



LG #3: Process of Reproduction

BIG IDEA: How are Cells Derived from Cells?

Learning Standards:	
<p>Fundamental Knowledge <i>(what I need to know)</i></p> <ul style="list-style-type: none"> • Asexual reproduction related to mitosis and different forms • Sexual reproduction related to meiosis and humans • Basic genetics 	<p>Curricular Competencies <i>(What I need to do)</i></p> <ul style="list-style-type: none"> • Formulate physical or mental theoretical models to describe a phenomenon • Consider the role of scientists in innovation

Assessment of Learning Standards:	
Have an interview to show evidence of the Learning Standards , or elect to take a quiz	
<div style="border: 2px solid black; padding: 10px;"> <p style="text-align: center;">ESSENTIALS (C/C+)</p> <p>I CAN:</p> <ul style="list-style-type: none"> ☆ Identify the purpose and structure of plant and animal cell parts related to reproduction ☆ Describe the purpose of DNA and how it relates to protein production ☆ Explain the purpose and products of mitosis (cell maintenance, growth and reproduction) ☆ Explain the purpose and products of meiosis ☆ Research one biologist and their work ☆ Complete a lab examine extracted DNA ☆ Regular Science Teacher Contact/Collaboration _____ </div>	<p style="text-align: center;">ADVANCED (B)</p> <p>I CAN:</p> <ul style="list-style-type: none"> ➤ Model the similarities and differences of mitosis and meiosis ➤ Explain how biologists have contributed to our current understanding of the world.
<p style="text-align: center;">MASTERY (A)</p> <p>I CAN:</p> <ul style="list-style-type: none"> ✓ Summarize how organisms maintain genetic diversity (including mutations) within mitosis and meiosis ✓ Use a basic Punnett square to explain hereditary 	

Core Competencies: Choose a core competency target and set a goal.



Suggested Activities for Learning

OPTION 1

See your teacher to plan your own activities for learning. You can obtain a learning guide proposal form from the website

★ **Extracting DNA from Strawberries Lab p. 133 in BC Science 9 Textbook**

OPTION 2

- ★ Find a reliable website to read or watch a video on the structure/function of the animal/plant cells. Be sure to focus on the different parts of the nucleus. **Draw** labeled diagrams with the functions of the different parts of the cells.
- ★ What is DNA? What is it made up of? How does its shape and structure relate to its function? How is it used to make proteins? **Answer** these questions a variety of ways: make notes, create a model, write an analogy, or make a video. **Use BC Science 9 textbook complete the activity on p. 127. Compare with several other groups in your class to answer the questions.**
- ★ Find a website that explains the purpose and steps of mitosis. Take **notes** to be used in the next step.
- ★ Find a website that explains the purpose and steps of meiosis. Take **notes** to be used in the next step.
- ★ Create a table that **summarizes** the purpose, and the products of mitosis and meiosis.
- ★ Research a biologist (ex. Rachel Carson, find an example of your own). Create an informative poster on who they were, what they did and why their work was important.
- ★ **Use the guided worksheet to complete The Extracting DNA from Strawberries Lab from p. 133 in BC Science 9 Textbook**
- ★ Use your information from the previous section to compare and contrast mitosis and meiosis. Also look for websites to supplement your information. One place to start is <https://www.youtube.com/watch?v=zkDz93WIVk> (see link on website). Create a Venn diagram to show your comparisons.
- In a cartoon, explain how the world would be different today if your scientist above had not made their discoveries.
- ✓ Where does the chance for genetic diversity occur in mitosis and meiosis? How is this beneficial to a species (find examples)? How is this related to evolution and natural selection? Write a children's book that can explain this to a younger person.
- ✓ Choose a human trait. Classify and explain it as dominant or recessive. Use the Punnett square to explain how one would inherit the trait and the probability of inheriting the trait. Be sure to include phenotypes and genotypes of the parents.

OPTION 3

- ★ What are the parts and functions of animal and plant cells (with focus on the parts of the nucleus)? **Read** and make **notes** on p. 122 -125. Include a **labeled diagrams** with functions, in your notes.
- ★ What is DNA? What is it made up of? How does its shape and structure relate to its function? How is it used to make proteins? **Read** and make **notes** on p. 126-132. Complete the **questions** on p. 135 #1 -16. **Use BC Science 9 textbook complete the activity on p. 127. Compare with several other groups in your class to answer the questions.**
- ★ **Read** and make **notes** on the purpose and steps of mitosis p. 150-159. Answer the **questions** on p. 165 #1-10.
- ★ **Read** and make **notes** on the purpose and steps of meiosis on p. 188-197. Answer the **questions** on p. 203 #1-18.
- ★ Create a table that **summarizes** the purpose, and the products of mitosis and meiosis.
- ★ Research a biologist (ex. Rachel Carson, find an example of your own). Create a "Biologist" Trading Card on who they were, what they did and why their work was important.
- ★ **Use the guided worksheet to complete the Extracting DNA from Strawberries Lab from p. 133 in BC Science 9 Textbook**
- Use your information from the previous section to compare and contrast mitosis and meiosis. Also look for websites to supplement your information. One place to start is <https://www.youtube.com/watch?v=zkDz93WIVk> (see link on website). Create a Venn diagram to show your comparisons.
- In a paragraph, explain how our understanding of science has changed today because of the scientist you researched above.
- ✓ Select 2 organisms from the same "Family." Describe how the 2 organisms have diverged . Be specific about where genetic diversity occurs in mitosis or meiosis and how this led to different evolutionary paths. For examples phytoplankton vs spider plants. Find an example of your own.
- ✓ Choose a human trait. Classify and explain it as dominant or recessive. Use the Punnett square to explain how one would inherit the trait and the probability of inheriting the trait. Be sure to include the phenotypes and genotypes of the parents.

Reflection:

After finishing my learning activities what do I understand? How have I answered the BIG Question? What evidence do I have to show I have met these core-competencies?