Name _____ Date _____

CHAPTER
Concept Map

Parents and Offspring

Complete the concept map with information you have learned about different types of reproduction. Some answers have been written for you.

All Living Things Reproduce

Types of Reproduction	Organisms that use this type of reproduction	Does this type of reproduction enhance genetic variation?	Disadvantages or Advantages to this type of reproduction
_____	_____	_____	_____ _____ _____
_____	bacteria	_____	_____ _____ _____ _____

LESSON Outline

Name _____ Date _____

Reproduction

Use your textbook to help you fill in the blanks.

What are sexual and asexual reproduction?

1. Survival of a(n) _____ depends on its ability to produce offspring.
2. Every organism comes from a parent through the process of _____ .
3. The transfer of _____ from parents to their offspring is known as reproduction.
4. Genetic material contains the information that controls an organism's _____ .
5. The production of a new organism from two parents is called _____ reproduction.
6. When an egg cell joins with a sperm cell, _____ occurs.
7. A fertilized egg develops into an individual with traits from each _____ .
8. The production of a new organism from a single parent is called _____ reproduction.

How do organisms reproduce asexually?

9. Most bacteria and unicellular protists reproduce by making a copy of their genetic material and _____ .
10. Cnidarians, sponges, and some fungi can reproduce through _____ .

11. The eggs of insects, fish, frogs, and lizards sometimes develop into new animals without being _____ .

12. New plants can grow from leaves, roots, or stems. This type of asexual reproduction is called _____ .

13. Strawberry plants and ferns can reproduce asexually by forming _____ .

How do sexual and asexual reproduction compare?

14. An organism that reproduces asexually does not have to find a(n) _____ .

15. Organisms that reproduce asexually tend to be well suited to their _____ .

16. A major advantage of sexual reproduction is that it promotes _____ in a species.

Critical Thinking

17. Why is sexual reproduction better than asexual reproduction for ensuring the survival of a species in a changing environment?

_____

_____

_____

_____

_____

_____

_____

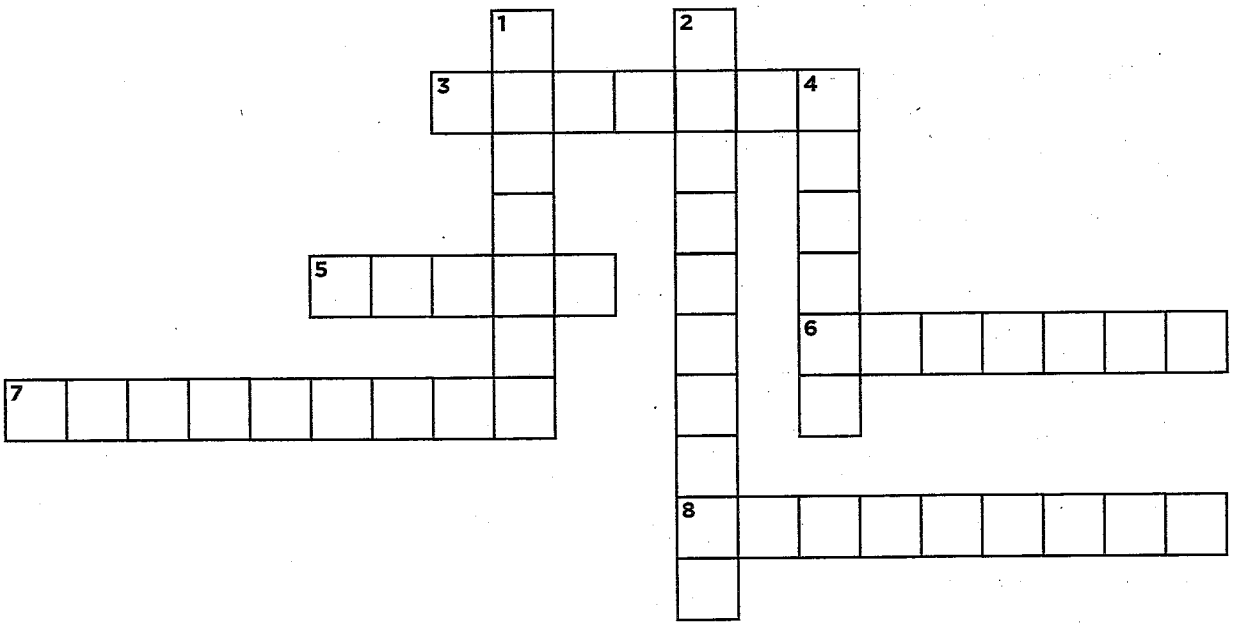
LESSON
Vocabulary

Name _____ Date _____

Reproduction

Read each clue. Write the answer in the blanks using the words below. Then fill in the crossword puzzle.

