SIEMENS STEM DAY | Science Technology Engineering Math

SIEMENS STEM DAY ACTIVITY

MIX-N-MATCH

REAL-WORLD SCIENCE TOPICS

- An exploration to distinguish between inherited and learned traits
- An exploration of to explain a person's own characteristics

ADDRESSES NGSS

LEVEL OF DIFFICULTY

2

GRADE RANGE

3–5

OVERVIEW

Students will participate in a scavenger hunt with their peers to classify inherited and learned traits. The scavenger hunt will include characteristics such as rolling your tongue, speaking another language, and hair color.

TOPIC

Inheritance of Traits

OBJECTIVE

After completing this activity, students should be able to distinguish between characteristics that are inherited and those that are a result from an individual's interaction with the environment.

NGSS THREE-DIMENSIONS

Science and Engineering Practices	Disciplinary Core Idea	Crosscutting Concepts
Constructing Explanations and Designing Solutions Use evidence (e.g., observations, patterns) to support an explanation.	**LS3.A: Inheritance of Traits** Other characteristics result from individuals' interactions with the environment, which can range from diet to learn- ing. Many characteristics involve both inheritance and environment. (3-LS3-2)	**Cause and Effect** Cause and effect relationships are routinely identified. (3-PS2-1) Cause and effect relationships are routinely identified, tested, and used to explain change. (3-PS2-3)

Background Information What are traits?

Traits are unique features or qualities of an organism. Traits include hair color, beak shape, height, and leaf shape. Living organisms have different combinations of traits that are passed from generation to generation.

What are environmental traits?

These are characteristics of the way one acts and are acquired from the environment they are raised in and live in. These are learned traits. Examples include speaking a language, writing, playing a sport, and enjoying different types of food.

What are inherited traits?

These are characteristics of one's physical makeup and are traits that were passed down from a parent or parents. Our genes encode the instructions that define our traits. Each of us has thousands of genes, made of DNA, that are found in chromosomes. Inherited traits include eye color, hair color, the shape of our nose and height.

KEY VOCABULARY

Heredity: passing of traits from parents to offspring
Inherited: to receive genetic information and traits from a parent or parents
Environmental: traits are characteristics acquired from the environment they are raised in and live in

MATERIALS NEEDED FOR ACTIVITY

- Copies of student scavenger hunt, student capture sheets
- Class set of Characteristic Cards and T-Chart

TEACHER PREPARATION

Before students arrive, make enough sets of Characteristic Cards and T-Charts for pairs of students. Images can be added to cards to clarify traits.

1. Warm-up Activity: Play the video:
   http://app.discoveryeducation.com/search?Ntt=genes+genetics+and+dna
   After the students finish watching the segment, ask them to demonstrate two traits from the videos and share one thing that surprised them from the video with a peer.
2. Distribute the Scavenger Hunt. Explain to students they will have 15 minutes to go on a scavenger hunt to explore the diversity of their classmates. In each box they will write the name of a student that represents the trait in the box.
   Teachers at this level may need to read through the options and explain examples that may be unfamiliar to students. Images can be added to the scavenger hunt to help illustrate the traits if needed.
3. Share with students the definitions of inherited and environmental traits. Inherited traits are passed from parents to offspring from genetic information. Environmental traits are characteristics acquired from the environment they are raised in and live in.

Ask students to put a check mark on boxes that are traits inherited from parents. Students will shade the boxes that are environmental traits. Students at this level might need to go over a couple examples before starting.

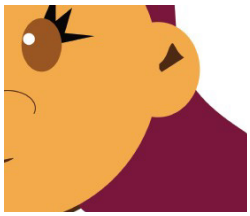
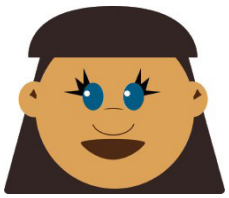
4. Guide students to consider additional traits using the Characteristic Cards. Refer students to the Characteristic Cards provided. Explain to students that they will work in pairs and read each card. They will then determine if it is an example of an inherited trait or a learned behavior. Students will sort their cards into two columns using the Characteristic T-Chart.
   Teachers at this level may need to read through the options and explain examples that may be unfamiliar to students. Images can be added to the cards to help illustrate the traits if needed.
5. Explain to students that you will walk around to check their completed chart. Students that finish early can brainstorm additional characteristics and add them to their lists.
6. Warm-up: Ask students to summarize the difference between inherited and environmental traits by reflecting on their own characteristics.
   Students should be able to list three environmental traits and three inherited traits. Then, student will compose a one-paragraph note to their teacher explaining what they learned about traits. Students can also inform the teacher about what they liked/disliked about the lesson or are still unclear about.

EXTENSION ACTIVITY

Students can play charades for other students to identify the trait that is being acted on and categorize it as inherited or learned. For example, acting out a squirrel burying their acorns. After identifying the behavior students would classify it as a learned trait.

SOURCES

http://app.discoveryeducation.com/search?Ntt=genes+genetics+and+dna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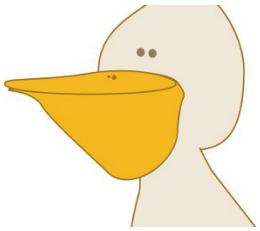		
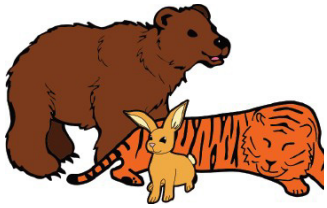	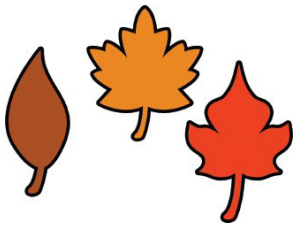	
	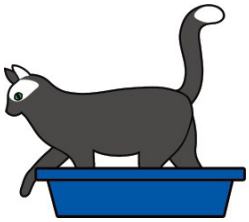	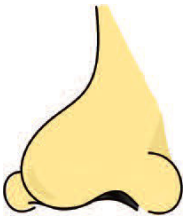
		

CHARACTERISTIC T-CHART

Inherited Traits	Environmental Traits

THE MOST IMPORTANT THING ABOUT TRAITS

The important thing about

_____Traits_____

is_____

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But, the most important thing about

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is_____

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