

1.2 Assessment

Match each term on the left with the best descriptor on the right. Each descriptor may be used only once.

1. ____ gene	A. a characteristic
2. ____ trait	B. one form of a gene
3. ____ allele	C. two different alleles
4. ____ recessive	D. two alleles of the same type
5. ____ dominant	E. represented by a capital letter
6. ____ genotype	F. represented by a lower-case letter
7. ____ phenotype	G. physical appearance of an individual
8. ____ homozygous	H. hereditary unit that is passed from parent to offspring
9. ____ heterozygous	I. genetic make-up of an individual (combination of alleles in an organism)

Circle the letter of the best answer for questions 10 to 24.

10. Which of the following are related to phenotype?

I	Bb
II	long-haired dog
III	the physical appearance of a plant

- A. I and II only
B. I and III only
C. II and III only
D. I, II, and III
- 11.** A recessive trait is expressed only when the individual has
A. one recessive allele.
B. one dominant allele.
C. two recessive alleles.
D. two dominant alleles.
- 12.** Which of the following shows a heterozygous $\times$ homozygous dominant cross?
A. $Dd \times dd$
B. $Dd \times Dd$
C. $Dd \times DD$
D. $DD \times dd$
- 13.** A heterozygous yellow plant is crossed with a homozygous green plant. If the yellow gene is dominant, what are the possible genotypes of the offspring?
A. Yy and yy
B. YY and yy
C. Yy and YY
D. YY , Yy , and yy

- 19.** In radishes, colour is determined by incomplete dominance. When a red radish is crossed with a white radish, a purple radish results. If a purple radish plant is crossed with a white radish plant, what is the probability of the offspring being purple?
- A. 0% C. 50%
- B. 25% D. 100%
- 20.** When a rooster with grey feathers is mated with a hen with grey feathers, 20 of their offspring have grey feathers, 11 have black feathers, and 9 have white feathers. What pattern of inheritance is described?
- A. sex-linkage C. complete dominance
- B. codominance D. incomplete dominance
- 21.** The allele for red flowers is incompletely dominant over the allele for yellow flowers. When a red flower (F^R) is crossed with a yellow flower (F^Y), an intermediate orange flower results. What is the order of crosses, from least to greatest probability, of producing orange flowers?

Cross 1	$F^R F^Y \times F^R F^Y$
Cross 2	$F^R F^R \times F^Y F^Y$
Cross 3	$F^Y F^Y \times F^Y F^Y$

	Least Probability $\longrightarrow$ Greatest Probability
A.	Cross 1 $\longrightarrow$ Cross 2 $\longrightarrow$ Cross 3
B.	Cross 1 $\longrightarrow$ Cross 3 $\longrightarrow$ Cross 2
C.	Cross 2 $\longrightarrow$ Cross 1 $\longrightarrow$ Cross 3
D.	Cross 3 $\longrightarrow$ Cross 1 $\longrightarrow$ Cross 2

- 22.** A carrier of an X-linked trait is a genetic female who
- A.** shows the phenotype of the X-linked trait.
 - B.** has the recessive allele on one of her X chromosomes.
 - C.** has the recessive allele on both of her X chromosomes.
 - D.** has both parents expressing the phenotype of the X-linked traits.
- 23.** A recessive X-linked trait has two alleles, R and r . A genetic male who expresses a recessive X-linked trait will have the genotype
- A.** X^rX^r
 - B.** X^rY
 - C.** X^rY^r
 - D.** X^RY^r

24. A woman is a carrier for colour vision deficiency. She marries a man who has colour vision deficiency. What is the probability of the couple having a child who will have colour vision deficiency?

- A. 0%
- B. 25%
- C. 50%
- D. 100%

25. Complete the following spider map for the patterns of inheritance. Describe what happens in each situation.

