

Name: _____

Reproduction and Growth of Cells

8th Grade

NTI Day 1

Complete each lesson and turn in to your teacher when you return to school.

****Your English assignments for NTI Days 1, 2, and 3 are separate; please follow the instructions on the front page of the English packet for those lessons.**

Name:

Science

Lesson 19

8th - NII Day 1

Reproduction and Growth of Cells

How do you, animals, and plants grow and evolve? For every living creature to develop, its cells must multiply through a process called **reproduction**. It's astounding to think that you initially began as one tiny cell!

How do animals and plants multiply? Their method of reproduction can either be asexual, where progeny derive from a singular parent, or sexual, where offspring are birthed from the fusion of reproductive cells from two parents.

Asexual reproduction is the more straightforward type of cell multiplication, as it only necessitates one parent. Single-celled life forms, including bacteria, protozoa, and certain plants, multiply via a simple cellular division termed **mitosis**. During mitosis, the cell duplicates its chromosomes, which are composed of DNA, to ensure that each new cell will have its very own set of identical chromosomes. Once two complete sets of chromosomes are available, the nucleus splits, followed by the division of the entire cell. In animals, the cell membrane contracts inwards to produce two identical cells. For plants, a fresh cell wall forms, partitioning one plant cell into two. The organism that arises from asexual reproduction is a clone of its parent.

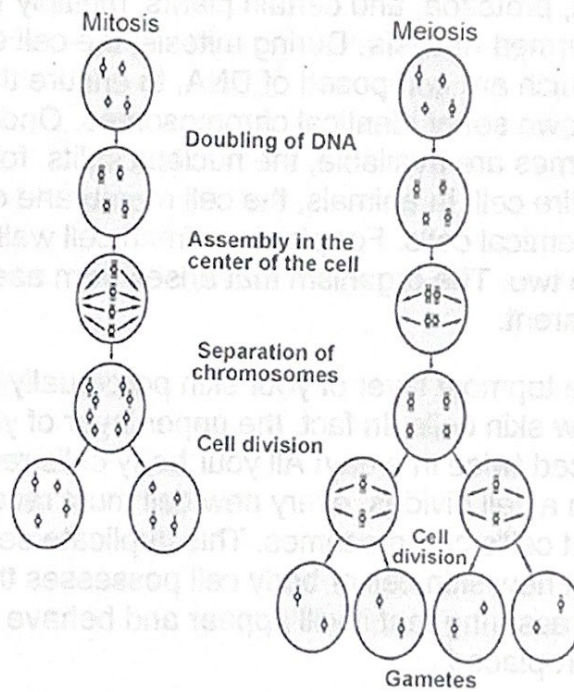
The cells from the topmost layer of your skin perpetually die and are substituted by new skin cells. In fact, the upper layer of your skin gets completely replaced twice in a day! All your body cells renew themselves via mitosis. When a cell divides, every new cell must receive an accurate copy of the parent cell's chromosomes. This duplicate set of chromosomes ensures that each new skin cell or body cell possesses the same DNA code as its parent cell, assuring that it will appear and behave similarly to the older skin cells it replaced.

Have you ever observed a mother dog with her puppy? You may have noticed that the puppy does not exactly resemble its mother. This is because dogs produce offspring via **sexual reproduction**, which involves two parents. The puppy acquires half its DNA from one parent and the other half from the second parent. Most organisms reproduce in this manner.

Creatures that multiply sexually possess distinctive cells known as sex cells. The female parent has sex cells called **egg cells**, and the male parent has sex cells known as **sperm cells**. These sex cells have only half the number of chromosomes that the other cells in an organism's body have. A process called **meiosis** forms these sex cells. In meiosis, a single cell splits into four, rather than two, so each new cell has half the number of chromosomes as the original cell.

Sexual reproduction takes place when the male cell (the sperm cell) and the female cell (the egg cell) unite to form a novel cell known as a **zygote**. This merging process is known as **fertilization**. The fresh zygote, which is the first cell of a new organism, has one full set of chromosomes, half received from the male parent and the other half from the female parent. The zygote will persist in dividing through mitosis to form the numerous cells that will constitute the adult body of that organism.

