

Grade 5

Reproduction



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 and E.

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

See also the [Differing Abilities](#) lesson plans 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

Grade 5 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 (Female Reproductive System lesson) and sperm production and ejaculation (Male Reproductive System lesson).

Fertilization

During sexual intercourse, 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 female reproductive system 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. The cells are now called an embryo. About 5-7 days after fertilization, the embryo implants into the lining of the uterus.

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.

Grade 5 Reproduction

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.

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.

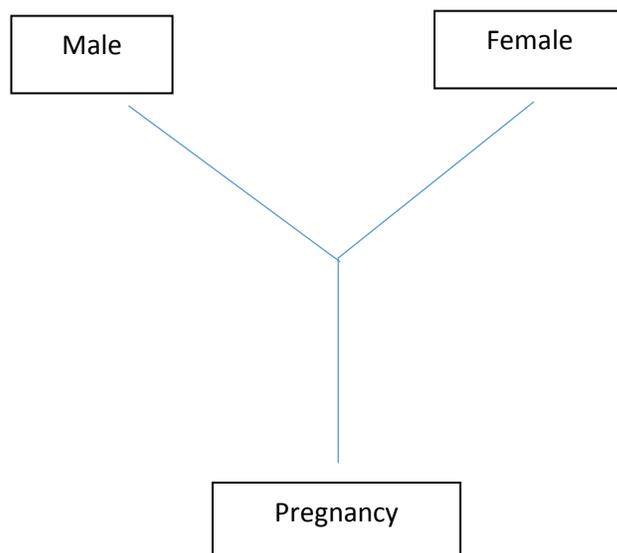
1. Distribute **An Egg Meets a Sperm** handout to students.
2. Display the **Sperm Production, Fertilization and Implantation** diagrams.
3. Have students follow along with their handouts and fill in the blanks as you review the processes of sperm production and ovulation, and continue the story with fertilization and implantation.

C. Step-by- Step Reproduction

Students demonstrate knowledge of the components of the human reproductive system 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.

1. Print the **Step-by-Step Reproduction** cards onto paper or cardstock.
2. Use masking tape to mark out a 'Y' shape on the floor. Use the cards to mark one arm of the Y as 'Female', the other arm as 'Male', and put the 'Pregnancy' card at the end, as shown below.
3. Give all the other cards to the students, in random order.
4. 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.
5. Use the answers below to ensure all steps are in the correct order.



Answers

Female

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

Grade 5 Reproduction

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 (zygote) travel through fallopian tube to uterus
7. Cells attach 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?

Student Assessment

During the lesson, did students:

Knowledge:

- describe the reproduction process?
- identify steps of fertilization and implantation using appropriate terminology?

Skills:

- participate in class discussion and exhibit appropriate listening and speaking skills?
- identify support people?

Attitudes:

- recognize that during puberty, male and female reproductive systems mature to be able to reproduce?
- recognize that ovulation and sperm production could result in pregnancy?

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.

Word Bank

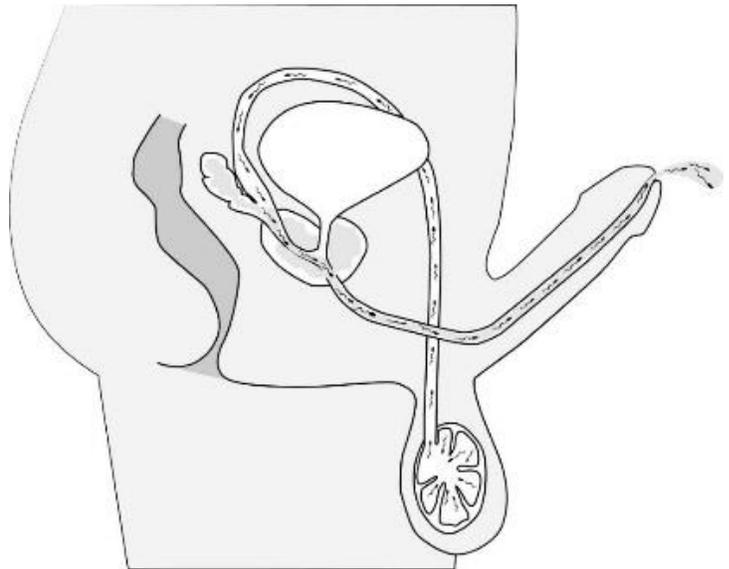
<i>fertilization</i>	<i>implantation</i>
<i>ovary</i>	<i>ovulation</i>
<i>egg</i>	<i>penis</i>
<i>semen</i>	<i>sperm</i>
<i>testicle</i>	<i>tubes</i>
<i>uterus</i>	<i>zygote</i>