asexual	runners	splitting	variation
budding	sexual	trait	vegetative



Across

3. Plant stems that run along the ground and sprout as new plants.

5. Any characteristic of a living thing.

6. The production of a new organism from one parent is called _____ reproduction.

7. Bacteria reproduce by _____.

8. Sexual reproduction gives rise to _____ in a species.

Down

1. A bud growing from a fungus to become a new individual.

2. A new plant growing from a leaf is _____ propagation.

4. A new organism from two parents is _____ reproduction.

Name _____ Date _____

LESSON
Cloze Activity

Reproduction

Fill in the blanks.

asexual	reproduce	sperm	variety
mate	sexual	splitting	

No organism lives forever. This means all organisms must _____. There are two types of reproduction: _____ and _____. Sexual reproduction requires two parents. A female egg cell unites with a male _____ cell to produce a fertilized egg. The fertilized egg grows into a new, unique individual. Asexual reproduction requires only one parent and results in offspring that are genetically identical to the parent.

The main advantage of sexual reproduction is that it promotes _____ within a species. An advantage of asexual reproduction is that it does not require finding a(n) _____. There are several methods of asexual reproduction. Simple, one-celled organisms, such as bacteria and protists, reproduce by _____ into two cells. Animals such as cnidarians and sponges undergo a process called budding.

Name _____ Date _____

How Do Sea Stars Regenerate?

Write About It

The article you just read explained how the sea star can produce offspring using regeneration. Choose another animal that can reproduce without two parents. Write an explanation of how this process takes place.

Getting Ideas

Choose an animal to write about. Think about how it reproduces without parents. Write the steps below.

First

Next

Last

Planning and Organizing

Xavier wants to explain how flat worms reproduce. Here are three sentences he wrote. Put them in order.

_____ Finally, each half grows into a separate flat worm.

_____ First, the flat worm divides in two.

_____ Stem cells turn into the types of cells needed to reproduce the missing part.

Name _____ Date _____

Writing in Science

Drafting

Write a sentence to begin your explanation. Name the animal you are writing about. Tell your main idea about how this animal reproduces. This is your topic sentence.

_____

_____

_____

Now write your explanation. Use a separate piece of paper. Begin with your topic sentence. Explain how the animal reproduces. Write the steps in time order.

Revising and Proofreading

Here are some sentences Xavier wrote. Combine each pair. Use the time order word in parentheses. Write the new sentence on the line.

1. The stem cells multiple. They turn into specialized cells. (before)

   _____

   _____

2. A message is sent out to specialized cells. The cells near the wound cover it. (after)

   _____

   _____

Now revise and proofread your writing. Ask yourself:

- Did I explain how the animal can reproduce without parents?
- Did I include time order words?
- Did I correct all mistakes?

LESSON
Outline

Name _____ Date _____

Plant Life Cycles

Use your textbook to help you fill in the blanks.

What are seedless plant life cycles?

1. Plant life cycles have two alternating phases, one sexual and one asexual. This type of life cycle is called _____ .

2. During the asexual phase, moss plants form capsules that contain _____ .

3. During the sexual phase, moss spores grow into plants with male and female branches. Rainwater carries sperm to egg cells, and _____ occurs.

What are the parts of a flower?

4. The male part of a flower is called the _____ ; the female part is called a pistil.

5. At the top of the filament is the _____ , where pollen is produced.

6. The pistil is made up of a stigma, a style, and a(n) _____ (which contains the egg cells).

7. A perfect flower has both a stamen and a pistil; a(n) _____ flower lacks one part or the other.

What is an angiosperm life cycle?

8. The transfer of pollen from stamen to pistil is called _____ .

9. After pollination, sperm cells from pollen move down the _____ of the pistil to the ovary.

What is in a seed?

10. The ovary enlarges to become a(n) _____ as the seeds develop.

11. In addition to the embryo, a seed contains a food supply called the _____ .

12. The development of a seed into a new plant is called _____ .

What is the conifer life cycle?

13. Cone-bearing plants, such as pines and firs, are called _____ .

14. After a conifer egg is fertilized, it develops into a seed on the _____ .

Critical Thinking

15. Compare and contrast the reproduction of mosses, ferns, gymnosperms, and angiosperms.

_____

_____

_____

_____

_____

_____

_____

LESSON
Vocabulary

Name _____ Date _____

Plant Life Cycles

Who am I? What am I?

