Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading B

Section: Mendel and His Peas (pp. 174–179)

1. What is heredity?

Heredity is the passing of traits (physical characteristics) from parents to offspring.

2. What field of study did Mendel's experiments help establish?

Mendel is considered the father of Genetics.

BEFORE MENDEL

blending inheritance

3. If a brown rabbit mates with a white rabbit, the offspring would be tan according to the idea of

a. mixing inheritance.
b. proportionate inheritance.
c. Mendelian inheritance.
d. blending inheritance.

GREGOR MENDEL'S WORK

Austria

4. Gregor Mendel was born in

a. the United States.
b. Austria.
c. Germany.
d. Italy.

5. Why did Mendel study garden peas?

Because there are many traits to pea plants that can be observed, like white flowers, green or yellow peas.
Also, he was a monk and they could eat the experiment when done.

6. Why is it possible for pea plants to self-pollinate?

There are male (anthers) and female (pistil) parts on one flower. Just rubbing against the flower may cause self pollination.

Name _____ Class _____ Date _____

Directed Reading B *continued*

Match the correct definition with the correct term. Write the letter in the space provided.

a. self-pollination
b. true breeding
c. cross-pollination

cross-pollination **7.** Pollen from one plant is carried by animals or wind to fertilize eggs in the ovule of another plant.

self-pollination **8.** Pollen from one plant fertilizes the eggs of the same plant.

true-breeding **9.** Egg and pollen from the same plant combine; all the offspring have the same traits as the parent.

10. If a plant that is true breeding for purple flowers self-pollinates and has offspring, what color will the flowers of the offspring be?

All will be purple

11. A feature, such as hair color, that has different forms in a population is called a(n) trait.

12. A different form of a characteristic, such as brown hair, is called a(n) allele.

13. Besides flower color, what are three characteristics of pea plants that Mendel studied?

tallness or shortness trait, constricted or flat pea pod, pea color, yellow or green.

14. Why did Mendel use plants that were true breeding for each of the traits he was studying?

He wanted a pure strain of genetic material to be passed on so he could study the ratios of how many offspring would display that particular trait. He found some traits were hidden as they were inherited.

15. When he crossed two pea plants that had different traits of the same characteristic, how was Mendel able to select which plants would be crossed to produce offspring?

Mendel would choose two plants that had completely opposite traits. He chose true-breeders so that two separate and distinct alleles could be observed in the offspring. He noticed that one allele would be dominant and be expressed and the other one would be recessive and be hidden. For example a purple flower x a white flower would make all purple offspring, therefore purple was the dominant trait.

MENDEL'S FIRST EXPERIMENTS

first generation

16. When plants that are true breeding for different traits of a characteristic are crossed, the offspring are called
- **a.** dominant plants.
- **b.** recessive plants.
- **c.** first-generation plants.
- **d.** second-generation plants.

dominant trait

17. When plants that are true breeding for different traits of a characteristic are crossed, the trait observed in the first generation is called the
- **a.** dominant trait.
- **b.** recessive trait.
- **c.** first-generation trait.
- **d.** second-generation trait.

recessive trait

18. A trait that reappears in the second generation after disappearing in the first generation is called a
- **a.** dominant trait.
- **b.** recessive trait.
- **c.** first-generation trait.
- **d.** second-generation trait.

MENDEL'S SECOND EXPERIMENTS

second generation plants

19. When first-generation plants are allowed to self-pollinate, the offspring are called
- **a.** dominant plants.
- **b.** recessive plants.
- **c.** first-generation plants.
- **d.** second-generation plants.

dominant and recessive traits appear

20. When first-generation plants are allowed to self-pollinate, what type of traits appear in the second generation?
- **a.** Only the dominant traits appear.
- **b.** Only the recessive traits appear.
- **c.** Dominant and recessive traits appear.
- **d.** New traits appear.

dominant traits

21. In Mendel's experiments, what type of trait appeared most often in the second generation?
- **a.** dominant traits
- **b.** recessive traits
- **c.** passive traits
- **d.** new traits