7

DepED
DEPARTMENT OF EDUCATION

Lesson Exemplar for Science

Quarter 2
Lesson
5

Lesson Exemplar for Science Grade 7
Quarter 2: Lesson 5 (Week 5)
S.Y. 2024-2025

Development Team

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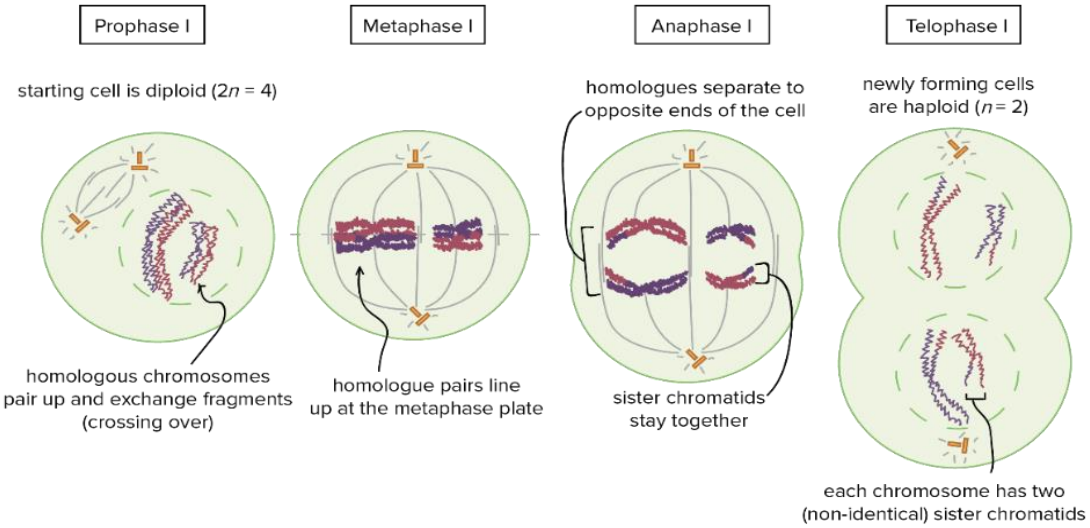
SCIENCE (BIOLOGY) / QUARTER 2 / GRADE 7

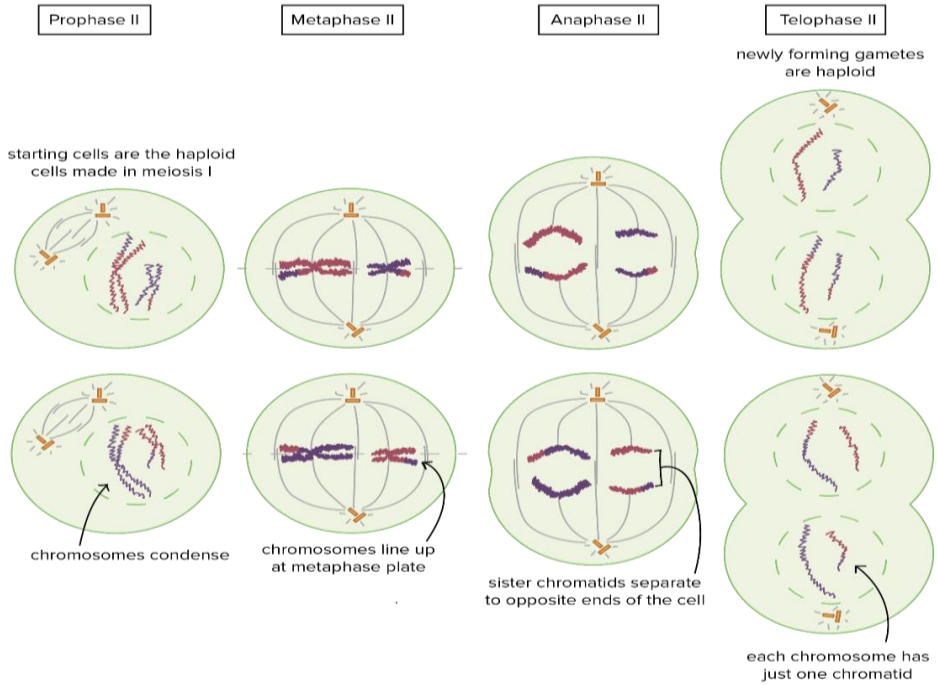
I. CURRICULUM CONTENT, STANDARDS, AND LESSON COMPETENCIES	
A. Content Standards	Learners learn that: 1. Familiarity and proper use of a compound microscope are essential to observe cells. 2. The organelles of plant and animal cells can be identified using a compound microscope. 3. Cells are the basic unit of life and mitosis, and meiosis are the basic forms of cell division. 4. Fertilization occurs when a male reproductive cell fuses with a female reproductive cell. 5. Sexual reproduction is the basis of heredity. 6. The level of biological organization provides a simple way of connecting the simplest part of the living world to the most complex. 7. Identifying trophic levels helps understand the transfer of energy from one organism to another as shown in a food pyramid.
B. Performance Standards	By the end of the Quarter, learners demonstrate understanding of the parts and function of a compound microscope and use this to identify cell structure. They recognize that the cell is the basic unit of life and that some organisms are unicellular and some are multicellular. They explain that there are two types of cell division, and that reproduction can occur through sexual or asexual processes. They use diagrams to make connections between organisms and their environment at various levels of organization. They explain the process of energy transfer through trophic levels in food chains.
C. Learning Competencies and Objectives	***Learning Competency*** 1. explain that genetic information is passed on to offspring from both parents by the process of meiosis and fertilization ***Lesson Objectives*** 1. Relate crossing-over, independent assortment, and random fertilization to genetic variation. 2. Compare spermatogenesis and oogenesis. 3. Explain why meiosis is needed for sexual reproduction. 4. Describe how plants reproduce sexually. 5. Describe how the male and female gametophytes are formed.