Choose a word from the word box that answers each question.

a. conifer	**c.** embryo	**e.** monocot	**g.** pollination
b. dicot	**d.** germination	**f.** pollen	**h.** seed coat

1. _____ I am a cone-bearing tree. Who am I?

2. _____ I take place when pollen from the stamen reaches the pistil. What am I?

3. _____ I am the tiny offspring inside a seed that can grow into a new plant. Who am I?

4. _____ I am the development of a seed into a new plant. What am I?

5. _____ I contain a flowering plant's sperm cells. Who am I?

6. _____ I have seeds with two cotyledons. Who am I?

7. _____ I have seeds with one cotyledon. Who am I?

8. _____ I am the tough, outer covering on a seed. What am I?

Name _____ Date _____

LESSON
Cloze Activity

Plant Life Cycles

Fill in the blanks.

alternation of generations	seeds
cones	sexual phase
flowers	spore cases
pollination	spores

All plants have a life cycle with two phases—one sexual and one asexual. This type of life cycle is called _____. In gymnosperms and angiosperms, the asexual phase is much reduced, and the _____ is the dominant part of the life cycle. Gymnosperms produce male and female _____. When pollen from the male cones reaches the female cones, _____ occurs. The fertilized eggs stay attached to the female cones as they develop into _____. Angiosperms produce reproductive organs called _____.

Moss and fern plants produce _____ during their asexual phases. In ferns, spores are produced in _____ on the underside of the fronds. When the eggs are fertilized, they grow into fern fronds.

LESSON Outline

Name _____ Date _____

Animal Life Cycles

Use your textbook to help you fill in the blanks.

What are animal life cycles?

1. Some animals go through a series of distinct growth stages called _____ .
2. A butterfly hatches from an egg as a larva. The larva feeds and grows until it forms a(n) _____ .
3. Inside the pupa, a larva's body changes completely into a(n) _____ butterfly.
4. Grasshoppers emerge from their eggs as _____ , which are similar to the adult but lack wings and reproductive organs.

How does fertilization occur in animals?

5. Sperm and egg cells must stay protected and _____ for fertilization to occur.
6. Fish and amphibians release their sex cells into the surrounding water, where _____ fertilization takes place.
7. Fish and amphibians must release large amounts of sex cells because the chances of _____ in open water are low.
8. The joining of sperm and egg cells inside the female's body is called _____ .

9. Animals that use internal fertilization include _____, birds, and mammals.

10. Internal fertilization increases the chances that eggs will be _____ and offspring will survive.

What happens to a fertilized egg?

11. Animals that lay their eggs in open water include fish and _____.

12. The egg's _____ provides food for a developing embryo.

13. Reptiles and birds have eggs filled with a liquid and surrounded by a tough _____, so their eggs can be laid on land.

