



[▶ Link to Video](#)

LESSON PLAN

VARIATION OF TRAITS GRADES 3-5

SUMMARY

In this activity students recognize that offspring don't all look alike, and variation can also be observed between offspring and their parents. They learn that traits are passed from parents to offspring and that offspring have different traits from each other. Also some traits are caused by the environment.



3-LS3-1. Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.

Science & Engineering Practices		Connections to Classroom Activity	
Analyzing and Interpreting Data		<ul style="list-style-type: none">• Students observe and record traits of parents and offspring and then analyze the variation of traits.• Students make a chart listing specific traits of mom, dad and each puppy and then compare and contrast parents and puppies.	
Disciplinary Core Ideas		Connections to Classroom Activity	
<p>LS3.A: Inheritance of Traits</p> <p>Many characteristics of organisms are inherited from their parents.</p> <p>LS3.B: Variation of Traits</p> <p>Different organisms vary in how they look and function because they have different inherited information.</p>		<ul style="list-style-type: none">• Students observe characteristics of parents and offspring of different types of animals.• Students observe variation of traits between different individuals of the same type of animals and plants.	

Crosscutting Concepts

Connections to Classroom Activity

Patterns

- Students observe and compare traits between parents and offspring and individuals.

DURATION

One to two 45-minute classroom periods.

PRE-ASSESSMENT QUESTIONS

Please see Discussion Questions located under the video. These can be discussed as a group or answered individually in student science notebooks.

MATERIALS

- Photos or examples of mom, dad, and baby puppies (attached) or other animals.
- Science notebooks
- Pencils
- Whiteboard and dry erase markers (optional)
- Plant specimens of the same type (such as tangerines, apples, carrots, daisies, etc.—one per student)
- Bowl, bag, or box for plant specimens



ENGAGE

Show students photos of a litter of puppies and their parents. Students may ask if the puppies are related to the other dogs, and which one is which parent. Explain which dog is the mom and which is the dad. Ask students—do the puppies look just like their mom? Just like their dad? (No, but they have some traits from both.) Why?



EXPLORE

Using the photos of the parents and puppies, make a chart on the board like the one below (or students can make this chart in their science notebooks). Have students carefully observe each of the parents and each puppy and make a list of their traits. Ask students to choose a puppy and write a paragraph comparing and contrasting that puppy with one or both of its parents.

Mom	Dad	Puppy 1	Puppy 2	Puppy 3
Long hair Longer legs Light brown & black fur	Short hair Long skinny body Long tail Short legs Brown fur	More black than brown Short tail		Long tail



EXPLAIN



WATCH THE *GENERATION GENIUS VARIATIONS OF TRAITS* VIDEO AS A GROUP

Then facilitate a conversation using the Discussion Questions.



ELABORATE

Variation of traits occurs in both animals and plants. To use the ideas explored in the video and first part of this lesson, students will now explore variation of traits between individual plants. Choose a type of plant that will work well in your classroom—something where each student can have his or her own (daisies, daffodils, tangerines, apples, carrots, etc.). Provide each student with their own specimen. Explain that although each of these plants are the same (they are all apples or carrots), they also have variation in their traits that students will observe. Give students time to make detailed sketches of their specimen, being sure to include all the features that could help them identify that particular plant.

Then have students return their specimen to a bowl or bag. Later in the day or during the next class period have students try to find their specimen based on the traits they observed and sketched.



EVALUATE

Ask students to discuss or write about this scenario:

A white cat (mom) and brown and black cat (dad) have a litter of four kittens. One is brown, one is black and one is black and white and one is white. Explain the relationship between the parents and offspring, and among the offspring, in terms of traits.

Traits from both the mother and the father were passed on to the offspring. The traits of the individual offspring vary from each other.

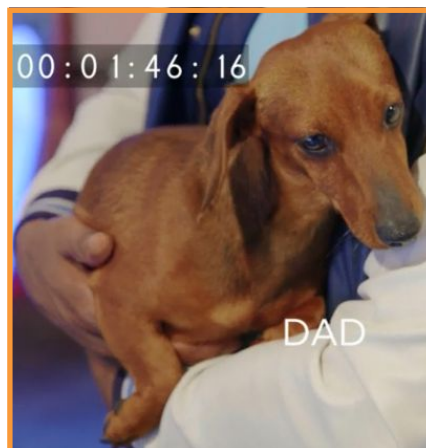
Alternatively, show students a photo of another type of animal or plant family, and ask them to explain or create a more complicated scenario with traits other than color.

PUPPIES & THEIR PARENTS

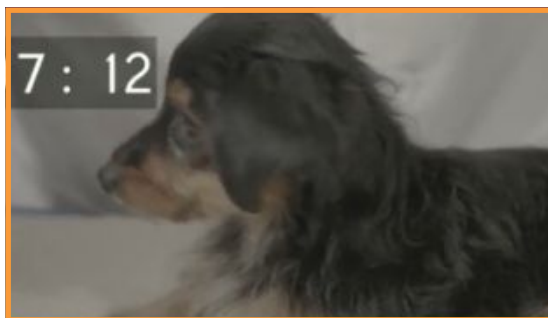
Mom



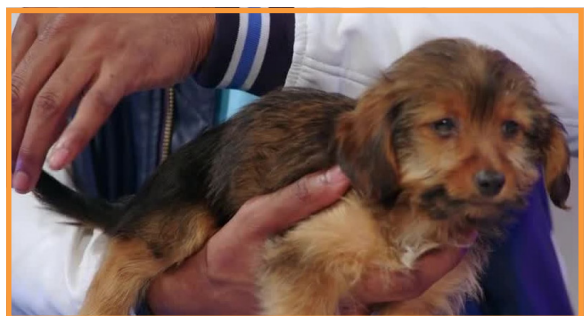
Dad



Puppy 1



Puppy 2



Puppy 3

