

Name _____

Date _____

Homework: Mendel's Law of Heredity

Complete each statement.

- Mendel was the first person to succeed in predicting how traits are _____ from generation to generation.
- Mendel used _____ plants in his experiments.
- In peas, both male and female sex cells—_____—are in the same flower.
- _____ occurs when the male gamete fuses with the female gamete.
- Mendel used the process called _____ when he wanted to breed one plant with another.
- Mendel carefully _____ his experiments and the peas he used.
- Mendel studied only one _____ at a time and analyzed his data mathematically.

In your textbook, read about Mendel's monohybrid crosses.

Refer to the table of pea-plant traits on the right. Then complete the table on the left by filling in the missing information for each cross. The first one is done for you.

Parent Plants	F ₁ generation	
	Offspring	Appearance
8. round × wrinkled <i>RR</i> × <i>rr</i>	<i>Rr</i>	round
9. yellow × green <i>YY</i> × <i>yy</i>		
10. axial × terminal <i>AA</i> × _____	<i>Aa</i>	
11. tall × short _____ × _____	<i>Tt</i>	
12. inflated × constricted _____ × <i>ii</i>		

Pea-Plant Traits		
Trait	Dominant	Recessive
seed shape	round (<i>R</i>)	wrinkled (<i>r</i>)
seed color	yellow (<i>Y</i>)	green (<i>y</i>)
flower position	axial (<i>A</i>)	terminal (<i>a</i>)
plant height	tall (<i>T</i>)	short (<i>t</i>)
pod shape	inflated (<i>I</i>)	constricted (<i>i</i>)

Short Answer Use the diagram below to answer items 16–20. (5 credits)

Diagram 1

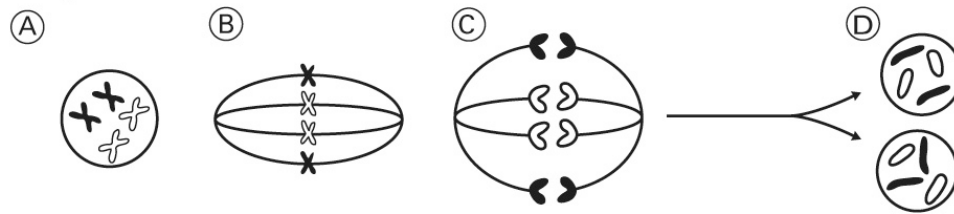


Diagram 2

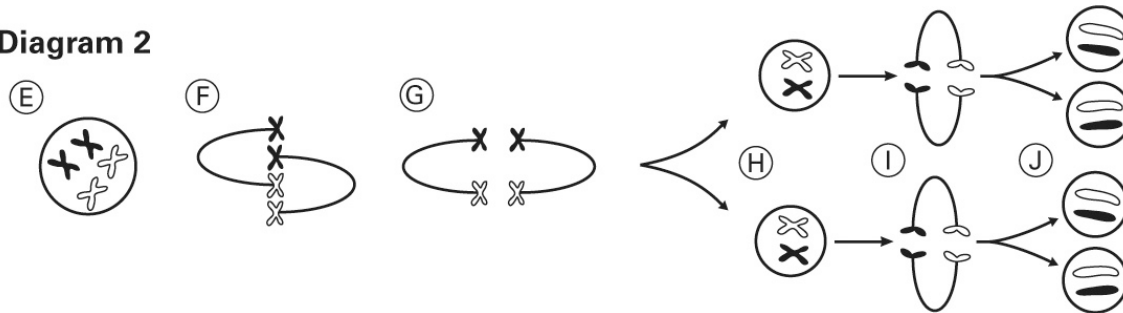


FIG. 6.3

16. Which diagram in Figure 6.3 shows the process of meiosis? How do you know?

17. Identify the process shown in diagram 1. Describe one way the process in diagram 1 is different from the process in diagram 2.

18. Write the letter that corresponds to the part of Figure 6.3 that shows the division of sister chromatids.

19. Write the letter that corresponds to the cells in the diagram that are haploid. How are these cells different from the cells in part D of the diagram?

20. Describe the process shown in part G of the diagram. How does it contribute to genetic diversity in all sexually reproducing organisms?
