Take a moment to think about the child shown in the picture on the right. His name is Juan. What are some things you can say about Juan by looking at the picture? He has brown hair. His hair is straight. His eyes are also brown. He has ten fingers. These characteristics are called inherited traits.

Juan has other characteristics you cannot see by looking at the picture. Maybe he knows how to swing by himself. Perhaps he can ride a bike or play an instrument. These characteristics are called learned behaviors.

So, where do inherited traits come from? How are they different from learned behaviors?

What does inherited mean?
If something is inherited, it was passed on from a parent to an offspring. A trait is an internal or external characteristic. So, inherited traits are characteristics that are passed from parent to offspring during reproduction.

Most physical traits are inherited, but some are not. For example, many people change their hair color with dye. The new hair color is not passed on to their children. Suppose a deer has a broken antler. That physical trait will not get passed on to the deer’s offspring.

What characteristics of animals and plants are inherited?
Traits can be inherited by the offspring of both plants and animals. The color of a flower is a trait passed from parent to offspring. Eye color and fur color are also traits passed from parent to offspring, so are the size and shape of a body. Other inherited traits include characteristics like fins on a fish or stripes on a tiger. In plants, inherited traits include characteristics like the shape of a flower or the size of its leaves.
Environmental Traits

Look Out!

Look at the pictures below. What are some inherited traits of each organism?

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Scientists in the Spotlight: Jane Goodall

Jane Goodall is a famous scientist. She studies apes, particularly chimpanzees. Goodall is an expert on chimpanzees. She works to protect these animals and their habitat. There is even a movie about her!

Goodall’s work began in 1960. She went to East Africa to study chimpanzees. It took a while for the chimpanzees to accept her. Over time, however, they started coming closer to her. She watched their behaviors. What she saw was never observed before: chimpanzees making and using tools!

No one knew that any animal besides humans used tools. The chimpanzees that Goodall watched took the leaves off of twigs. They poked the twigs into the holes of termite nests, and pulled out the termites. They also split the end of the twig so that it would pick up more termites. Using tools is a learned behavior. The older chimpanzees taught the younger ones how to make and use the tool. A learned behavior is a movement or action that is taught to an offspring. It is not something that is inherited.

Jane Goodall discovered that chimpanzees can make and use tools. This is a learned behavior.
Inherited traits are the traits you get from your parents through the genes they pass down to you, their offspring. Environmental traits are influenced by your environment. You can learn them or control them. Examples of environmental traits are your favorite music, being a good basketball player, and the language you speak. These traits are environmental traits because they are traits that you choose or learn, or that are influenced by the place you live.

Things that can affect the characteristics of an organism include temperature, nutrition, exposure to the Sun, disease, injuries, and living conditions. These conditions can influence the ways an organism behaves or looks, but they do not affect the organism’s genes that are passed down from parents to offspring.

Consider these scenarios, for example. Temperature can affect the size and number of leaves that grow on a plant. Temperature can also affect the thickness of an animal’s fur. In some animals, coat color is determined by the seasons. If plants and animals do not receive the nutrients they need, their growth can be affected and they can become more vulnerable to disease. Disease may slow growth or development. Injuries can cause scarring. Exposure to sunlight may cause plants to grow taller and healthier and can affect the skin color in humans and animals.

Some traits are influenced by both genes and the environment, such as height, weight, skin color, and the risk of cancer.

A snowshoe hare relies on camouflage to keep from being eaten. It change its fur color with the seasons.

Explore the inherited traits and learned behaviors of a classmate.
1. Work with a partner. List as many of your partner’s inherited traits as you can.
2. Now list as many of your partner’s learned behaviors as you can. Are there any that you know of for sure?
3. Trade lists with your partner and talk about each characteristic on the lists. Add characteristics about you to the list that your partner missed.
4. Are there more inherited traits or learned behaviors on the lists? Why do you think this is true? Which list will get longer as you get older? Why?
What Do You Think?

Look at the pictures in the chart below. Does the picture show an inherited trait or a learned behavior? Write your answer below the picture.

<table>
<thead>
<tr>
<th>Using Utensils</th>
<th>Catching a Toy</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Image of a child using utensils]</td>
<td>![Image of a dog catching a toy]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hunting for Food in the Wild</th>
<th>Growing Tall</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Image of a ladybug on a plant]</td>
<td>![Image of a sunflower]</td>
</tr>
</tbody>
</table>

Plants and animals look like their parents. Parents pass their traits to their offspring. A bear gets its large teeth and huge paws from its parents. Large teeth and huge paws are traits of a bear.

Plants pass on their traits, too. A pine tree gets its woody trunk and needles from its parents. A cactus gets its sharp spines from its parents.

Look at the picture:
What traits did the mother cheetah pass on to her baby?
Connecting With Your Child

Making a Poster of Inherited Traits and Learned Behaviors

To help your child learn more about inherited traits and learned behaviors, create a poster to highlight the traits of various organisms.

Look through magazines or search the Internet for photographs of four or five different organisms. Try to find a variety of organisms, including at least one plant. Have your child glue or tape their photographs onto a poster board, leaving room below each photograph for them to write in.

Then discuss the organisms in each photograph and have your child list as many inherited traits and learned behaviors as they can.

**Examples of inherited traits (for humans):** earlobe attachment, tongue rolling, dimples, handedness, freckles, curly hair, hand clasping, hairline shape, etc.

**Examples of environmental traits (for humans):** favorite music, good basketball player, language you speak, etc.

The learned behaviors (environmental traits) might be difficult to determine, but this is part of the learning process for your child. Have your child support his or her ideas with evidence or any prior knowledge about the organisms. Discuss with your child that plants do not learn behaviors in the same way that animals do.

Here are some questions to discuss with your child:

- Do any of the organisms share the same inherited traits?
- Do any of them share the same learned behaviors?
- Was it easier to identify inherited traits or learned behaviors? Why do you think this is so?