14. The embryos of most _____ develop inside the mother.

Critical Thinking

15. Compare and contrast complete and incomplete metamorphosis. Give an example of an organism that undergoes each.

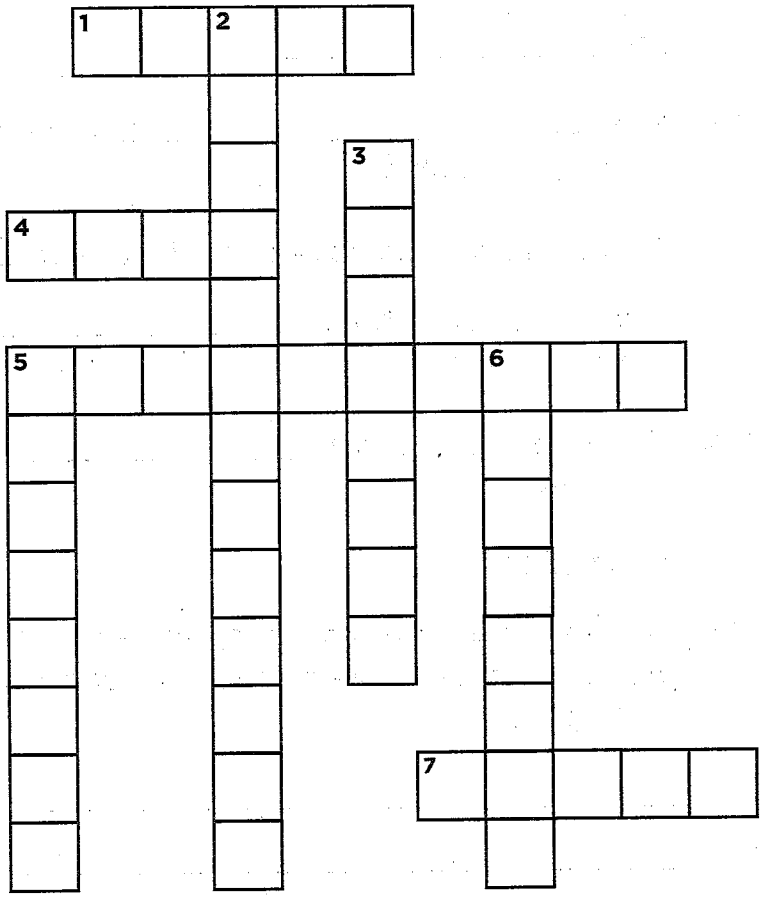
LESSON
Vocabulary

Name _____ Date _____

Animal Life Cycles

Read each clue. Write the answer in the blanks using the words below. Then fill in the crossword puzzle.

complete	incomplete	larva	nymph
external	internal	metamorphosis	pupa



Across

1. The immature stage that emerges from the egg during incomplete metamorphosis.
4. Larva changes to an an adult inside this hard case.
5. A life cycle with three growth stages.
7. The immature stage that emerges from the egg during complete metamorphosis.

Down

2. A series of distinct growth stages.
3. A life cycle with four very distinct growth stages is called _____ metamorphosis.
5. The joining of egg and sperm cells inside the body.
6. The joining of egg and sperm cells outside the body.

Name _____ Date _____

LESSON
Cloze Activity

Animal Life Cycles

Fill in the blanks.

complete	internal	sperm
embryos	jelly-like layer	tough shells
external	metamorphosis	yolk

Animals reproduce sexually. Sexual reproduction of animals begins when egg and _____ cells unite. Fish and amphibian eggs are fertilized outside the female's body, a process called _____ fertilization. Land animals rely on _____ fertilization.

After egg cells are fertilized, they develop into _____. Fish and frog embryos develop inside soft eggs. The eggs are somewhat protected by a(n) _____ around them. Reptiles and birds lay eggs covered by _____. Their eggs contain an embryo, a watery fluid, and a food source, the _____.

When most animals are born, they look like their parents. Other animals go through a series of stages called _____. Butterflies, moths, and beetles go through _____ metamorphosis. Grasshoppers, and termites go through incomplete metamorphosis.

LESSON Outline

Name _____ Date _____

Traits and Heredity

Use your textbook to help you fill in the blanks.

What is heredity?

1. The passing of traits from one generation to the next is called _____ .
2. Traits that offspring receive from their parents are _____ traits.
3. A way of acting or behaving with which an animal is born is called a(n) _____ .
4. A behavior that develops during an animal's lifetime is a(n) _____ behavior.
5. When ducks hatch, they learn to recognize and follow their mother, a behavior called _____ .

How are traits inherited?

6. Mendel discovered that each inherited trait is controlled by _____ , one from each parent.
7. Today scientists refer to Mendel's factors as _____ .
8. Genes are found in the nucleus of the cell. They are stored on _____ .
9. A trait that masks another trait is called a(n) _____ trait.
10. A trait that is masked is called a _____ trait.

Name _____ Date _____

LESSON
Outline

11. In pea plants, purple flowers are a dominant trait and white flowers are a recessive trait. The purple trait is represented by _____ and the white trait by p.

How do we trace inherited genes?

12. A chart used to trace the history of traits in a family is called a(n) _____ .

13. On a pedigree chart, horizontal lines connect parents and vertical lines connect parents to _____ .

14. Males are represented by squares, and _____ are represented by circles.

15. Shaded shapes represent individuals with a particular _____ , and unshaded shapes represent individuals without that trait.

16. Dimples are a dominant trait, represented by the letter D. A child who is a carrier of the recessive trait is represented by _____ .

Critical Thinking

17. Both a father and mother have dimples. Their son has dimples, but their daughter does not. Which genes, DD, Dd, or dd, does each family member have?

_____

_____

_____

_____

_____

LESSON
Vocabulary

Name _____ Date _____

Traits and Heredity

Match the correct letter with the description.

a. carrier	**d.** heredity	**g.** pedigree
b. dominant	**e.** inherited	**h.** recessive
c. gene	**f.** instinct	

1. _____ a trait that an offspring receives from its parents

2. _____ the passing down of traits from one generation to the next

3. _____ behavior that is inherited

4. _____ a trait that masks another trait

5. _____ a trait that is masked or covered by another trait

6. _____ chart used to trace the history of traits in a family

7. _____ contains the chemical instructions for an inherited trait

8. _____ individual who has inherited a gene for a trait, but does not show the trait physically

Name _____ Date _____

LESSON
Cloze Activity

Traits and Heredity

Fill in the blanks.

chromosomes	heredity	Gregor Mendel	sperm cell
genes	instincts	pedigree	trait

Parents pass on features of themselves to their offspring. Any notable feature of an organism is called a(n) _____ . The passing down of traits from parents to offspring is called _____ . Some traits, such as hair or eye color, are physical traits. Other inherited traits are behavioral and are called _____ . An Austrian monk, _____ , discovered how traits are inherited.

