

Traits and Variation

Grade 5 • SCIENCE • Students practice distinguishing inherited traits from learned or acquired characteristics and recognizing variation among members of a species. • Standards: 3-LS3-1

Read each question carefully and decide whether the trait described is inherited (passed from parents) or learned (gained through practice or experience). Write your answer on the line provided.

1. A puppy has brown fur just like both of its parents. Is the puppy's brown fur color inherited or learned?
2. A young bird watches its mother crack open seeds with her beak and learns to do the same thing. Is this seed-cracking behavior inherited or learned?
3. All cats in a species have sharp claws that help them climb. Are these sharp claws inherited or learned?
4. A horse gets a scar on its leg after running into a fence. Is the scar inherited or learned?
5. In a litter of five kittens from the same parents, three kittens have orange stripes and two have gray stripes. Does this show natural variation within the species?
6. A dog is trained to sit on command after weeks of practice with its owner. Is this sitting behavior inherited or learned?
7. A sunflower plant grows very tall because it receives extra water and fertilizer, while other sunflowers in the garden are shorter. Will the tall plant's offspring automatically grow just as tall?
8. In a group of zebras, each individual has a unique stripe pattern, but all zebras have stripes. Is the presence of stripes inherited, and does the variation in patterns show natural variation?
9. A rabbit loses part of its ear in a fight with a predator. If this rabbit later has babies, will those babies be born with part of their ears missing?

10. In a field of dandelion plants that all came from the same parent plant, some grow 8 inches tall while others grow 12 inches tall due to differences in sunlight and soil. Some have 6 petals per flower while others have 8 petals per flower, which was determined before they sprouted. Which difference shows inherited variation?

Answer Key — Traits and Variation

For the teacher / parent. Do not distribute with the worksheet.

1. Inherited (*Fur color is passed from parents to offspring through genes.*)
2. Learned (*The bird gained this skill by watching and practicing, not from genes.*)
3. Inherited (*Claws are body structures passed from parents through genes.*)
4. Neither (it is acquired) (*A scar is an acquired characteristic from an injury, not inherited or learned.*)
5. Yes (*Offspring from the same parents can show different inherited traits, demonstrating natural variation.*)
6. Learned (*The dog acquired this behavior through training and practice.*)
7. No (*Extra height from environmental factors like water and fertilizer is not inherited by offspring.*)
8. Yes to both (*Having stripes is inherited, and the unique patterns demonstrate natural variation within the species.*)
9. No (*Injuries and acquired characteristics are not passed to offspring through genes.*)
10. The number of petals (*Petal number was determined by genes before sprouting (inherited variation), while height differences came from environmental factors after growth began.*)