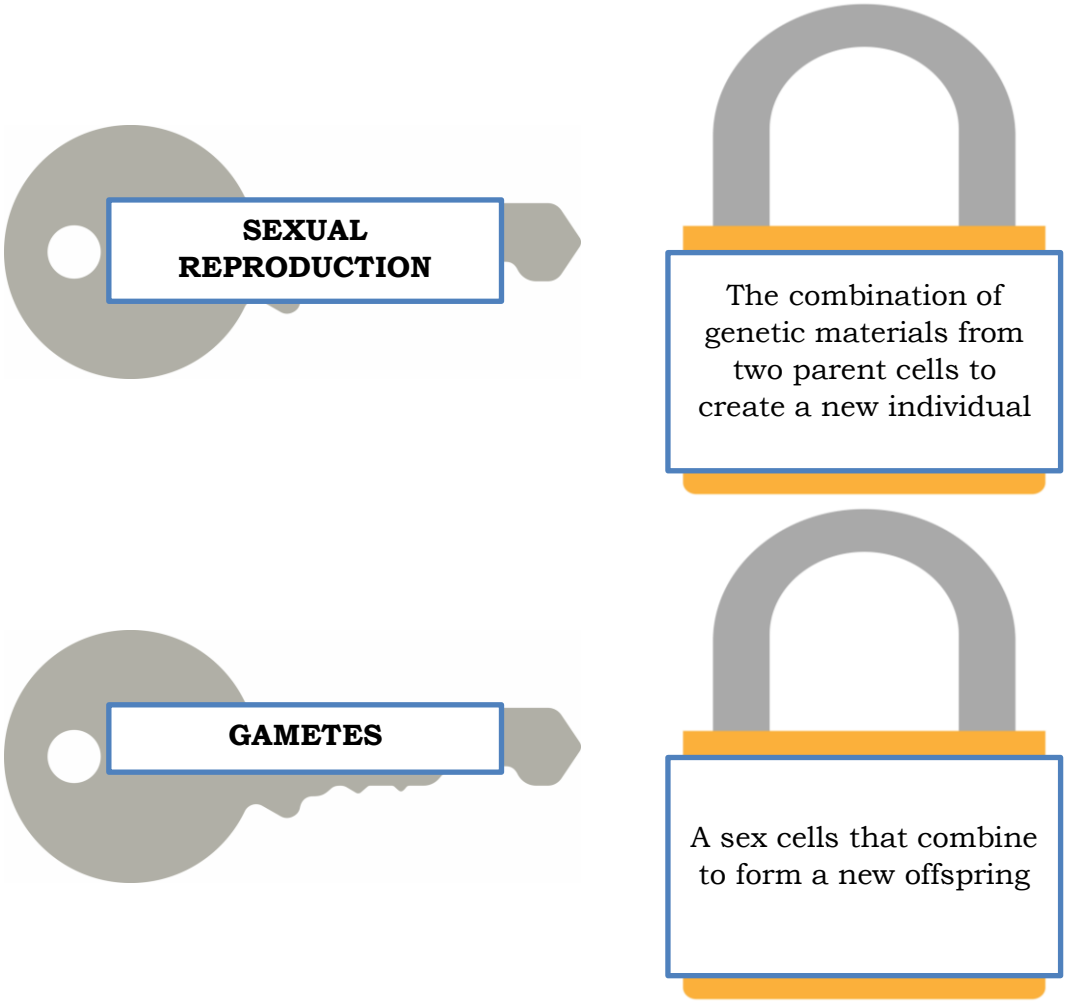
D. Content	• Process of meiosis and fertilization • Process of sexual reproduction (formation of gametes (sperm and egg cells) through meiosis) • Passing of genetic information through Genetic Diversity and Evolution
E. Integration	SDG 4 (Quality Education): Cellular reproduction and genetics for biology education and research