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

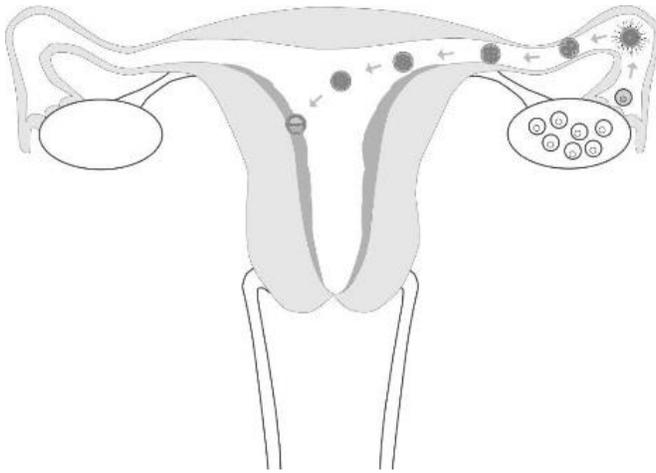
The sperm cell had the longer journey to make. The sperm cell needed to travel from the _____ through the vas deferens all the way to the urethra and out of the end of the _____ into the vagina, past the cervix, through the uterus, and into the fallopian tube. There it would meet the _____. As the sperm cell 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 mature and leave the _____. It would travel out of the ovary and into the fallopian tube, a process called _____.

The meeting of the two cells happens through sexual intercourse, 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 made it as far as the fallopian _____.



The semen containing sperm travelled from the vagina, through the cervix and into the uterus 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 _____.

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

The _____ began to divide into two identical cells, and those two into four, and those four into eight and so on, until many cells formed a larger ball of cells, called an embryo. This embryo continued to travel through the fallopian tube into the _____. Once the embryo entered the uterus, it attached itself to the wall of the uterus. This is called _____.

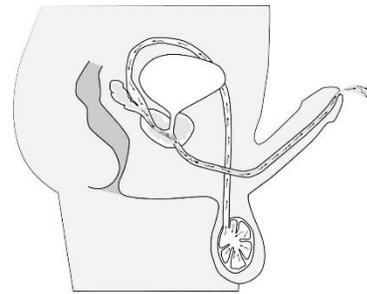


Once implantation has happened, the ball of cells continues to grow into a baby. The powerful event has happened, and a new journey has begun: the journey of a developing baby.

Answer Key

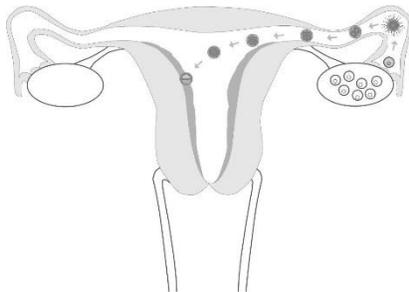
Once upon a time there were two important cells, the sperm cell and the egg. The **sperm** cell was made and stored in a testicle. The **egg** was stored in an ovary. These two cells had a very important journey to make! For if they were to meet one another a powerful event could happen.

The sperm cell had the longer journey to make. The sperm cell needed to travel 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 it would meet the **egg**. As the sperm cell 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 mature and leave the **ovary**. It would travel out of the ovary and into the fallopian tube, a process called **ovulation**.

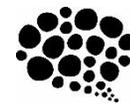
The meeting of the two cells is able to happen through sexual intercourse, when a penis enters a vagina. Sperm cells in semen are ejaculated out of the end of the penis and into the vagina. Hundreds of millions of sperm cells are ejaculated out of the penis, but only around 1,000 made it as far as the fallopian **tubes**. The semen containing sperm travelled from the vagina, through the cervix and into the uterus in search of the egg.



