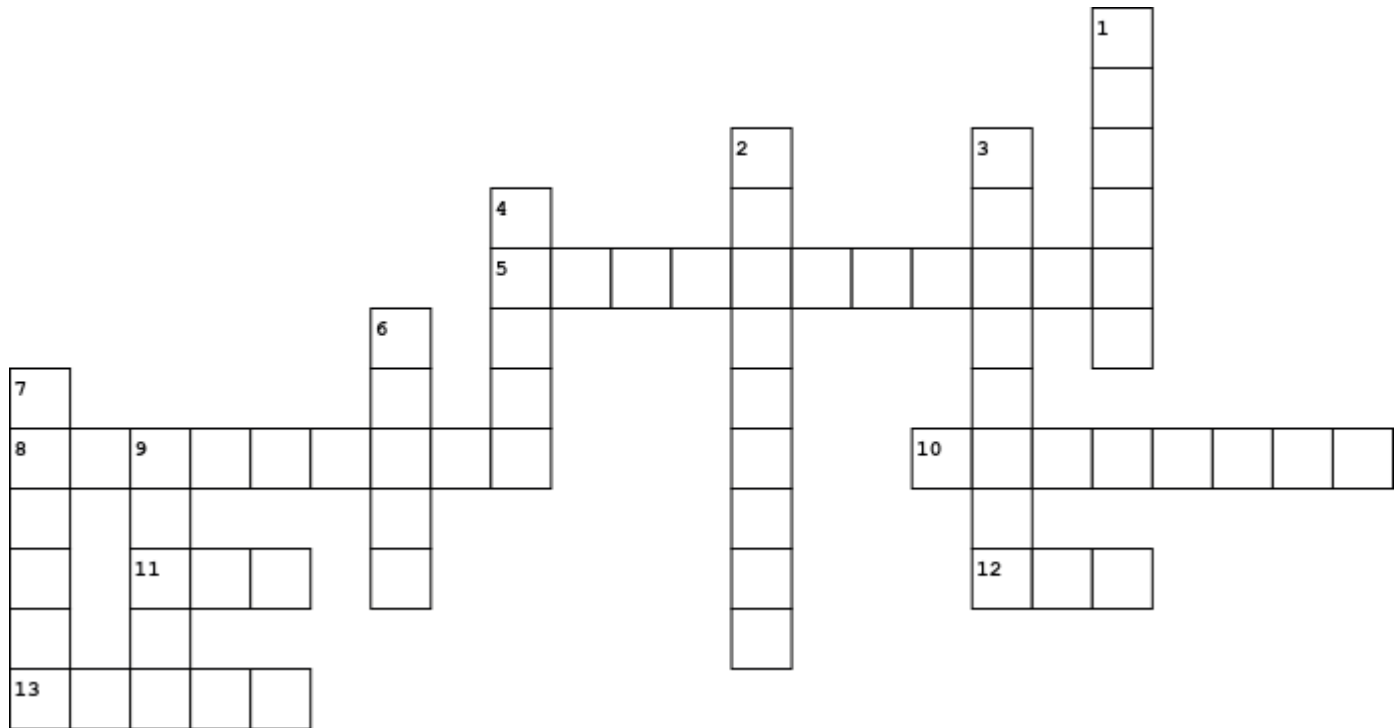
The two cells now became one, called a zygote. Once one sperm cell entered the egg none of the other sperm cells that made the epic journey could enter.

The **zygote** began to divide into two identical cells, and those two into four, and those four into eight and so on. The zygote continued to travel through the fallopian tube into the **uterus**. Once the zygote entered the uterus, it attached itself to the wall of the uterus. This is called **implantation**. The cells are now called an embryo.



Once implantation has happened, the embryo continues to grow into a baby. The powerful event has happened, and a new journey has begun: the journey of a developing baby.

Reproduction Crossword



Word List

*clitoris egg ejaculation erection ovulation penis sex semen sperm testicles
uterus vagina vulva*