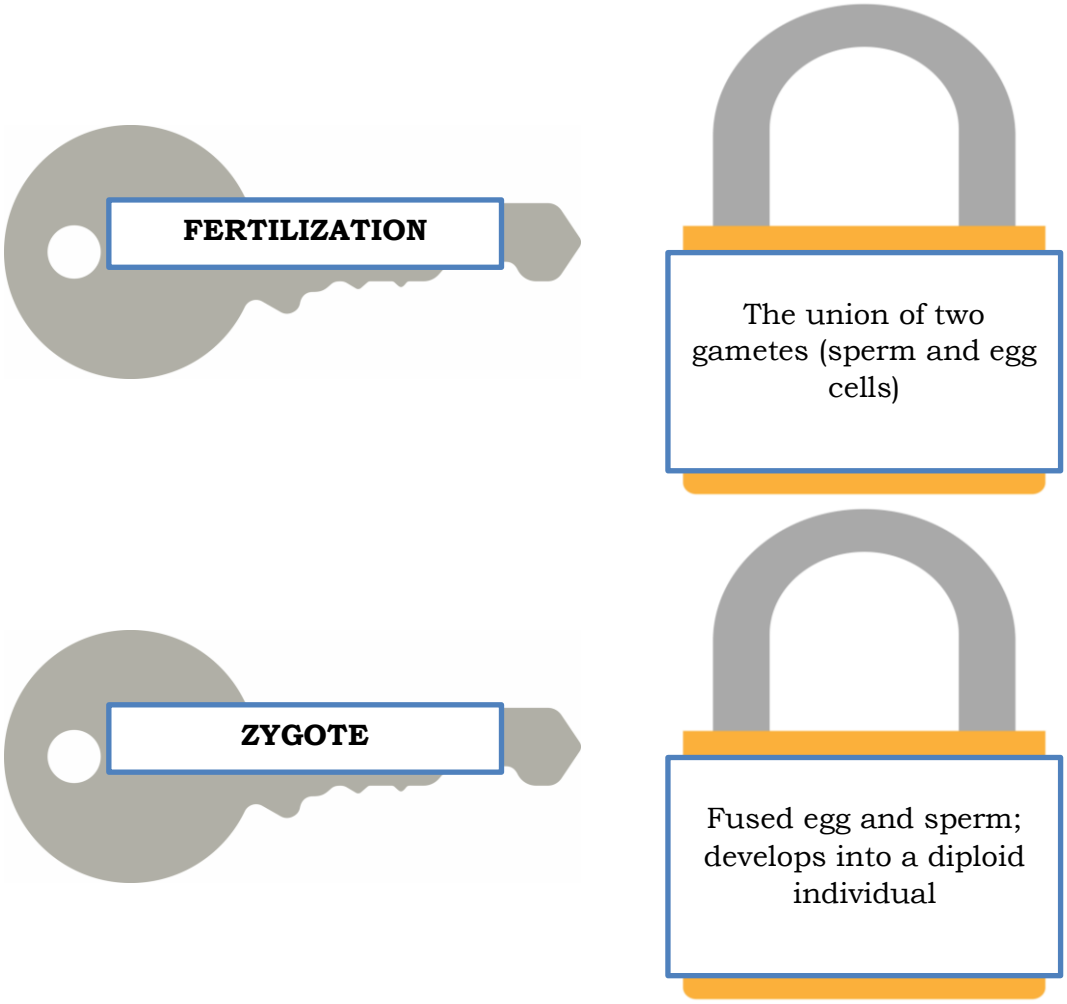
II. LEARNING RESOURCES

- Holt, Rinehart and Winston. (n.d.). Meiosis and Sexual Reproduction. https://www.walkersclass.com/uploads/4/9/5/1/49515879/chapt_7_hbio_meiosis.pdf
- McGraw-Hill. (n.d.). A: Chapter 4: Cell Reproduction - McGraw-Hill Higher Education. Yumpu.com. https://www.yumpu.com/en/document/read/33170847/a-chapter-4-cell-reproduction-mcgraw-hill-higher-education
- NYRB. (n.d.). What do You Think? 4 Reproduction and Development Genes and Reproduction. https://www.roslynschools.org/site/handlers/filedownload.ashx?moduleinstanceid=3410&dataid=12046&FileName=NYBR_LE_T04.pdf.pdf
- Meiosis, inheritance and variation. (n.d.). Science Learning Hub. https://www.sciencelearn.org.nz/resources/208-meiosis-inheritance-and-variation
- Plant reproduction. (2022, October 28). Let's Talk Science. https://letstalkscience.ca/educational-resources/backgrounders/plant-reproduction#:~:text=Flowering%20plants%20reproduce%20sexually%20through,Pollen%20contains%20the%20male%20gametes.
- Lumen Learning. (n.d.). Sexual Reproduction in Plants | Biology for Majors II. https://courses.lumenlearning.com/suny-wmopen-biology2/chapter/sexual-reproduction-in-plants/
- Lumen Learning. (n.d.-a). Sexual Reproduction in Angiosperms | Biology for Majors II. https://courses.lumenlearning.com/wm-biology2/chapter/sexual-reproduction-in-angiosperms/
- Libretexts. (2021, December 17). 40.3.1: Sexual Reproduction in Angiosperms. Biology LibreTexts. https://bio.libretexts.org/Bookshelves/Introductory_and_General_Biology/Map%3A_Raven_Biology_12th_Edition/40%3A_Plant_Reproduction/40.03%3A_Structure_and_Evolution_of_Flowers/40.3.1%3A_Sexual_Reproduction_in_Angiosperms
- Libretexts. (2022, July 27). 14.1: Gametogenesis. Biology LibreTexts. https://bio.libretexts.org/Bookshelves/Botany/The_Science_of_Plants_-_Understanding_Plants_and_How_They_Grow_(Michaels_et_al.)/14%3A_Variation_and_Plant_Breeding/14.01%3A_Gametogenesis

III. TEACHING AND LEARNING PROCEDURE		NOTES TO TEACHERS
A. Activating Prior Knowledge	**DAY 1** **Short Review** Recall the important concepts and stages in meiosis. **Meiosis** contains two separate cell divisions, meaning that one parent cell can produce four gametes (eggs in females, sperm in males). In each round of division, cells go through four stages: prophase, metaphase, anaphase, and telophase. **Meiosis I** Meiosis I is the first round of cell division, in which the goal is to separate homologous pairs.  	Link: https://www.khanacademy.org/science/high-school-biology/hs-reproduction-and-cell-division/hs-meiosis/a/hs-meiosis-review#:~:text=Stages%20of%20meiosis,metaphase%2C%20anaphase%2C%20and%20telophase

	Meiosis II The second round of cell division is meiosis II, in which the goal is to separate sister chromatids.  	Link: https://www.khanacademy.org/science/high-school-biology/hs-reproduction-and-cell-division/hs-meiosis/a/hs-meiosis-review#:~:text=Stages%20of%20meiosis,metaphase%2C%20anaphase%2C%20and%20telophase.
B. Establishing Lesson Purpose	**1. Lesson Purpose** Essential Questions: 1. Can you explain the process of meiosis and its role in sexual reproduction? 2. What is the role of fertilization in sexual reproduction? 3. Why is sexual reproduction important in the natural world? **2. Unlocking Content Area Vocabulary** Instruction: The teacher will unlock the content area vocabulary to guide the students about the terms used throughout the lesson.	


SEXUAL REPRODUCTION
The combination of genetic materials from two parent cells to create a new individual
GAMETES
A sex cells that combine to form a new offspring

		
C. Developing and Deepening Understanding	**DAY 2-3** **SUB-TOPIC 1: Sexual Reproduction and Meiosis**	The teacher may first discuss the lesson about cell cycle and its phases. The cell cycle includes gap phase 1 (G_1), synthesis (S), gap phase 2 (G_2), mitosis, and cytokinesis. G_1, S, and G_2 constitute the interphase, and

	1. Explicitation *Learning Activities:* The student will watch the video about sexual reproduction and meiosis in the link provided. Answer the following questions in the blank provided. Link: https://www.nagwa.com/en/videos/218150702856/ Guided Questions: 1. Why is it important that gametes are genetically unique? 2. What happens when a sperm cell and an egg cell fuse? 3. What is the role of gametes in sexual reproduction? 4. What is the purpose of meiosis I and meiosis II? *Learner's Guide:* **A Journey Through Generations (Individual Activity)** **Instruction:** Please refer to the image below in answering the guided questions.  **Guided Questions:** 1. In the provided family picture, who do you think are the parents, and who do you think are the offspring? 2. Are there any visible physical resemblances shared between family members?	mitosis and cytokinesis together are called the M phase. Cytokinesis is the phase of the cell when the cytoplasm divides, creating two daughter cells. Link for Lecture: https://vcell.science/project/mitosis Link: https://www.gmanetwork.com/entertainment/celebritylife/family/11586/in-photos-20-inspiring-celebrity-families/photo/142940/regine-velasquez-alcasids-family