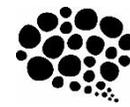
Once the **sperm** cells found the egg they started trying to break through the outer lining of the egg. One sperm cell broke through the lining and attached to the egg. This breaking through and attaching process is called **fertilization**. Once one sperm cell entered the egg none of the other sperm cells that

made the epic journey could enter. The two cells now became one, called a zygote. The **zygote** began to divide into two identical cells, and those two into four, and those four into eight and so on, until many cells formed a larger ball of cells, called an embryo. This embryo continued to travel through the fallopian tube into the **uterus**. Once the embryo entered the uterus, it attached itself to the wall of the uterus. This is called **implantation**. Once implantation has happened, the ball of cells continues to grow into a baby. The powerful event has happened, and a new journey has begun: the journey of a developing baby.

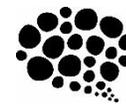




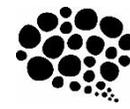
Female



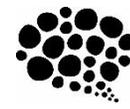
**Lining of uterus
thickens with
blood**



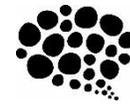
Ovulation occurs
(egg released from ovary)



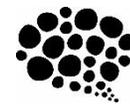
**Egg enters
fallopian tube**



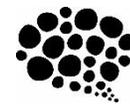
Male



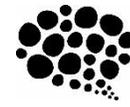
**Sperm is made in
the testicles**



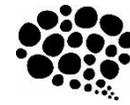
**Sperm exit the
testicles and travel
up the vas deferens**



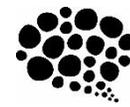
Sperm cells mix with semen



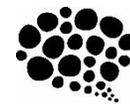
Pregnancy



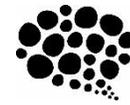
**Erect penis
is inserted
into vagina
(sexual intercourse)**



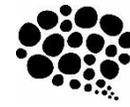
**Sperm cells leave
the penis (ejaculation)
and enter vagina**



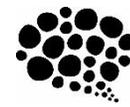
**Sperm travel
through the cervix,
uterus, and into
fallopian tubes**



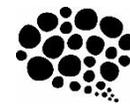
**One sperm cell
attaches to an egg
and forms one cell
(fertilization)**



