

# Life Cycles

**Grade Level:** 3-5

**Subject:** Human Body

**Duration:** One to two class periods

## Objectives

Students will

- define the terms “genes” and “heredity”;
- identify learned and inherited behaviors; and
- describe and compare family traits and characteristics.

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## Materials

- *Life Cycles* video and VCR (or DVD and DVD player)
- Paper and pencils
- Computer with Internet access (optional)

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## Procedures

1. Begin the lesson by discussing genes and heredity. Ask students these questions: What are genes and genetics? What traits do animals pass to their offspring? What human behaviors are inherited? What behaviors are learned? What do we inherit from our parents?
2. After watching the *Life Cycles* program, discuss what students learned about heredity and genetics.
3. Tell students that they will prepare a genetic description of themselves. Ask them to think of a parent or grandparent. Students who may not have a relationship with a parent or grandparent may name any birth, adoptive, or foster family member. Have each student take a blank piece of lined paper and fold it into three columns. Ask them to open it and write characteristic/behavior at the top of the first column, the family member’s name at the top of the second column, and their own name at the top of the third column.
4. Have students number the lines in the first column from 1-15 and write the following list:
  - eye color
  - hair color
  - hair type (curly, straight, wavy)
  - skin color (fair, olive, dark)
  - face shape (heart shaped, round, long)
  - height
  - foot size
  - moles or birthmarks (few, many, none)
  - sex (male or female)
  - diseases or conditions
  - mannerisms (body language)
  - favorite sport
  - favorite food
  - favorite school subject
  - favorite color

5. Tell students that they will use this list to conduct research about their own genetic make-up; it will serve as a list of questions about themselves and their family members. Review the list for any questions. Give students some time in class to complete the answers about themselves and as possible for their family members. As a homework assignment, have them interview their family members for the remaining answers.
6. In class, ask student volunteers to share interesting details learned about their family members. Have students look at their lists and compare their characteristics and behaviors with those of their family members. Ask about eye, hair, and skin color and face shape? Who shares favorite foods or a sport? Who walks, talks, or moves their body in a similar fashion to someone in their family?
7. Discuss the similarities and differences students have learned. Talk about the characteristics that may be inherited (physical traits) and learned, such as a favorite color or food.
8. Using their lists, students will write a paragraph comparing their characteristics and behaviors with those of a family member. Tell students to choose at least five items on the list; the traits may be differences or similarities. For example, a student may write about why her hair color differs from her family member's. Ask volunteers to share their paragraphs with the class.
9. If students have more questions about genetics or are interested in further study, have them visit the following Web sites:
  - <http://www.thetech.org/genetics/>
  - <http://www.exploratorium.edu/genepool/exhibits.html>
  - [http://www.ornl.gov/sci/techresources/Human\\_Genome/genetics.shtml](http://www.ornl.gov/sci/techresources/Human_Genome/genetics.shtml)
  - <http://www.dnafb.org/dnafb/index.html>

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## Evaluation

Use the following three-point rubric to evaluate students' work during this lesson.

- **Three points:** Students correctly defined terms related to genetics; correctly identified learned and inherited behaviors; completed their lists appropriately; and wrote legible, informative paragraphs comparing at least five characteristics or behaviors with those of family member.
- **Two points:** Students somewhat correctly defined terms related to genetics; somewhat correctly identified learned and inherited behaviors; completed most of their lists appropriately; and wrote legible, somewhat informative paragraphs comparing at least three characteristics or behaviors with those of family member.
- **One point:** Students did not correctly define terms related to genetics; could not identify learned and inherited behaviors; did not complete their lists appropriately; and wrote illegible, uninformative paragraphs comparing one or no characteristics or behaviors with those of family member, or did not complete a paragraph.

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## Vocabulary

### behavior

**Definition:** The manner of acting or conducting yourself

**Context:** Behavior is a combination of inherited traits and experience.

### gene

**Definition:** A unit of heredity; a segment of DNA found on a chromosome that codes for a particular protein

**Context:** A dominant genetic trait, such as dark hair, requires a gene from only one parent.

### heredity

**Definition:** The passing of characteristics from parents to children.

**Context:** Heredity is the explanation for a family with many generations of children born with red hair.

### offspring

**Definition:** The descendants of a person, plant, or animal

**Context:** Offspring, or children, may closely resemble their parents.

### reproduction

**Definition:** The process of generating offspring

**Context:** No organism lives forever, so reproduction maintains a species' survival.

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## Academic Standards

### National Academy of Sciences

The National Science Education Standards provide guidelines for teaching science as well as a coherent vision of what it means to be scientifically literate for students in grades K-12. To view the standards, visit <http://books.nap.edu>.

This lesson plan addresses the following national standards:

- Life Science: Characteristics of organisms; Organisms and environments; Reproduction and heredity; Regulation and behavior

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## Credit

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