WEEKDAY WONDERS

Content developed by the Tennessee Aquarium Education Department

TENNESSEE AQUARIUM

Inherited Characteristics: Day 5

This week, Weekday Wonders encourages young scientists to discover what makes each of them unique. Your young scientist will make observations to help him or her learn why parents and offspring often look alike but are never exactly the same. Young scientists will also get a glimpse into how environmental factors can change our genetics and the way we look.

These curated activities are listed in a suggested sequence but may be done in the order that works best for you and your young scientists. Learn more about this series in the Introduction to Weekday Wonders.

Question of the Day

How does the environment affect characteristics?

Daily Nature Journal

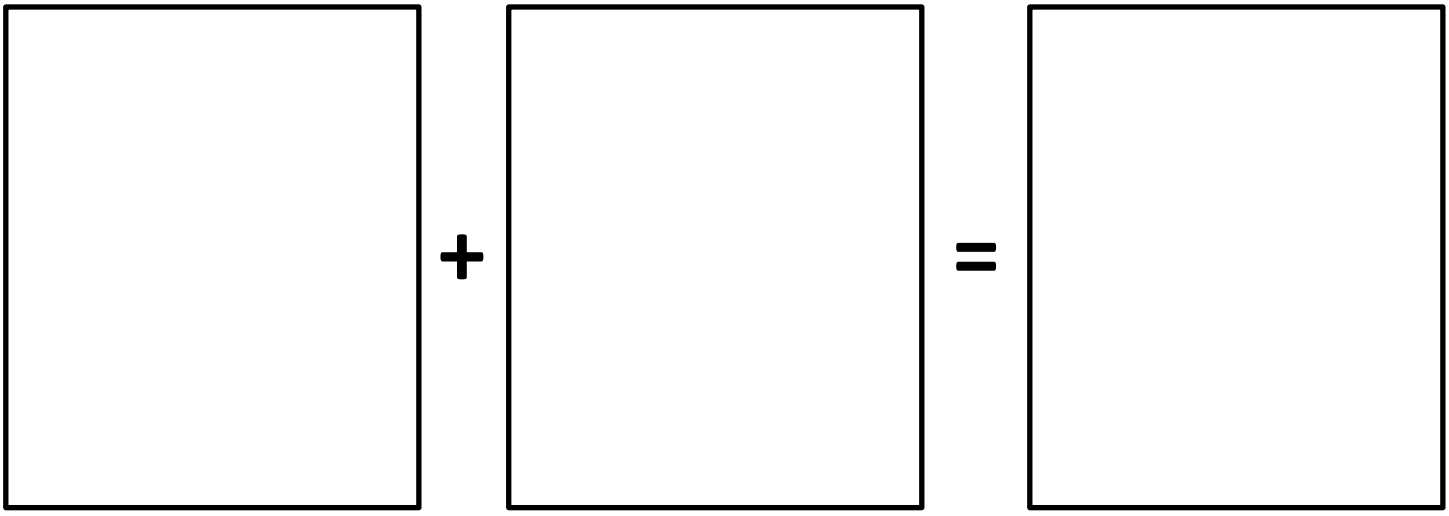
Ask your young scientists to reflect on the week's activities as s/he spends some time outside completing a daily nature journal entry. If you need more information, use the Guide to Nature Journaling to support them in nature journaling each day.

Changing Traits

In this activity, your scientist is going to draw a "cartoon formula" to show how traits can change based on the environment. Your scientist will need paper and crayons, markers, or colored pencils. You may also wish to draw a template like the one on the following page to help guide your scientist's work.

Tell your young scientist that not all traits are inherited. Some traits are influenced by the environment an animal is in. Read, or have your scientist read, the list of traits in different animals and how the environment affects them (see next page).

Have your scientist draw the animal in the first box, the part of the environment in the second box, and the animal with its different trait in the last box. Your scientist should label each box with a description. Encourage your scientist to draw several cartoons for the different animals and traits.



The following are examples of how traits can change based on the environment.

- Flamingos are gray when they are born. The brine shrimp that they eat gives them their pink color.
- Poison Dart Frogs are not naturally poisonous. Scientists believe that small beetles give them their poisonous trait.
- If alligator eggs are laid in warm temperatures (above 34°C or 93°F), such as a sunny riverbank, the baby alligators will be male. If the eggs are laid in cooler temperatures, the babies will be female.
- Cardinals would be a faded, more yellow color if they did not eat the berries of dogwood trees. The berries cause the cardinals to be a bright red color.
- If certain birds grow up around birds of a different species, they will learn different songs that they sing for the rest of their lives.
- Hydrangea flowers are blue if they grow in acidic soil. If they are grown in basic soil, they will be pink.

Extend this lesson for older scientists by having them research additional traits that are affected by the environment and make a cartoon to show these changes.

Imprinting

Tell your scientist the following information. When geese hatch from eggs, it takes them a little while to know what they are. After about half a day, they notice the objects around them that move. Usually, this is their parent, and they learn how to be a bird. Sometimes, the moving thing might be a human, another animal, or even an object like a moving toy.

Have your scientist pretend to be a baby goose, or gosling. He or she should "imprint" on a moving person, animal, or object. This could be you, another young scientist, or a family pet. Then he or she should play follow the leader, copying the movements and learning how to be a "goose."

Nature Journal

Ask your scientist to venture outside or look out a window to complete their daily journal entry. Have him or her look around and see if s/he can find a plant that has been influenced by its environment.

Trees are a great starting point, especially if they occur on a hill, close to another tree, or near a water source. Trees want to grow tall, straight, and balanced, but sometimes they curve or have other interesting shapes to avoid an object or to reach water.

Have your young scientist inspect the tree, draw it, and then form a hypothesis as to why that tree is the way that it is. Is the condition of the tree good, bad, or maybe both? See what else your scientist can discover!