Mitosis and Meiosis Comparison



END OF
TEXT

Name: _____

Lesson 19

8th - Day 1

Reproduction and Growth of Cells

1. What must increase in living organisms for them to grow?

- A. The size of their cells
- B. The number of their cells
- C. The color of their cells
- D. The shape of their cells

2. What are the two methods of reproduction in plants and animals?

- A. Fast and slow
- B. Big and small
- C. Asexual and sexual
- D. Active and passive

3. What type of organisms reproduce by mitosis?

- A. Only two-celled organisms
- B. Only multi-celled organisms
- C. Both single and multi-celled organisms
- D. Only single-celled organisms

4. What happens to the top layer of your skin every day?

- A. It turns a different color
- B. It hardens
- C. It grows thicker
- D. It is replaced twice

5. Why do new cells have the same DNA code as their parent cell?

- A. So they can eat the same food
- B. So they can have the same hobbies
- C. So they can look and act like the older cells they replaced
- D. So they can play the same sports

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Lesson 19

Reproduction and Growth of Cells

6. Why doesn't a puppy look exactly like its mother?
- A. Because the puppy is younger
 - B. Because the puppy got dirty
 - C. Because dogs reproduce sexually and the puppy inherits DNA from two parents
 - D. Because the puppy is a different breed
7. What are the sex cells in female and male parents called?
- A. Female cells are called puppies and male cells are called kittens
 - B. Female cells are called egg cells and male cells are called sperm cells
 - C. Female cells are called cells and male cells are called cells
 - D. Female cells are called birds and male cells are called bees
8. How many chromosomes do sex cells have compared to other cells in an organism's body?
- A. Twice as many
 - B. The same number
 - C. Half as many
 - D. Three times as many
9. What process forms sex cells?
- A. Mitosis
 - B. Meiosis
 - C. Fertilization
 - D. Replication
10. What is the first cell of a new organism called?
- A. An egg cell
 - B. A sperm cell
 - C. A zygote
 - D. A chromosome

Simplify each expression.

1) $-4k + 6k$

2) $1 + 10r + r + 5$

3) $-7p - 3p$

4) $-6x - 6x$

5) $9r - 4r$

6) $3p + 10p$

7) $7n + 2 + 5n$

8) $2v - 7 + 2v$

9) $n + 6 + 2 + 9n$

10) $5k + 5 + k + 9$

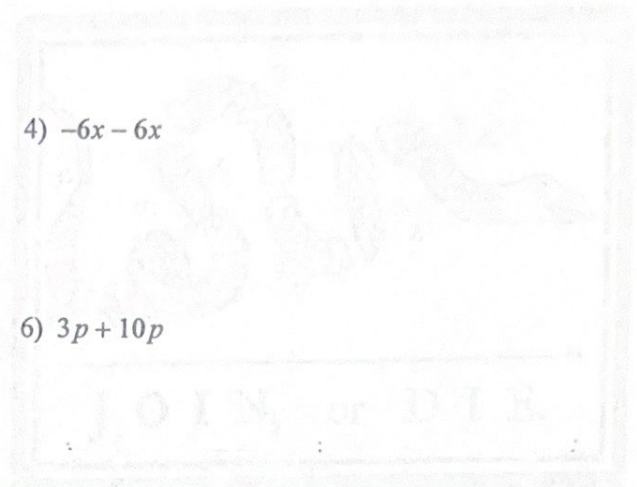
11) $-10(1 + m)$

12) $-5(1 + 10a)$

13) $-10(x + 7)$

14) $-10(x - 2)$

15) $3(-5p + 1)$



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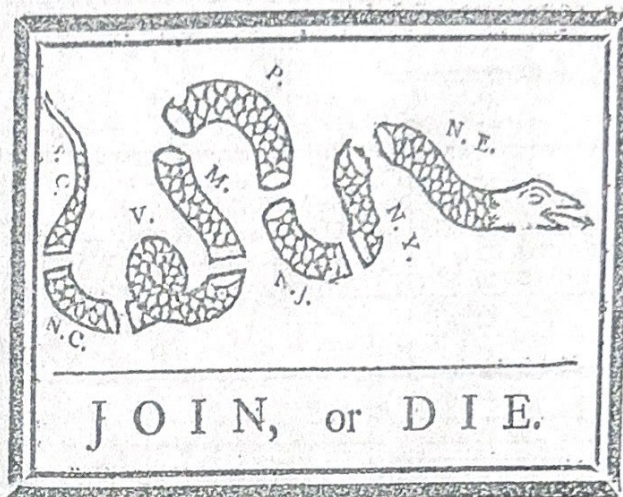
The American Colonies