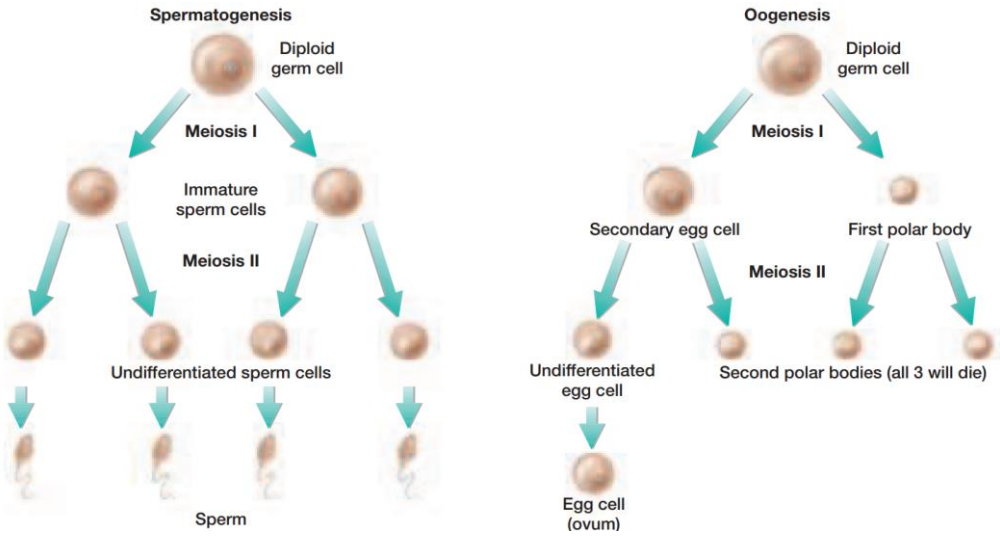
Meiosis and Gamete Formation

Meiosis in Males

The process by which sperm are produced in male animals is called **spermatogenesis**. Spermatogenesis occurs in the testes (male reproductive organs). As illustrated in the figure below, a diploid cell first increases in size and becomes a large immature cell (germ cell). The large cell then undergoes meiosis I. Two cells are produced, each of which undergoes meiosis II to form a total of four haploid cells. The four cells change in form and develop a tail to become male gametes called **sperm**.

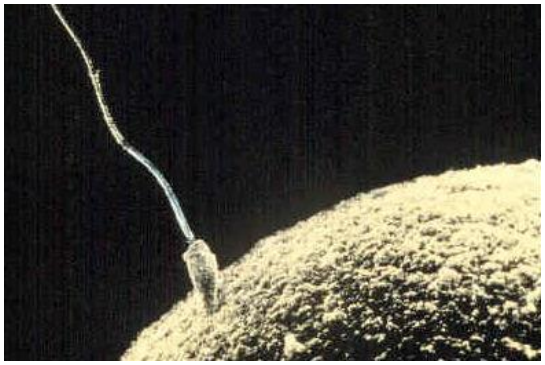
Meiosis in Females

The process by which gametes are produced in female animals is called **oogenesis**. Oogenesis, summarized in the figure below, occurs in the ovaries (female reproductive organs). Notice that during cytokinesis following meiosis I, the cytoplasm divides unequally. One of the resulting cells gets nearly all of the cytoplasm. It is this cell that will ultimately give rise to an egg cell. The other cell is very small and is called a polar body. The polar bodies degenerate after oogenesis.



Meiosis in male and female animals

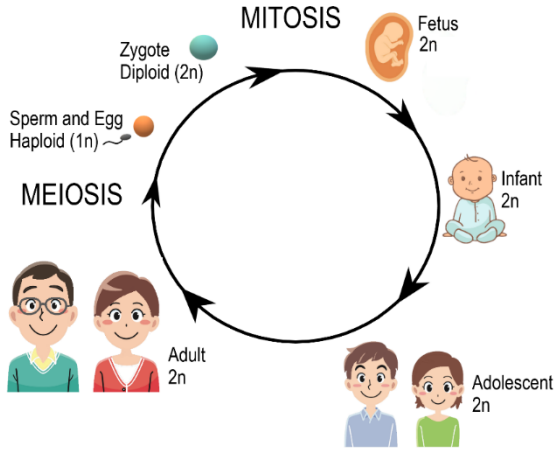
Link:
https://www.walkersclass.com/uploads/4/9/5/1/49515879/chapt_7_hbio_meiosis.pdf



A human sperm is a tiny cell with a tail. A human egg is much larger. Both cells are mature haploid gametes that are capable of fertilization.

Meiosis is Essential in Sexual Reproduction

In sexual reproduction, offspring receive half of their genes from one parent and half from the other. The genes are carried on chromosomes in **sex cells** (also known as **gametes** or egg or sperm cells), which fuse in **fertilization**. Each parent supplies half of the genetic information needed to form a complete individual. The **sperm**, which is the sex cell from the father, provides half of the information; the **egg**, which is the sex cell from the mother, provides the other half.



Sexual reproduction involves the production of haploid gametes by meiosis, followed by fertilization and the formation of a diploid zygote.

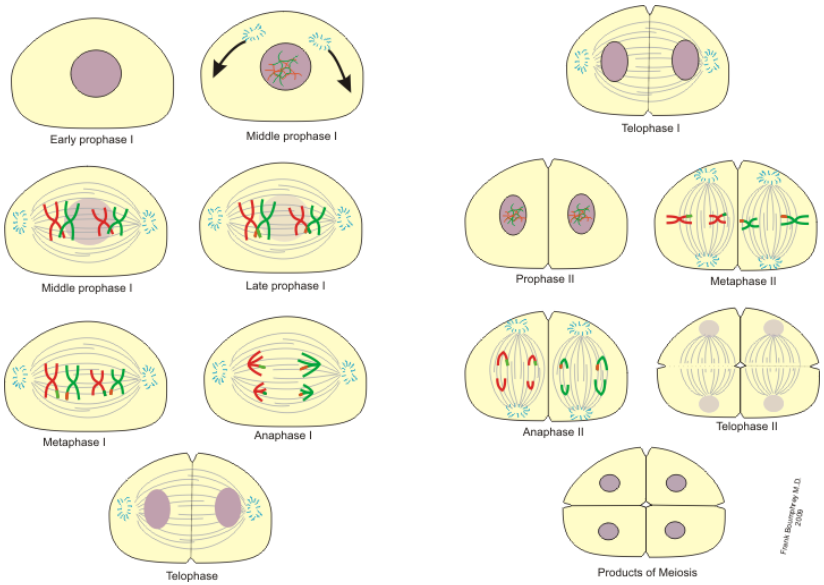
Link:
https://pressbooks.bccampus.ca/humanbiology053/chapter/5-11-sexual-reproduction-meiosis-and-gametogenesis/

Link:
https://pressbooks.bccampus.ca/humanbiology053/chapter/5-11-sexual-reproduction-meiosis-and-gametogenesis/

Genetic Information through Meiosis

During fertilization, 1 gamete from each parent combines to form a zygote. Because of recombination and independent assortment in meiosis, each gamete contains a different set of DNA. This produces a unique combination of genes in the resulting zygote.

