

Introduction to Genetics Worksheet

Name: _____

1. What is the significance of the work done by Gregor Mendel? _____

2. Gregor Mendel used pea plants for his studies. Why was this important? _____

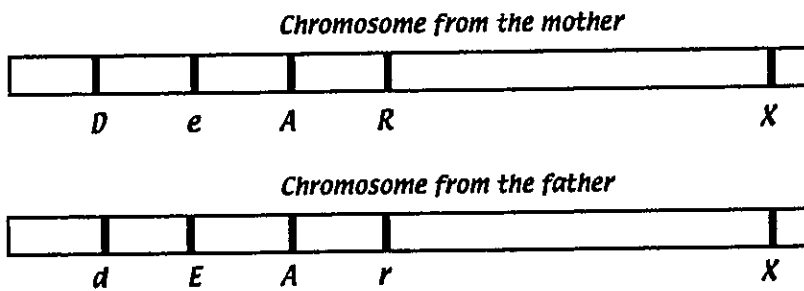
3. Explain the difference between a hybrid and a purebred for a pair of genes. Give an example of each.

4. What is the difference between phenotype and genotype? Give an example of each.

5. What is an allele? _____

For the following questions, use the genetic information below.

A sperm cell and egg cell from a human contains 23 chromosomes. The zygote that results from the fusion of the gametes contains 46 chromosomes -- one set from each parent. One pair of the zygote's chromosomes are shown below.



Each chromosome of the homologous pair contains alleles for the same traits. However, one chromosome may have a dominant allele and the other a recessive allele. Use the information from the table and the chromosome drawings to answer the questions.

Trait	Dominant Gene	Recessive Gene
Dimples	Dimples (D)	No dimples (d)
Earlobes	Free earlobes (E)	Attached earlobes (e)
Webbed digits	Normal (A)	Webbed digits (a)
Tongue Roller	Tongue roller (R)	Non-Roller (r)

6. Will the child be a tongue roller? Explain. _____

7. Can the mother roll her tongue? Explain. _____

8. Can the father roll his tongue? Explain. _____

9. What type of earlobes will the child have? Explain. _____

10. Will the earlobes of the child resemble that of either of its parents? Explain. _____

11. Will the child have webbed digits or not? Explain. _____

12. a. Does the mother have webbed digits? _____

b. Does the father have webbed digits? _____

13. a. Define the term heterozygous. _____

b. For which traits is the child heterozygous? _____

14. a. Define the term homozygous. _____

b. For which traits is the child homozygous? _____

15. Explain why you cannot completely describe the parents for the given traits, but you can accurately describe the child.