COMPLETE UNIT GUIDE PACKET

OVERVIEW

The American Colonies were a group of British colonies on the Atlantic coast of North America founded in the 17th and 18th centuries. The first English colony was founded at Jamestown, Virginia, in 1607 by investors looking to make money. The Pilgrims, founders of Plymouth, Massachusetts, arrived in 1620. These and many of the people who settled in the New World came to escape religious persecution. The Colonies came to be generally broken up into three regions: New England, Middle, and Southern Colonies.

Between 1625 and 1775, the population of the Colonies grew from roughly 2,000 to 2.4 million, displacing many American Indians. This population included people, overwhelmingly from Africa, who were enslaved. Slavery remained legal in all the colonies prior to the Revolutionary War.



In the 18th century, the British government operated its colonies under a policy of mercantilism, in which the central government administered its colonies for the economic benefit of the mother country. The 13 American Colonies had a high degree of self-governance and active local elections, and they resisted demands for more control. The French and Indian War led to growing tensions between Britain and the Colonies. In the 1750s, the colonies began collaborating with one another instead of dealing directly with Britain. These inter-colonial activities cultivated a sense of shared American identity and led to calls for protection of their rights, especially the principle of "no taxation without representation". Grievances with the British government led to the American Revolution, in which the colonies collaborated in forming the Continental Congress. The colonists fought the Revolutionary War in 1775 with the aid of France and win their independence in 1783.

ESSENTIAL QUESTIONS → You do not have to answer these questions - Complete the back of this page.

- a) What would make you leave your home to start a new life in a new location?
- b) How did explorations and settlements of the English differ from those of the Spanish?
- c) How were the lives American Indians affected by European colonization?
- d) How did the New England, Middle, and Southern Colonies differ from one another?
- e) In what ways did geography affect the development of colonial America?
- f) What led to the introduction of African slavery in the American Colonies?
- g) How did democracy take root in the American Colonies?
- h) What aspects of American government today can be traced back to Colonial America?

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VOCABULARY 8th-SS.-NTI Day 1

Directions: Write the definition for each word in the middle column and draw a picture to represent each in the 3rd column.

Joint Stock Company		
Virginia Company		
House of Burgesses		
Indentured Servant		
Bacon's Rebellion		
Mayflower Compact		
Direct Democracy		
Puritans		
Quakers		
Middle Passage		
Great Awakening		



Remember to
annotate as
you read.

Notes

THE MYTH OF PYGMALION

1 I am Pygmalion, the king of Cyprus with the reputation for detesting woman. Perhaps these strong feelings emerged in me after being rejected by dozens of fair maidens; I took them for expensive meals followed by dancing in the Metropolis, but they all wanted nothing more to do with me. It is a mystery to me why these women did not fall head over heels in love with me. I had the looks, money, personality, and charisma, and I could be very romantic. (I love walks in the moonlight and rainy Saturdays.)

2 Most women, like my mother, are rude and selfish creatures who require all too much attention and praise. Or, so I thought. So I decided to live out my days as a bachelor.

3 I am a gifted sculptor who works with ivory and one day my hands started on a project that resulted in a form so perfect and lovely. Her skin was smooth and polished, her eyes were as sparkling as diamonds, and her face was gentle and kind, yet stunning. I was speechless at the figure before me, at what I had created. It was a woman I called Galatea.

4 I could not take my eyes off her, and all I wanted was to be close to her and to adorn her. I placed rings on her fingers and a strand of pearls hung about her neck. Sometimes I pretended, just as a child might, that she was real, and I would talk to her and tell her all my deep, dark secrets. I believed that she was listening and cared deeply for me.

5 I presented my love with tokens of affection, such as polished stones, little birds, pieces of amber, and flowers of all sorts. All I wanted was for her to become more, to be real; I wanted her to be human and alive, and my wife.