Recombination in crossing over occurs during prophase I. Homologous chromosomes – 1 inherited from each parent – pair along their lengths, gene by gene. Breaks occur along the chromosomes, and they rejoin, trading some of their genes. The chromosomes now have genes in a unique combination.



Stages of meiosis: During meiosis, 1 diploid cell undergoes 2 cycles of cell division but only 1 round of DNA replication. The result is 4 haploid daughter cells known as gametes.

Sexual Reproduction through Pollination

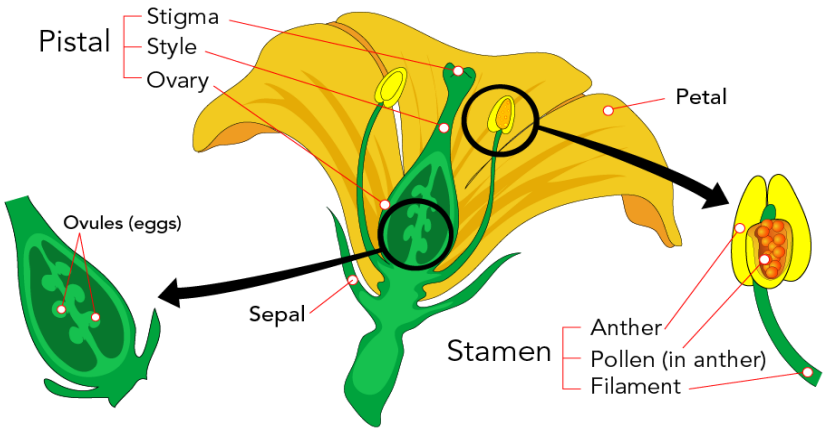
Sexual reproduction requires genetic material from two parents. The parent plants have male and female sex cells, called gametes. The genetic material from the male and female gametes combines to produce offspring. We call this process fertilization. The products of sexual reproduction are seeds.

Seeds produced through fertilization contain genetic material from both parents. As a

Link:
https://www.sciencelearn.org.nz/resources/208-meiosis-inheritance-and-variation

result, the offspring are not genetically identical to either of the parent plants. This genetic diversity can help them survive if the environment changes.

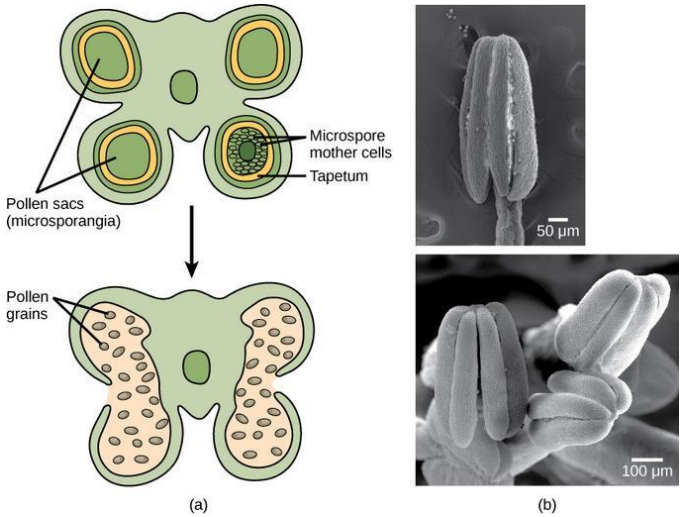
Flowering plants reproduce sexually through a process called pollination. Flowers contain male sex organs called stamens and female sex organs called pistils. The anther is the part of the stamen that contains pollen. Pollen contains the male gametes. Pollen must be moved to a part of the pistil called the stigma for reproduction to take place.



Parts of a flower
The outermost parts of the flower are green structures called sepals. They protect the flower before it opens. Inside the sepals are the petals. These are usually colorful. Petals on flowers are actually modified leaves. Within the petals are the stamens. Each stamen contains a filament topped by pollen-producing cells. The innermost part of the flower is the carpel. The carpel contains the ovary. This is where the eggs, or ovules, are located. The pollen from another flower must enter the ovary and fertilize an ovule in order for a seed to start developing.

Sexual Reproduction in Angiosperms
Male Gametophyte: The Pollen Grain
The male gametophyte develops and reaches maturity in an immature anther. In a plant's male reproductive organs, development of pollen takes place in a structure known as the microsporangium. The microsporangia, which are usually bilobed, are pollen sacs in which the microspores develop into pollen grains. These are found in the anther, which is at the end of the stamen—the long filament that supports the anther.

Link: https://letstalkscience.ca/educational-resources/backgrounders/plant-reproduction#:~:text=Flowering%20plants%20reproduce%20sexually%20through,Pollen%20contains%20the%20male%20gametes.