Today, Mendel's factors are called _____ . They are stored on the _____ inside the nucleus of cells. Offspring receive one set of genes from an egg cell and the other from the _____ that fertilized the egg cell.

Humans have an estimated 20,000 gene pairs. Some of these traits are easy to see. The history of a family trait and the way it has been inherited can be charted in a _____ . These charts can be used to study heredity patterns.

Name _____ Date _____

Genetically Modified Corn

Read the Reading in Science feature from your textbook. Look for cause and effect relationships.

Cause and Effect

Fill in the Cause and Effect Chart with cause and effect relationships you find in the article.

Cause	Effect
Corn borer eats corn	
Bt powder sprayed on corn	
	Corn plants make Bt toxin in their own cells, so the corn plants can protect themselves.
Other living things eat Bt corn	

Name _____ Date _____

Reading in Science

Write About It

Cause and Effect Explain how the bacterium Bt affects corn borers. Tell how genetically modified corn might cause problems for other insects and for the environment in general.

Planning and Organizing

Answer these questions in detail.

1. What does the Bt bacterium produce, and what effect does it have on corn borers?

_____

_____

2. What enables the Bt bacterium to make a protein that is toxic to corn borers?

_____

_____

3. What was transferred from the Bt bacterium to Bt corn?

_____

_____

4. How does Bt corn affect corn borers?

_____

5. How might Bt corn affect other living things, such as monarch butterflies?

_____

_____

CHAPTER
Vocabulary

Name _____ Date _____

Parents and Offspring

Choose the letter of the best answer.

1. Which of the following organisms reproduces by using budding?

   a. sponge **c.** lizard

   b. cat **d.** frog

2. Which of the following plants reproduces by using runners?

   a. corn plant

   b. moss

   c. strawberry plant

   d. apple tree

3. Which of the following is an example of sexual reproduction?

   a. cloning

   b. budding

   c. seed production

   d. vegetative propagation

4. Which organisms can develop from an unfertilized egg?

   a. humans **c.** some birds

   b. all sheep **d.** certain lizards

5. Which of the following is an advantage of asexual reproduction?

   a. It depends on finding another organism.

   b. It promotes variety in a species.

   c. It is convenient.

   d. It gives rise to offspring better suited to environmental change.

6. Where on a flower is pollen made?

   a. stigma **c.** anther

   b. style **d.** pistil

7. Where on a plant are egg cells produced?

   a. ovary **c.** anther

   b. pistil **d.** filament

8. When a new plant sprouts from a seed, it is

   a. fertilizing.

   b. pollinating.

   c. beginning its asexual phase.

   d. germinating.

Name _____ Date _____

CHAPTER
Vocabulary

Choose the letter of the best answer.

9. A flower with small, dull petals is most likely pollinated by

a. birds. **c.** bats.

b. wind. **d.** insects.

10. A dandelion seed is dispersed by

a. clinging to the fur of animals.

b. water.

c. wind.

d. being eaten by animals.

11. What is one of the main differences between a gymnosperm and an angiosperm?

a. Only angiosperms produce seeds.

b. Only angiosperms have leaves.

c. Only angiosperms produce pollen.

d. Only angiosperms produce fruits.

12. Which insect undergoes complete metamorphosis?

a. beetle

b. dragonfly

c. bed bug

d. grasshopper

13. Which of the following animals uses external fertilization?

a. bird **c.** bear

b. frog **d.** butterfly

14. Which of the following insects is a nymph at some point in its life cycle?

a. moth

b. grasshopper

c. fly

d. beetle

15. Which of the following items represents a carrier for the recessive trait?

a. DD **c.** dd

b. Dd **d.** d

16. An instinct is an example of

a. a learned behavior.

b. an inherited behavior.

c. an inherited physical trait.

d. imprinting.

17. If purple is the dominant gene for flower color, which of following items represents a white flower?

a. PP **c.** Pp

b. pp **d.** p

Name _____ Date _____

The Case for Clean Water

Read the Literature feature in your textbook.

Write About It

Response to Literature This article tells how to find out if a body of water is clean. Research additional information about the insect larvae mentioned in the article. Write a report about the effects of pollution on these insects. Include facts and details from the article and from your research.