Close Reading and Collaborative Conversations

What Does the Text Say?	How Does the Text Work?
<p>1. What is this passage mostly about? Turn to a partner and summarize “The Myth of Pygmalion.”</p>	<p>1. How does the author let the reader know that the statue will turn into a woman and that he will marry her?</p>
<p>2. How does Pygmalion feel about real women? What does he do because of those feelings?</p>	<p>2. What does Pygmalion do that shows his love for the statue?</p>
<p>3. When Pygmalion leaves the festival, does he know that the statue will be turned into a woman? Explain your answer.</p>	<p>3. Reread paragraph 4. What does “adorn” mean? What context clues help you to know the meaning?</p>

Write About the Text

Check Your Understanding

What Does the Text Mean?

1. Reread paragraphs 1–4. What does Pygmalion get from the statue that he does not get from real women?

2. Pygmalion is a grown man, a king, but he displays childlike characteristics. What details from the text support this inference?

3. How does Pygmalion change during the passage? Use evidence from the text to support your response.



Write About the Text

Informative/Explanatory Writing Prompt

After Reading "The Myth of Pygmalion," write a paragraph in which you describe Pygmalion's relationship with the statue and how that relationship came about. Support your discussion with evidence from the text.

Plan your response using this graphic organizer. Use your annotations and your notes on pages 86–89 to find text evidence.

<p>Key Idea/Event:</p> <p>Details:</p> <ul style="list-style-type: none"> • • • 	<p>Key Idea/Event:</p> <p>Details:</p> <ul style="list-style-type: none"> • • •
<p>Topic Sentence:</p>	
<p>Key Idea/Event:</p> <p>Details:</p> <ul style="list-style-type: none"> • • • 	<p>Conclusion:</p>

✓ Writer's Checklist

- I introduced the topic.
- I developed the topic with facts, details, and evidence.
- I used transitions to connect ideas.
- I used precise language.
- I used a formal style.
- I included a concluding statement.



Wrap Up

Check Your Understanding

1. This question has two parts. Read this sentence from paragraph 10 in the passage. Then, answer the questions. Answer Part A first, then answer Part B.

At our nuptials, we gave thanks to the goddess Venus, who made my dreams come true.

Part A What is the meaning of nuptials as used in this sentence?

- A. birth
- B. home
- C. wedding
- D. life

Part B Which phrase from the passage helps you understand the meaning of nuptials?

- A. "made my dreams come true"
- B. "she taught me how to love"
- C. "her eyes were fixed on me and she smiled brightly"
- D. "My creation was turning into a living, breathing woman."

2. Decide which statements belong in a summary of the passage and number them in the correct order.

- ___ Pygmalion sculpts a statue.
- ___ The statue falls in love with Pygmalion.
- ___ Pygmalion carefully wraps the statue so nothing will happen to it.
- ___ Pygmalion falls in love with his own creation.
- ___ Pygmalion falls in love with a woman at the festival.
- ___ Venus thinks the statue made by Pygmalion is beautiful.
- ___ Pygmalion and the former statue, now a woman, get married.

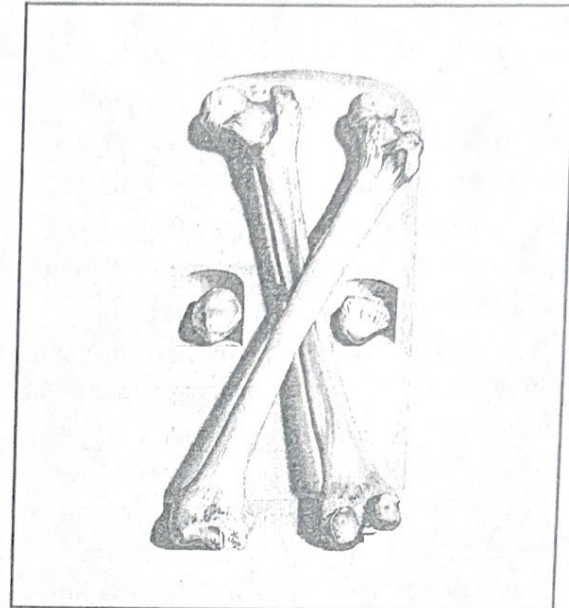
2. Skeleton Crew

On the night the museum paintings came alive, the skeletons from several paintings used the leg bones and hip bones to play baseball. Using the leg bones for bats and the kneecap bones for baseballs, they plaid for several hours in the main lobby, taking turns at bat.