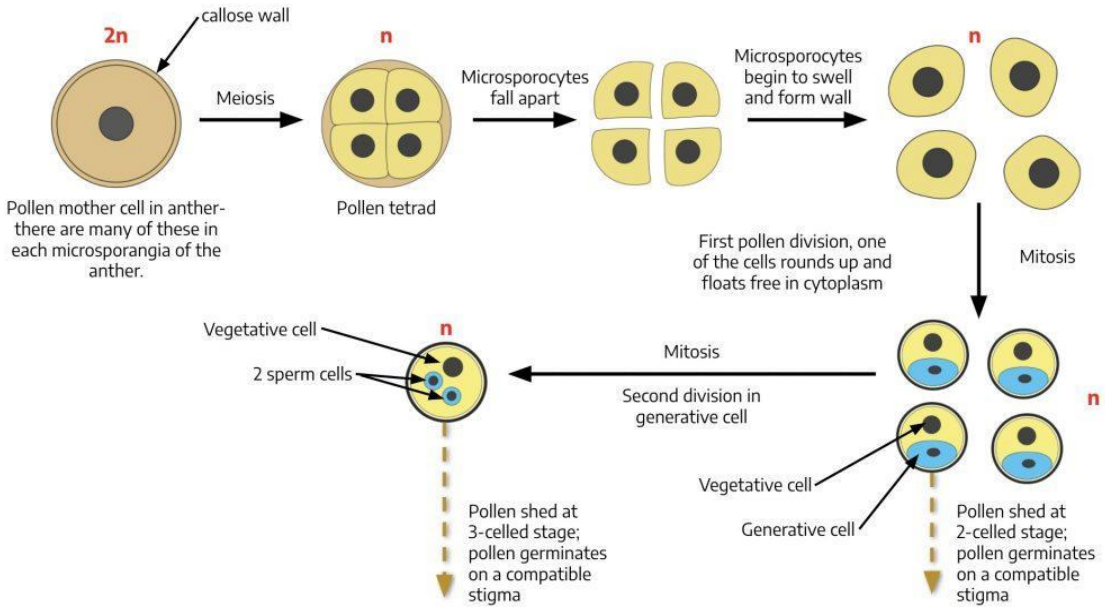
Microsporangium

Shown is (a) a cross section of an anther at two developmental stages. The immature anther (top) contains four microsporangia, or pollen sacs. Each microsporangium contains hundreds of microspore mother cells that will each give rise to four pollen grains. The tapetum supports the development and maturation of the pollen grains. Upon maturation of the pollen (bottom), the pollen sac walls split open and the pollen grains (male gametophytes) are released. (b) In these scanning electron micrographs, pollen sacs are ready to burst, releasing their pollen grains.

Microsporogenesis

The illustration below shows the development of the male gametophyte within the anther. The process, called microsporogenesis, or male gametogenesis, starts in the top left hand corner. Study these steps and be able to draw them. Red "2n" or "n" notations indicate the ploidy of the nuclei and blue notations show where the mitotic cell divisions occur. To this point we've learned that mitosis starts with one diploid cell and results in two diploid cells. We'll modify that now to say that mitosis starts with a cell and results in two cells that are exact copies of the original cell. If the starting cell is diploid, there will be two diploid copies. If the starting cell is haploid, there will be two haploid copies.

Link:
https://bio.libretexts.org/Bookshelves/Introductory_and_General_Biology/Map%3A_Raven_Biology_12th_Edition/40%3A_Plant_Reproduction/40.03%3A_Structure_and_Evolution_of_Flowers/40.3.1%3A_Sexual_Reproduction_in_Angiosperms



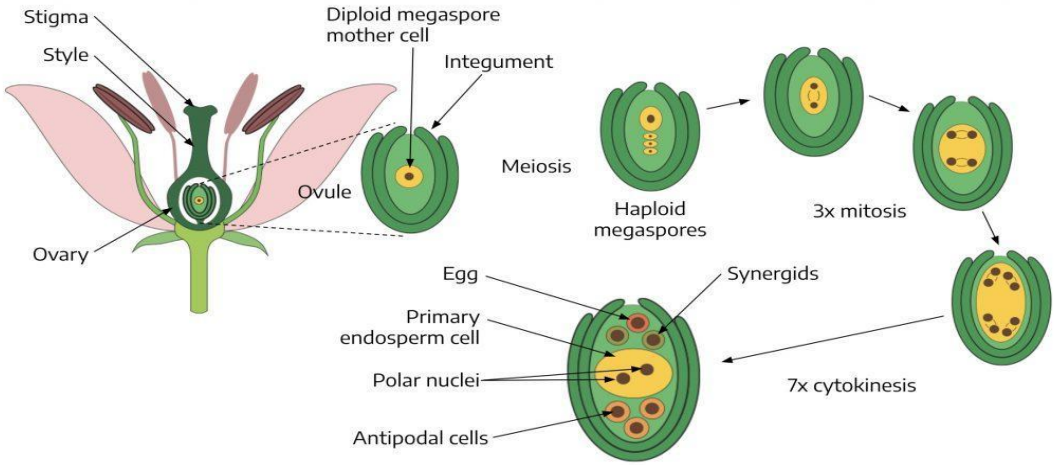
Pollen development and growth. Pollen can be shed at either the two-celled or three-celled stage; it varies from species to species.

The result of microsporogenesis, shown on the bottom row of the illustration above, is either a male gametophyte that is a two-celled pollen grain (with vegetative and generative cells), where the generative cell will later undergo another mitotic division to produce two sperm cells (shown to the right of the box), or, following mitosis of the generative cell and shown to the left of the box, a three-celled pollen grain with a vegetative (or tube) cell plus two sperm cells.

Megasporogenesis

The illustration below shows the development of the female gametophyte, a process is called megasporogenesis or female gametogenesis.

Link:
https://bio.libretexts.org/Bookshelves/Botany/The_Science_of_Plants_-_Understanding_Plants_and_How_They_Grow_(Michaels_et_al.)/14%3A_Variation_and_Plant_Breeding/14.01%3A_Gametogenesis



Development of the female gametophyte.

The chambers within the ovary are the locules, and within the locules are the ovules. The ovule wall is made up of integument tissue, and it is from this integument tissue that diploid megaspore mother cells form. A diploid megaspore mother cell undergoes meiosis and initially produces four haploid megaspores. Three of the four spores formed through meiotic division of the megaspore mother cell disintegrate, as indicated by the "X" through three of the spores in the illustration. The lone surviving megaspore subsequently undergoes three mitotic divisions to form eight haploid cells that are held within the ovule in an embryo sac. These eight cells comprise the female gametophyte.

