

Investigate Alien Genetics

Name: _____

Date: _____

Student quiz — *Answer key*

Directions: Indicate the correct answer(s) for each question below.

1. For most genes, how many copies does each person carry?

- ☒ a. 2
- ☐ b. 1
- ☐ c. 4
- ☐ d. 3

2. Mark the following statements (A-F) true or false. (*Write 'True' or 'False' in the blank by each statement.*)

- ☒ **True** a. The *phenotype* is the expression of the genotype, or a person's actual observable physical characteristics.
- ☒ **True** b. The *genotype* is the version of a DNA sequence that a person has.
- ☒ **True** c. A "BB" genotype represents a *homozygous* trait.
- ☒ **True** d. A "Bb" genotype represents a *heterozygous* trait.
- ☐ **False** e. A "bb" genotype represents a *heterozygous* trait.
- ☐ **False** f. In a heterozygous genotype, the recessive allele takes over in the phenotype.

3. The alien hair color (H) is a Mendelian trait, with green hair being dominant and purple hair being recessive. What are the chances of an alien baby having purple hair if its mother has an hh genotype and its father has an Hh genotype? *Hint: If you aren't sure, draw a Punnett square to help you find the answer.*

- ☐ a. 100%
- ☐ b. 25%
- ☒ c. 50%
- ☐ d. 75%

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4. Let's assume that having freckles is a dominant trait (F). There are two siblings, one with the alleles Ff and one with the alleles ff. Which statement about these two siblings is true?
- a. They have the same genotype and phenotype.
 - b. They have the same genotype.
 - c. They have the same phenotype.
 - d. They have different genotypes and phenotypes.
 - e. Neither has freckles.

5. The diagram below shows a Punnett square. What is the genotype of the missing parent?

A	AA	AA
a	aA	aA

- a. AA
- b. Aa
- c. aA
- d. aa