Cell starts to divide



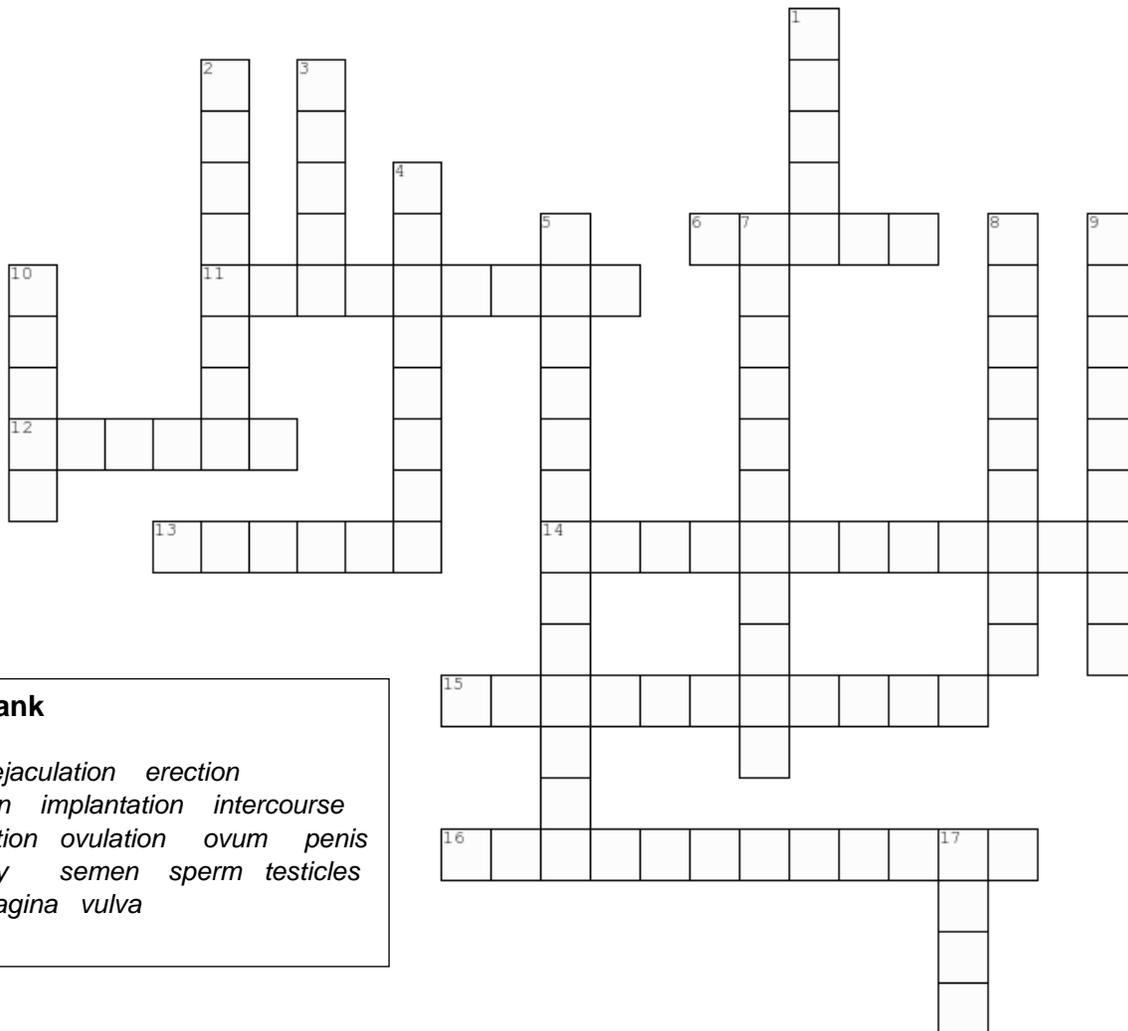
**Cells (zygote) travel
through fallopian
tube to uterus**



Cells attach to wall of uterus (implantation)

Reproduction Crossword

Complete the crossword below



Word Bank

*clitoris ejaculation erection
 fertilization implantation intercourse
 menstruation ovulation ovum penis
 pregnancy semen sperm testicles
 uterus vagina vulva*