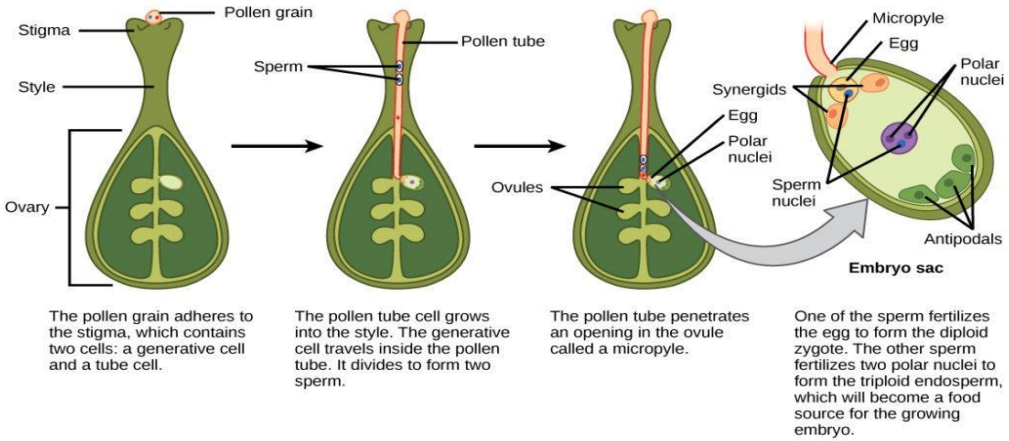
Only six of the nuclei are surrounded by their own cell membrane after the three rounds of mitosis. The two remaining nuclei are surrounded by one cell membrane. These two nuclei in one membrane become the polar nuclei and contribute two of the three nuclei to the endosperm tissue, with the other nucleus contributed by a sperm cell.

The megaspore mother cell is the swollen cell shown in the micrograph below. Note the linear tetrad of haploid megaspores resulting from meiosis of the megaspore mother cell. Three will disintegrate and one will undergo three rounds of mitosis.

Link:
https://bio.libretexts.org/Bookshelves/Botany/The_Science_of_Plants_-_Understanding_Plants_and_How_They_Grow_(Michaels_et_al.)/14%3A_Variation_and_Plant_Breeding/14.01%3A_Gametogenesis

Double Fertilization

After pollen is deposited on the stigma, it must germinate and grow through the style to reach the ovule. The microspores, or the pollen, contain two cells: the pollen tube cell and the generative cell. The pollen tube cell grows into a pollen tube through which the generative cell travels. The germination of the pollen tube requires water, oxygen, and certain chemical signals. As it travels through the style to reach the embryo sac, the pollen tube's growth is supported by the tissues of the style. In the meantime, if the generative cell has not already split into two cells, it now divides to form two sperm cells. The pollen tube is guided by the chemicals secreted by the synergids present in the embryo sac, and it enters the ovule sac through the micropyle. Of the two sperm cells, one sperm fertilizes the egg cell, forming a diploid zygote; the other sperm fuses with the two polar nuclei, forming a triploid cell that develops into the endosperm. Together, these two fertilization events in angiosperms are known as double fertilization (Figure 7). After fertilization is complete, no other sperm can enter. The fertilized ovule forms the seed, whereas the tissues of the ovary become the fruit, usually enveloping the seed.



In angiosperms, one sperm fertilizes the egg to form the 2n zygote, and the other sperm fertilizes the central cell to form the 3n endosperm. This is called a double fertilization.

DAY 4

2. Worked Example
Guess It, Win It! (Individual Activity)
Answer the following questions in the blank provided.

Link:
https://courses.lumenlearning.com/suny-wmopen-biology2/chapter/sexual-reproduction-in-plants/

1. How many is the chromosome number found in a human body?
   _____
2. Every body cell of a fruit fly has 8 chromosomes. How many chromosomes does an egg cell of a fruit fly have?
   _____
3. Male gametes are called _____.
4. Female gametes are called _____.
5. True or False. The chromosomes found in body cells are paired.
   _____
6. True or False. Meiosis maintains the number of chromosomes.
   _____
7. True or False. The process of meiosis produces gametes.
   _____
8. During meiotic (meiosis) cell division, how many daughter cells are produced?
   _____
9. What are the sex chromosomes for females?
   _____
10. How many chromosomes does a human sperm cell contain?
    _____

Discovery Channel: Meiosis (Paired Activity)
Instruction: Watch the video in the link provided and complete the statement below.
Link: https://www.youtube.com/watch?v=qCLmR9-YY7o
See activity sheet for the transcript of the video.

1. Homologous means that two things have the _____- homo, _____-logos.
2. Sperm and egg are _____ cells.
3. Meiosis produces four separate cells, each of which is genetically _____ from the others.
4. Females are born with a certain amount of _____.
5. Each germ cell has a different _____ code from every other germ cell produced by one person.

3. Lesson Activity
Who wants to be a Millionaire? (Group Activity)
Game Objective: The objective of game is to correctly answer a series of multiple-choice questions in order to win the grand prize of 100 points.
Game Setup:
Each player has their own set of answer cards (A, B, C, D) and a lifeline card.
Each correct answer can gain 10 points.

ANSWER KEY:

1. The chromosome number found in a human body is 46.
2. Every body cell of a fruit fly has 8 chromosomes. An egg cell of a fruit fly has 4 chromosomes.
3. Male gametes are called sperm.
4. Female gametes are called eggs or ova.
5. True. The chromosomes found in body cells are paired.
6. False. Meiosis reduces the number of chromosomes by half.
7. True. The process of meiosis produces gametes.
8. During meiotic (meiosis) cell division, 4 daughter cells are produced.
9. The sex chromosomes for females are XX.
10. A human sperm cell contains 23 chromosomes.

***Gameplay*:**

1. A question is read aloud to the contestant.
2. The contestant is given four possible answers: A, B, C, and D.
3. The contestant has 3 lifelines that they can use at any point during the game. Contestants can only use each lifeline once.
   a) 50/50: Removes two wrong answers from the multiple-choice options, leaving the contestant with only one correct and one incorrect option.
   b) Phone a Friend: The contestant can call a friend and ask for their help on the question. The friend has 30 seconds to answer the question.
   c) Ask the Audience: The audience is asked the same question as the contestant and a quick poll is done to show their answers.
4. The contestant selects their final answer and locks it in.
5. If the answer is correct, the contestant moves up the points ladder to the next question.
6. If the answer is incorrect, the contestant loses all their winnings and the game ends.

***Lifeline Strategy*:**

It is important to use lifelines strategically to increase your chances of winning. Here are some tips for using lifelines effectively:

- 50/50: Use this lifeline when you are down to two answer choices and you are not sure which one is correct. This lifeline can help you eliminate one of the wrong answers and give you a 50/50 chance of guessing the correct answer.
- Phone a Friend: Use this lifeline when you are unsure of the answer and you think your friend may know it. However, it is important to remember that your friend may not know the answer either, so use this lifeline wisely.
- Ask the Audience: Use this lifeline when you think the audience is likely to know the answer. This lifeline can be very helpful, but it is not always reliable, so use it with caution.

