

How Do Traits Change as Animals Grow and Develop?



Focus: Students explore constant and changing traits in humans and other animals, with a focus on humans.

Specific Curriculum Outcomes

Students will be expected to:

- 45.0 analyze constant and changing traits in humans and other animals as they grow and develop [GCO 1/3]

Performance Indicators

Students who achieve these outcomes will be able to:

- analyze a family photograph to identify traits that are changing and traits that are constant

NOTES:

Attitude Outcome Statements

Encourage students to:

- be sensitive to the needs of other people, other living things, and the local environment [GCO 4]

Cross-Curricular Connections

Social Studies

Students will be expected to:

- describe changes in their lives and their reactions to these changes [2.1.1]

English Language Arts

Students will be expected to:

- speak and listen to explore, extend, clarify, and reflect on their thoughts, ideas, feelings, and experiences [GCO 1]

Getting Organized

Components	Materials	Before You Begin	Vocabulary
• Science Card 9 • BLM <i>Constant and Changing Traits</i>	• small sticky notes • students' Science Journals • students' Science Folders	• Have students bring in baby pictures from home. Be sure to label them on the back. • Find time-lapse videos showing people aging over time. See <i>Additional Resources</i> on page 82 for some possible websites.	• constant trait • changing trait • inherit

Science Background

- In biology, a trait is a particular version of an inherited characteristic, such as brown eyes. (Note that “brown eyes” is the trait; “eye colour” is the characteristic.)
- The way in which traits change over time is determined by the genes of that individual. One person might grow to a maximum height of 1.5 m, while another reaches a height of 2.0 m. However, traits can also be affected by environmental conditions or by the intentional actions of that individual. For example, a person who does not receive sufficient nutrition may not grow to the same height as an adult as they would have otherwise. People change the way their hair looks by cutting it or colouring it, and can even change such things as the shape of their nose through plastic surgery. People may lose limbs or experience other physical changes due to accidents.
- Some traits are constant, while others change over time due to the development of the animal. Focusing on particular traits that change over time as animals—including humans—develop can help students analyze the ways that humans and other animals change as they develop and grow.

Possible Misconceptions

- Students may become confused about the ways in which traits can change (through natural development, through intentional modification, or by accident). Talk about all the different ways traits can change and tell students you will be focusing on traits changing through growth and development.

ACTIVATE



Human Traits Over Time

Show students Science Card 9 and ask:

- **What changes do you see as this baby grows up?**
- **What stays the same?**
- **How have you changed since you were a baby?**
- **In what ways have you stayed the same?**

Encourage detailed observation, focusing on different parts of the person's body, e.g., overall height, head size, facial features, hair length and colour, length of legs, etc. Questions that arise can be recorded on the I Wonder Wall.

Through this discussion, introduce the terms "constant trait" and "changing trait." Add these terms to the Word Wall.

Time-Lapse Aging

There are a number of time-lapse videos available on the Internet showing people aging over time. (These videos have been created by putting together photos taken every day, or at some other regular interval, over a period of years.) Some of these show a child aging from an infant to a grade-schooler, for example.

Show one of these videos to the students. Pause the images periodically and ask:

- **Which traits have changed?**
- **Which traits have stayed the same?**
- **What changes do you expect to observe as the video continues?**

Record students' observations and predictions. Have students compare their predictions to their observations as the video continues.

CONNECT



Baby Pictures

Have students bring in baby pictures of themselves. Put the photos up on a wall and label them with different letters on sticky notes. Give students time to examine the photos and to record their predictions about who each baby is in their Science Journals. After revealing the identities of the babies, select a few students to stand with their baby pictures and, as a class, discuss the unchanged (constant) and changed (changing) traits for each person. You might extend this activity by having members of the school staff bring in baby pictures.

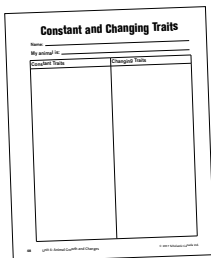
CONSOLIDATE

Kinesthetic Trait Game

Label one wall “constant traits” and one wall “changing traits.” Tell students that they should move to the appropriate wall to indicate whether the characteristic that you call out represents constant or changing traits for humans.

Characteristics you might use include:

- height
- number of eyes
- foot size
- hair colour
- head size
- eye colour
- leg length
- number of legs
- number of noses
- weight



Traits Table

Provide copies of BLM *Constant and Changing Traits* and assign each student an animal with a familiar life cycle. (Refer to *What Are the Life Cycles of Different Animals*, pages 32–37, for ideas.) Have students complete the chart for that animal to list its changing and constant traits. Students can share their charts with a partner. Remind students to store their completed BLMs in their Science Folders.

EXPLORE MORE

A Second Childhood

There is an Internet meme in which adults attempt to replicate their childhood photos by wearing the same clothing and posing in the same way. Before class, search for and download or bookmark examples of these for students to analyze on screen. In addition to being entertaining, these images, by showing people in the same positions and similar clothing as children and as adults, make it easier for students to see what has changed and what is different. Have student choose a set of two photos (child and adult) to print out and label with changing and unchanging traits. Or, challenge students to plan a brief presentation using several of these sets of pictures to show examples of constant and changing traits.

A Family Photo through Time

Four sisters—“the Brown sisters”—have been photographed every year since 1975 standing in similar poses. Help students view these images online and record the constant and changing traits they can observe. Suggest to students that they start a similar project at home with the participation of their own family. Students can bring in the first photo to share with the class and discuss how they plan to continue the project.

Constant and Changing Traits

Name: _____

My animal is: _____

Constant Traits	Changing Traits