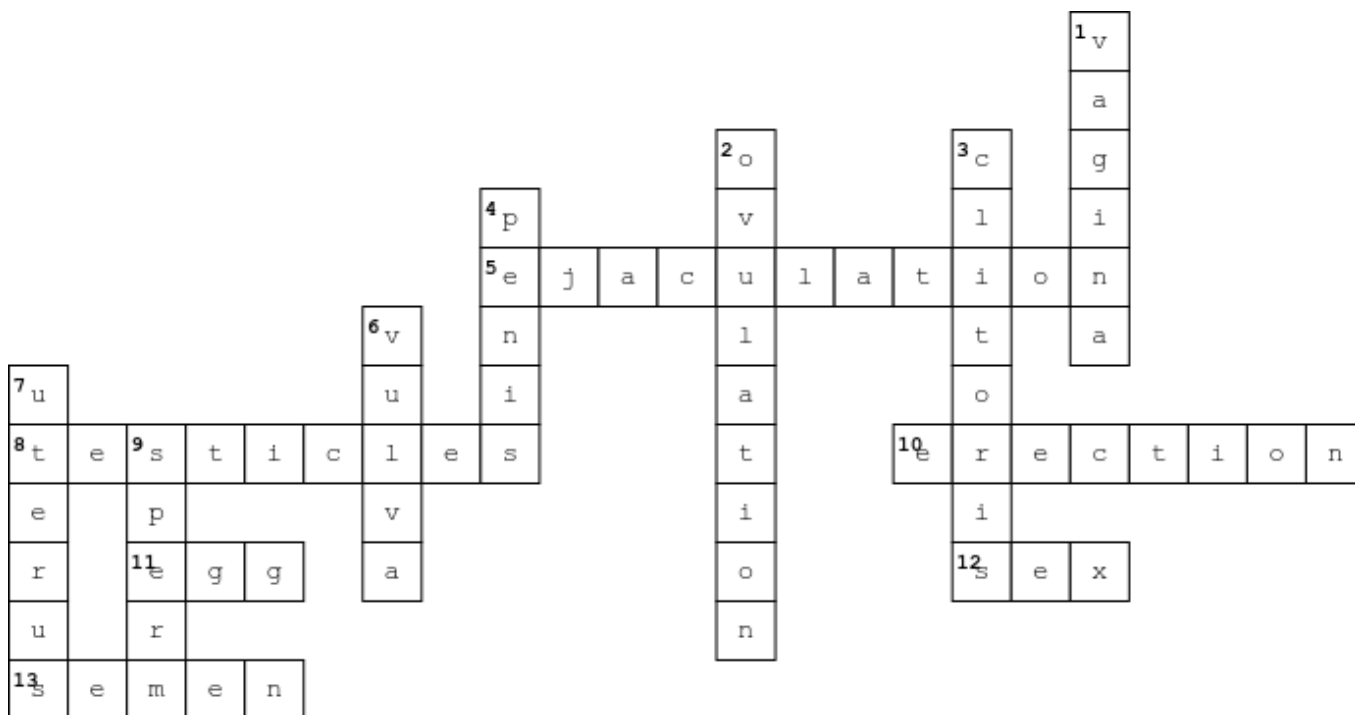
Across

5. Release of semen from the penis
8. Glands that produce sperm
10. When the penis gets larger and firmer
11. Reproductive cell made in the ovaries
12. The penis is inserted into the vagina during _____
13. Sticky whitish fluid that contains sperm

Down

1. Path from the uterus to the outside of the body
2. Release of the egg from the ovary
3. Sex organ above the vagina that becomes larger and firmer during arousal
4. Sex organ attached to the scrotum that becomes larger and firmer during arousal
6. External genitals including the labia and clitoris
7. Where the fetus grows and develops before birth
9. Reproductive cell made in the testicles

Answer Key



Across

- Release of semen from the penis (**ejaculation**)
- Glands that produce sperm (**testicles**)
- When the penis gets larger and firmer (**erection**)
- Reproductive cell made in the ovaries (**egg**)
- The penis is inserted into the vagina during ____ (**sex**)
- Sticky whitish fluid that contains sperm (**semen**)

Down

- Path from the uterus to the outside of the body (**vagina**)
- Release of the egg from the ovary (**ovulation**)
- Sex organ above the vagina that becomes larger and firmer during arousal (**clitoris**)
- Sex organ attached to the scrotum that becomes larger and firmer during arousal (**penis**)
- External genitals including the labia and clitoris (**vulva**)
- Where the fetus grows and develops before birth (**uterus**)
- Reproductive cell made in the testicles (**sperm**)

Eggg



**Lining of uterus
thickens with
blood**



Ovulation occurs

(egg released from ovary)



**Egg enters
fallopian tube**



Sperm



**Sperm is made in
the testicles**



**Sperm exit the
testicles and travel
up the vas deferens**



**Sperm cells mix
with semen**



Pregnancy



**Erect penis
is inserted into
vagina during sex**



**Sperm cells leave
the penis (ejaculation)
and enter vagina**



**Sperm travel
through the cervix,
uterus, and into
fallopian tubes**



**One sperm cell
attaches to an egg
and forms one cell
(fertilization)**



**Cell starts to
divide**



**Cells (zygote) travel
through fallopian
tube to uterus**



**Zygote attaches
to wall of uterus
(implantation)**

