

3-5 Life Science



Southern Nevada Regional Professional Development Program

Inherited Traits

INTRODUCTION

Most children are intrigued about why they look the way they do. It all has to do with genetics. Some traits are passed on from their biological mother, and some from their father. The unique mix of these traits can be seen in each and every one of us. To begin this lesson, all you need is a variety of pictures of three different families (fictitious) and pictures of three different children.

The focus of this lesson is to use genetics to match missing children with the corresponding family.

WHERE'S THE SCIENCE?

An **inherited trait** is a characteristic that you get from one or both of your parents. These traits are determined by the DNA you receive from each of your parents (half from the mother, half from the father). Each parent donates 23 chromosomes for a total of 46 to create an embryo which will develop into a fetus. Not all inherited traits are observable traits. **Observable traits** are those traits that you can see. An example would be eye color.

A **learned trait** is a characteristic or behavior that is learned or developed through experience. These are not inherited from your parents, rather gained through exposure and the environment in which you live. Inherited traits, like height, can affect your ability to acquire certain learned traits, like playing basket ball.

MATERIALS

Student materials

- 3 laminated pictures of 3 different families
- 3 laminated pictures of 3 different children (each child should look like one of the families)

Teacher materials:

- Chart paper
- Markers

Note: If you have students who are not living with biological parents, you can phrase the first question in reference to a specific child's family instead of their own family. For example, "Sara has brown hair. Her father has blonde hair and her mother has brown hair. We can say Sara has a similar feature, hair color, in common with her mother."

PROCEDURES

Lesson One

1. Tell the students that today you will be looking at features they have in common with their parents. For example, I have my mother's hair color, but my father's nose. Invite them to think about their own parents. What features do they have in common with their parents? Instruct them to record their thoughts in their science notebook. Record their ideas on a piece of chart paper.
2. Discuss traits with the students. Explain that traits that are passed down from their parents are called **inherited traits**. The inherited traits that you can actually see are called **observable traits**. Ask the students to think about their family. Who do they look the most like in their family? Remind them that they may have combined traits of both parents.
3. Explain to students that they received half of their characteristics from their mother and half from their father before they were born. Not all of the traits they were given can be seen. The observable traits that they inherited make them look similar to those traits of the mother and father.

4. Create a list of observable traits. Record students' responses on a piece of chart paper and post. Possible answers include hair color, hair form (curly or straight), widow's peak, eye color, dimples, freckles, attached or free earlobes, tongue roller, and hitchhiker's thumb. Keep a question board visible in the room to record all of the students' questions about the topic.
Note: Model or explain what each of these traits looks like. There is a helpful internet resource in the additional resources section of this lesson to aid you with this portion.
5. Explain to the students that today they will help solve a mystery. Three children have wandered away from their families at the local mall. You must help match the children up to the correct family based on their observable traits.
6. Pass out the three family cards and the three missing children cards. Instruct the students to discuss the inherited traits that each child has and how that corresponds to the traits seen in each of the parents. Remind them to record the traits for the children and parents in their science notebook. A table to organize thoughts might be useful in this investigation.
7. To close the lesson, ask the students to return to the carpet or group area with their science notebook and discuss as a class which missing child goes with which family. The students must provide evidence of a common inherited trait to back up their claim.

Lesson Two

1. Call the students to the carpet area and open today's lesson by reviewing what the students learned yesterday.
2. Explain to students that today they will investigate and find a friend or family member who has at least three of the same observable traits that they possess.
3. Include a list of observable traits for students to use as a guide. Post the list on chart paper in a visible place in the room. Once the list has been discussed, invite students to add to the list any observable traits that they would like to include. They should

include a similar list in their science notebooks as a quick reference. Traits that should be posted are: hair color, eye color, dimples or no dimples, tongue roller, right or left handed, curly or straight hair, long or short eye lashes, and freckles or no freckles.

4. In their science notebook, invite students to find a friend in the classroom or a family member who has at least three of the same observable traits that they have. Instruct them to sketch and color a picture of them and their friend or family member showing the three traits that are shared.
5. Ask the students to return to the carpet or group area with their science notebooks and instruct them to share with a buddy their picture and the observable traits that are shown. Discuss as a class what traits were observed the most, the least. Add this information to the chart posted in the room. Record questions on the posted question board.

Extensions:

Sort questions from the class question board into three groups: questions they can investigate, questions they have to research and questions that can be answered either way. Let groups of students select a question from the class question board and set up an investigation or do research to find the answer. They can then report back to the entire class. (N5A1)

Additional Resources

<http://www.sln.org/csi/knox/Traits/traitsexamples.pdf>

This site has pictures of inherited traits.

<http://extension.usu.edu/aitc/teachers/elementary/heredity.html>

This site has extension lessons on heredity.

<http://www.exploratorium.edu/genepool/exhibits.html>

This site has genetic exhibits featured from the Exploratorium.

<http://www.thetech.org/genetics/>

This site contains a wealth of current information on genetics.

Nevada State Standards

L5A1 Students know some physical characteristics and behaviors that are inherited in animals and plants. E/S

L5A3 Students know that, while offspring resemble their parents and each other, they also exhibit differences in characteristics. E/S

L5A4 Students know how to observe and describe variations among individuals within the human population. E/S

N5A1 Students know scientific progress is made by conducting careful investigations, recording data, and communicating the results in an accurate method. E/S

N5B3 Students know the benefits of working with a team and sharing findings. E/L

Vocabulary

Inherited Trait: a characteristic that you get from one or both of your parents.

Observable Traits: are those traits that you can see.

Learned Trait: a characteristic or behavior that is learned or developed through experience.



Family #1

Family #2



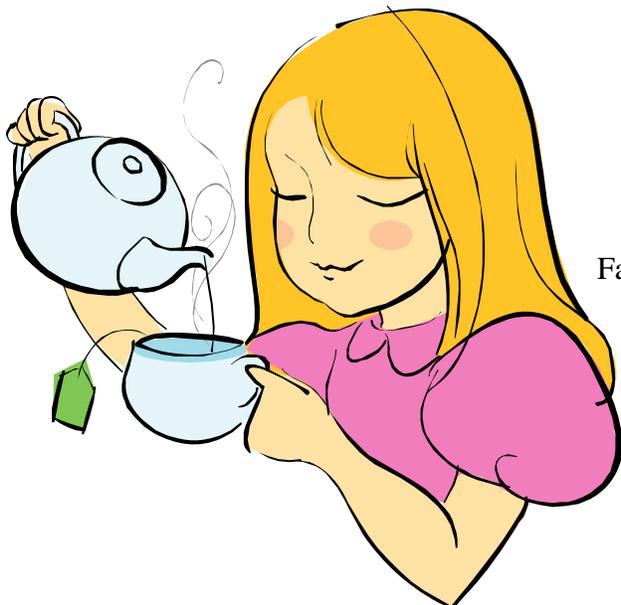
Family #2



Family #1



Family #3



Family #3