In the room east of the lobby, other skeletons danced to the sounds of Boney Goodman and the Femurs. Some skeletons had to bone up on his steps but were back dancing soon.

In the room to the west of the lobby, still other skeletons practiced their card-playing skills with cards they had borrow from a painting full of dogs. One skeleton whom was a little rusty was told to found a different game. After one especially bonehead hand.

It was the baseball game, however, that was the most popular. Each side had the full team of five players, and the teams took turns pitching. Ground balls took sharp hops, when the bone bounced high off the wooden floor. Outfielders had trouble catching some line drives because they didn't have gloves. You had to really hand it to them for trying, though. Caution to be sure was a factor on some



These leg and kneecap bones from a museum painting look remarkably like baseballs and baseball bats. In fact, the skeletons from other paintings used them to play standard nine-player baseball on the night the paintings came alive.

plays. For instance, no one dared slide into a base for fear of going to pieces. Still, the skeletons enjoyed themselves immensely, playing into the we hours of the morning.

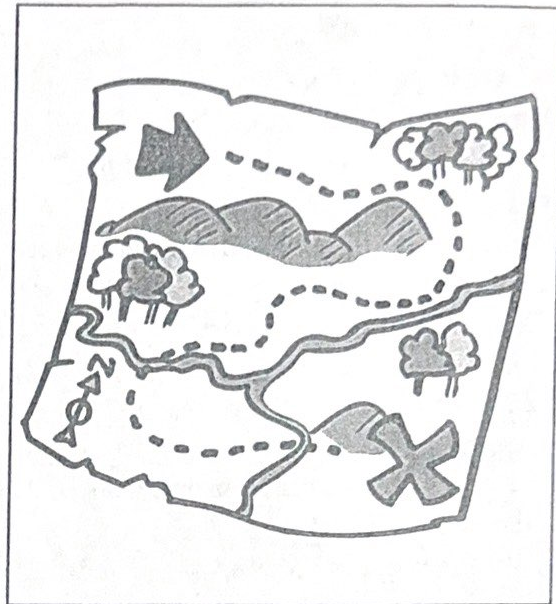
Finally, being game-weary and bone-tired they set about their cleanup so that when the museum workers' returned, they would see nothing amiss.

**Find the 14 errors in this activity.
There are no errors in the illustration or the caption.**

11. X Marks the Spot

Fred clambered along the steep rocky hillside slipping and sliding in the mud. Torrential rains from winter's angry outburst had loosened the soil, and mudslides had altered the banks above the river. The X indicated an area below where the river forked, but it was impossible to pinpoint exactly where along the western fork of the river this spot was. Suddenly the ground gave way. He grabbed a nearby fern to keep from falling, but succeeded only in uprooting the plant as he fell. He slid and rolled down the steep slope, landing at the base of the hill.

As he struggled to his feet, muddied and bruised, he notices an opening among two large rocks. He pulled out his flashlight and peered closer. A sudden glimmer caught his eye. He put the flashlight back on his belt and pulled away rocks and debris from the opening until he was able to wedge himself through. He found him in what seemed to be a cave. As his eyes adjusted to the darkness, he felt around for his flashlight, which had fallen from his belt. He quickly found it. As he picked it up, his fingers brushed against something hard, cold, and distinctly bony—something dead.



While on vacation in the Caribbean, Fred Holtz made a "bone-a-fide" discovery when he decided to follow the trail shown on an old treasure map he had found at the bottom of an antique chest!

Swinging it around, he saw the golden light that had previously caught his eye. Propped against the wall was a cobweb-covered skeleton, and around its neck, hanged a golden medallion. The medallion looked just like one he had seen in a painting of the infamous pirate, Varnet. Had he discovered the last resting place of this notorious brigand? "Well, yo ho ho," he sang, and a bag full of gold. I'll be rich!" Could anyone be as lucky as him?

**Find the 16 errors in this activity.
There are no errors in the illustration or the caption.**