

Name: _____ Class: _____ Date: _____

Human Variations: Discrete or Continuous?

Learner outcomes:

Describe examples of variations of characteristics within a species and identify examples of both discrete and continuous variation

Key Terms:

Heritable Characteristics

Non-Heritable Characteristics

Discrete Variation

Continuous Variation



Background Information:

Humans have many characteristics that can vary. For example, some people are tall; some short, some have curly hair; some have straight hair, some have blue eyes; other have brown eyes, etc. Behavioral characteristics can vary as well. Many of these characteristics are inherited, while others are not.

Research Question: What kinds of variations do humans have and are these variations inherited or not?

Materials:

Measuring tape

Procedure:

1. With a partner, observe and record the nature of the following characteristics:
 - a. Height - measure and record your height in cm.
 - b. Hair color
 - c. Eye color
 - d. Hair texture

This investigation / activity has been adapted from:

Mah K, Martha J, McClelland L, et al. *Science in Action 9*. Toronto, ON: Addison Wesley.

- e. Hairline - smooth and straight or pointed widow's peak
 - f. Earlobes - attached at bottom, or free lobes
 - g. Tongue - can you roll or not?
 - h. Straight thumb or thumb bent back
 - i. Left-handed or right-handed writer?
 - j. Hand clasp - close your eyes and clasp your hands. Do you clasp with left thumb on top or right thumb on top
 - k. Arm fold - fold your arms together and note which arm is on top
2. For each trait you investigate, determine whether you think the trait is inherited or not and whether the trait is continuous or discrete.

Observations:

Trait	What you have	Class numbers	Discrete / continuous	Heritable / non-heritable

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Analysis:

1. How did you determine whether a trait was continuous or discrete?
2. How did you determine whether a trait is heritable or non-heritable?
3. How might the environment impact a heritable trait? Give a specific example of trait that is influenced by both heredity and the environment.
4. Which of the traits you investigated would you consider physical, and which are behavioral?
5. Are all heritable traits visible? What might be some examples that are not?

Conclusion: What generalizations can we make about human traits?

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Extension:

Investigate one additional physical and easily observable human trait, one behavioral trait and one non-visible human trait that are all heritable. Research the types of variation found in each of these three traits, and determine the advantages and disadvantages of at least two variations of each.

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