Across

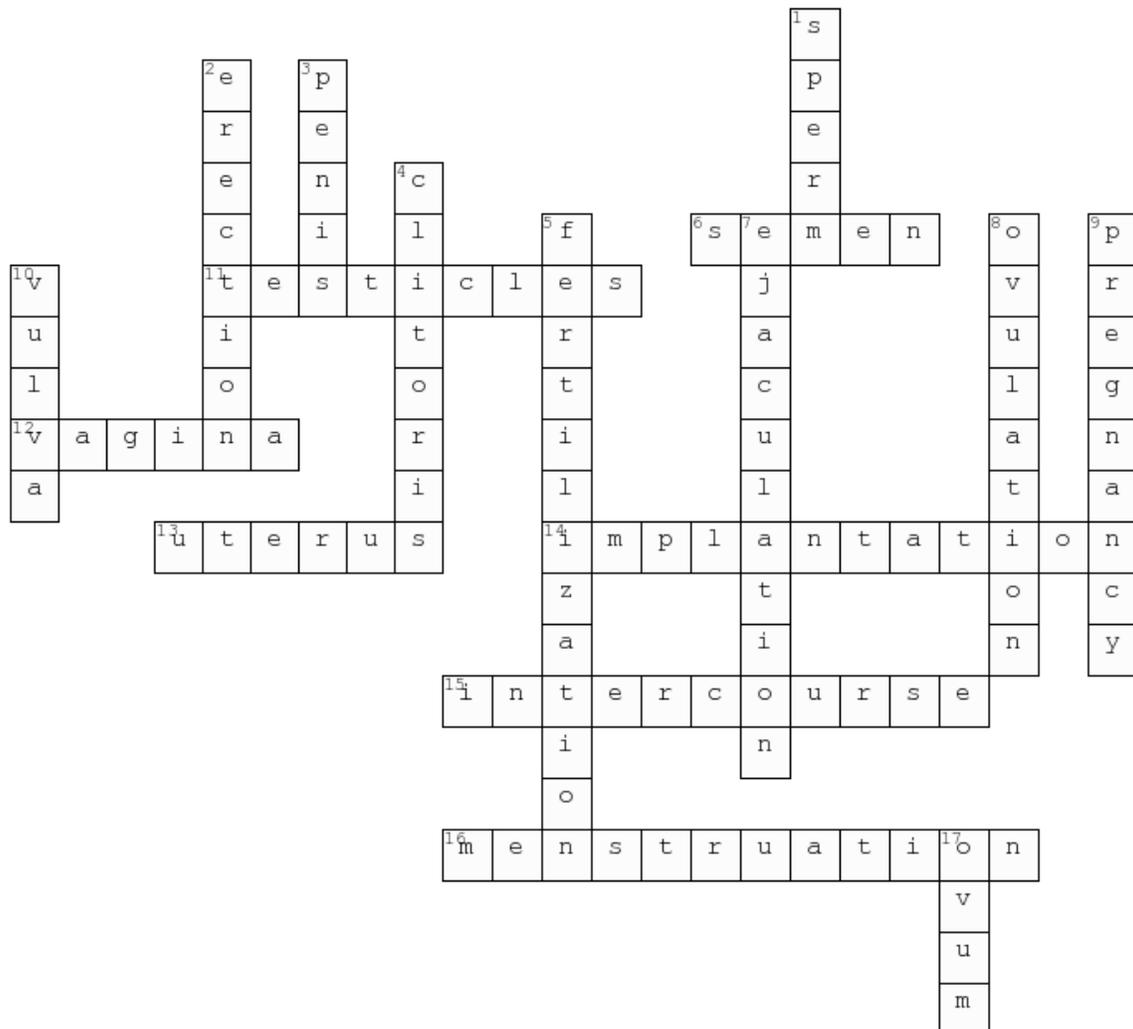
- 6. Thick fluid containing sperm
- 11. Place where sperm is produced
- 12. Passage leading from the uterus to the outside of the body
- 13. Where a developing baby grows inside the mother
- 14. Cells attach to the wall of the uterus
- 15. Erect penis is inserted into vagina
- 16. Periodic shedding of the lining of the uterus

Down

- 1. Male reproductive cell made in the testicles
- 2. The penis becomes larger, longer and firmer
- 3. Male sex organ that becomes larger and firmer during arousal
- 4. Female reproductive organ that becomes larger and firmer during sexual arousal
- 5. One sperm cell attaches to one egg
- 7. Release of semen from the penis
- 8. Process of releasing an ovum from the ovary
- 9. The end result of fertilization and implantation of a developing baby
- 10. External female genitals
- 17. Female reproductive cell, also called an egg

Created with TheTeachersCorner.net [Crossword Puzzle Generator](http://www.theteacherscorner.net)

Answer Key



Created with TheTeachersCorner.net [Crossword Puzzle Generator](http://www.theteacherscorner.net)

Across

- Thick fluid containing sperm (**semen**)
- Place where sperm is produced (**testicles**)
- Passage leading from the uterus to the outside of the body (**vagina**)
- Where a developing baby grows inside the mother (**uterus**)
- Cells attach to the wall of the uterus (**implantation**)
- Erect penis is inserted into vagina (**intercourse**)
- Periodic shedding of the lining of the uterus (**menstruation**)

Down

- Male reproductive cell made in the testicles (**sperm**)
- The penis becomes larger, longer and firmer (**erection**)
- Male sex organ that becomes larger and firmer during arousal (**penis**)
- Female reproductive organ that becomes larger and firmer during sexual arousal (**clitoris**)
- One sperm cell attaches to one egg (**fertilization**)
- Release of semen from the penis (**ejaculation**)
- Process of releasing an ovum from the ovary (**ovulation**)
- The end result of fertilization and implantation of a developing baby (**pregnancy**)
- External female genitals (**vulva**)
- Female reproductive cell, also called an egg (**ovum**)