QUESTIONS

1. Sexual reproduction contributes greatly to the process of _____.
   a. evolution
   b. metabolism
   c. organization
   d. growth and repair
2. The combining of chromosomes from genetically different gametes occurs during _____.
   a. crossing over
   b. synapsis

ANSWER KEY:

1. A
2. D
3. C
4. B
5. A
6. B
7. B
8. C
9. A
10. A

c. meiosis II
d. fertilization

3. The haploid cells produced by animals during meiosis are:
    a. spores.
    b. zygotes.
    c. gametes.
    d. diploid.
4. In females, meiosis is specifically referred to as _____, which occurs in the ovaries and produces eggs.
    a. fertilization
    b. oogenesis
    c. the alternation of generations
    d. spermatogenesis
5. The female sex cell is called a(n) _____.
    a. egg
    b. zygote
    c. sperm
    d. diploid
6. What is the cell called that results from fertilization?
    a. egg
    b. zygote
    c. sperm
    d. diploid
7. If a sexually reproducing organism has 28 chromosomes in its body cells, how many chromosomes did it inherit from each parent?
    a. 7
    b. 14
    c. 16
    d. 28
8. The biological process involved in the formation of sperms is known as _____.
    a. Oogenesis
    b. Gametogenesis
    c. Spermatogenesis
    d. None of these
9. It increases genetic diversity.
    a. Sexual reproduction
    b. Asexual reproduction
    c. Meiosis
    d. Mitosis

	10. The jimsonweed (*Datura stramonium*), normally has 12 chromosomes in the body cells. How many chromosomes will an egg cell of the weed have? a. 6 chromosomes b. 12 chromosomes c. 24 chromosomes d. 18 chromosomes	
1. **Making Generalizations**	**1. Learners' Takeaways** **Check my Understanding** Explain your answer on the question: *Why is meiosis important in sexual reproduction?* Answer each question on the lines provided. 1. How many chromosomes in humans are there in sperm cells? How about egg cells? _____ 2. How many chromosomes would there be in a human offspring? _____ 3. How many pairs of homologous chromosomes would be in a human offspring? _____ **Match It to Win It!** **Instruction:** Match each term with the correct description below. Write your answer in the blank provided. egg cell fertilization zygote meiosis sperm cell _____ 1. It is the sex cell from the female reproductive organ. _____ 2. It is the sex cell from the male reproductive organ. _____ 3. It is the cell division in sexual reproduction. _____ 4. It is the cell that forms in fertilization. _____ 5. It is the joining of two sex cells. **2. Reflection on Learning** **Your Opinion Matters!** Answer the following questions. 1. What is the significance of meiosis in sexual reproduction? 2. How are gametes formed through meiosis, and what is their genetic composition? 3. How does meiosis in humans compare to that in other organisms?	**ANSWER KEY:** 1. egg cell 2. sperm cell 3. meiosis 4. zygote 5. fertilization

IV. EVALUATING LEARNING: FORMATIVE ASSESSMENT AND TEACHER'S REFLECTION		NOTES TO TEACHERS
A. Evaluating Learning	**DAY 5** **1. Formative Assessment** **Instruction:** Encircle the best answer. 1. Human reproduction involves which of the following? a. Body cells b. Sex cells c. Skin cells d. Bone cells 2. Which sequence best represents sexual reproduction? a. mitosis → gametes → zygote → fertilization b. gametes → meiosis → mitosis → fertilization c. fertilization → gametes → meiosis → zygote d. meiosis → gametes → fertilization → zygote 3. The diploid number of chromosomes in a human sex cell is 46. The number of chromosomes found in a human sperm cell is _____. a. 46 b. 23 c. 92 d. 12.5 4. A peacock chick receives one set of chromosomes from its mother and one set of chromosomes from its father. Each set of these inherited chromosomes is referred to as the _____? a. Zygote b. Diploid number c. Embryo d. Haploid number 5. What is formed when a female and male gamete fuse? a. Haploid Cell b. Egg c. Sperm d. Zygote	**ANSWER KEY:** 1. B 2. D 3. B 4. D 5. D 6. B 7. D 8. D 9. B 10. A

6. What term refers to the sperm or egg?
    a. Fertilization
    b. Gamete
    c. Diploid
    d. Zygote
7. What occurs in fertilization?
    a. A zygote is formed.
    b. A diploid cell is formed.
    c. A cell with a new genetic combination.
    d. All of these are correct.
8. Which of the following is an advantage of sexual reproduction?
    a. The population can reproduce more rapidly.
    b. It takes time and energy to find a mate.
    c. Only one parent is required to reproduce.
    d. There is increased genetic variation.
9. What is the primary purpose of meiosis?
    a. To create genetically identical cells
    b. To produce gametes with half the chromosome number
    c. To increase genetic diversity
    d. To create diploid cells
10. What is the main function of gametes in sexual reproduction?
    a. To increase genetic diversity
    b. To form zygotes
    c. To create identical offspring
    d. To provide nourishment to the developing embryo

2. Unlocking Content Area Vocabulary

Using the definition in Unlocking Content Area Vocabulary, answer the question, *"What are the roles of meiosis, gamete formation, and fertilization in sexual life cycles?"*

<table>
<tr><td rowspan="5">B. Teacher's Remarks</td><td>Note observations on any of the following areas:</td><td>Effective Practices</td><td>Problems Encountered</td><td rowspan="5"></td></tr>
<tr><td>strategies explored</td><td></td><td></td></tr>
<tr><td>materials used</td><td></td><td></td></tr>
<tr><td>learner engagement/ interaction</td><td></td><td></td></tr>
<tr><td>Others</td><td></td><td></td></tr>
<tr><td>C. Teacher's Reflection</td><td colspan="3">Reflection guide or prompt can be on:

▪ <u>principles behind the teaching</u>
What principles and beliefs informed my lesson?
Why did I teach the lesson the way I did?

▪ <u>students</u>
What roles did my students play in my lesson?
What did my students learn? How did they learn?

▪ <u>ways forward</u>
What could I have done differently?
What can I explore in the next lesson?</td><td></td></tr>
</table>