

# Do Your Earlobes Hang Down?

## Description

During this activity, students investigate the frequency of human traits and determine whether certain traits are dominant or recessive.

## Time Frame

1 lesson (45 minutes)

## Correlation to Texas Essential Knowledge and Skills

During this activity, students will be exposed to the following Texas Essential Knowledge and Skills:

**Note:** Some TEKS statements below end with a ; or *and* and nothing thereafter—this indicates that further TEKS statements follow but are not included here.

**(7.10) Science concepts.** The student knows that species can change through generations and that the instructions for traits are contained in the genetic material of the organisms. The student is expected to:

- (C) distinguish between dominant and recessive traits and recognize that inherited traits of an individual are contained in genetic material.

**Note:** The TEKS listed here are the main content TEKS for this activity; however, this activity may also cover additional content and process skills included in other TEKS.

## Materials

Do Your Earlobes Hang Down? data sheet (included at the end of this activity)

## Background Information for the Teacher

Each of the following traits is described with the dominant trait first and the recessive trait following in parentheses. As part of this activity, you will describe each of these traits to the students (see step 2 in Procedures on the next page). You may want to provide pictures of the following traits for students; some pictures may be found by searching Google Images.

R—*Tongue roller*: Ability to roll tongue into a U-shape (r—non-roller)

P—*Widow's peak*: Hairline forms a distinct downward point on forehead (p—no peak)

E—*Earlobes*: Earlobes hang free from the side of the head (e—earlobes attached)

F—*Straight little finger*: Little finger can be pressed to ring finger with no gap. (f—little finger bends in or away from ring finger)

L—*Long index finger*: Index finger is longer than ring finger. To find this trait, place index finger at the edge of a piece of paper and compare ring finger's position to paper's edge. (l—shorter index finger)

H—*Dark hair*: Brown or black hair (h—blonde or red hair)

D—*Dimples*: Indentations in cheeks or chin (d—no dimples)

W—*Writing hand*: Write with right hand (w—write with left hand)

Y—*Right dominant eye*: Right eye sees the same perspective as both eyes together. To find this trait, look at an object through a rolled piece of paper using both eyes. Then close one eye and then the other. The object can still be seen *in the same perspective* through the rolled paper only with the dominant eye. (y—left dominant eye)

### Advance Preparation

Make a copy of the Do Your Earlobes Hang Down? data sheet for each student.

### Procedures

**Note:** It is important to discuss respecting other people's feelings by not making personal or negative comments about traits.

1. Begin the activity by explaining to students that some traits are dominant over other traits and give a few examples. Tell students that the trait that is masked or does not show is called the recessive trait. Explain to students that a dominant trait is assigned a capital letter to identify the gene, and the recessive trait is assigned a lowercase letter.
2. Describe the traits on the data sheet to the students. As you describe each trait, have students mark a check under either Yes or No in the Me column of the data sheet. Also have students write a capital letter in the Gene column if they have the trait and a lowercase letter if they do not.
3. For each trait, ask for a show of hands from the students who have it as a dominant trait, and then from the students who have it as a recessive trait. Count the students who have each kind of trait and have students record this data in the Class column on their data sheets.
4. Have the students construct graphs representing their individual data and the class data for the number of dominant and recessive traits. The graphs can be hand drawn or prepared using graphing calculators or computer software.
5. Based on the class data, have a discussion with students about the traits that occurred most frequently and the ones that occurred least frequently. Ask students: Do you have more dominant traits or recessive traits? Do your classmates have more dominant traits or recessive traits? What conclusions can you draw based on the class data?

6. If time permits, you may want to collect the data from all of your classes, post those numbers on the board, and then have students graph the data. More data may give you a more accurate representation of the dominant and recessive traits found in the student population.

## Do Your Earlobes Hang Down?

### Data Sheet

Trait	Me			Class	
	Yes	No	Gene	Dominant	Recessive
R—tongue roller					
r—non-roller					
P—widow's peak					
p—no peak					
E—unattached earlobes					
e—attached earlobes					
F—straight little finger					
f—non-straight finger					
L—longer index finger					
l—shorter index finger					
H—dark hair color					
h—light hair color					
D—dimples					
d—no dimples					
W—right-handed					
w—left-handed					
Y—right eye dominant					
y—left eye dominant					