

Biology Unit Review

1. Describe the basic structure of DNA
2. What is complementary base pairing?

Draw the other side of the DNA molecule showing the complementary base pairs.

C T A A T G T

3. How many chromosomes are in the nucleus of a human body cell?
4. What is a mutation?
5. Name the three types of mutations that can occur.
6. What is a mutagen? List several examples.
7. Mutations can be _____, _____, or _____.
8. A hereditary unit of information is called a _____ and is passed from parent to offspring.
9. An _____ is one of the possible versions of the gene, such as the _____ for the purple trait or the _____ for the white trait.
10. An organism always has two genes present for each characteristic – one inherited from each _____.
11. If the alleles on both of the genes are the same, then the organism is _____. If the two alleles are different, then the organism is a _____ for a characteristic such as flower colour.
12. One trait will be dominant (purple) and one will be recessive (white). Only the _____ trait is expressed.
13. Phenotype refers to:
14. Genotype refers to:
15. Organisms that have matching alleles are said to be _____ for that trait. If they are purebred for the dominant trait (PP) they are said to be _____, or for the recessive trait (pp) they are said to be _____. Organisms which have non-matching alleles (Pp) are hybrids and are called _____ for that trait.
16. If the results in the pea height example above were 10 homozygous dominant (PP), 20 heterozygous (Pp) and 10 homozygous recessive (pp), the genotypes of the parents would be ____

Genotype	Gene Combination	Description
Homozygous		
	PP	
Homozygous recessive		
		Organisms whose alleles are not the same (hybrid)

17. For each genotype below, indicate whether it is heterozygous (**He**) or homozygous (**Ho**)

AA _____ Ee _____ li _____ Mm _____

Bb _____ ff _____ Jj _____ nn _____

18. For each of the **genotypes** below determine what **phenotypes** would be possible.

Purple flowers are dominant to white flowers.

PP _____ Pp _____ pp _____

19. For each **phenotype** below, list the **genotypes** (remember to use the letter of the dominant trait)

Brown eyes are dominant to blue: _____ brown, _____ brown, _____ blue

20. A homozygous dominant round seeded plant is crossed with a homozygous recessive wrinkled seeded plant.

What are the genotypes of the parents? _____ x _____

What percentage of the offspring will also be homozygous? _____

21. A cross between a purebred variety with red flowers (RR) and a purebred variety with white flowers (rr) results in a plant with pink flowers (Rr). Using a Punnett square, show the genotypes and phenotypes of the offspring.

If 8 flowers are produced from crossing the hybrid offspring, predict how many will have the genotype:

RR _____ Rr _____ rr _____ What type of dominance is shown here?

22. Draw a Punnett square showing a cross between a father with genotype Ao and a mother with genotype AB.

What percentage of the offspring will have blood Type A? _____

What percentage of the offspring will have blood Type B? _____

23. A white-eyed female fruit fly is crossed with a red-eyed male. Red eyes are dominant, and **X**-linked.

What type of inheritance is shown here?

24. Draw a Punnett Square to show the cross of the two fruit flies.

What are the expected phenotypes of the offspring?

25. Describe a genetic technology and list the benefits and ethical considerations associated with this technology.

26. Define Genetic Drift and give an example.

27. Define Natural Selection and give an example.

28. Define Artificial Selection and give an example.

25. What is an invasive species? Give several examples.