



What Makes Me the Way I Am?

Grade-5

Lesson

1

Lesson Objectives – Students identify how body weight is influenced by genetic, behavioral, and environmental factors.

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Attention Grabber	5 min.	93
Explain/Demonstrate/Practice		
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Review	5 min.	95
Total Time	35 min.	

This lesson addresses the following content standards:

Michigan Standards		National Standards	
Physical Education	Health Education	Physical Education	Health Education
None	Standard #4	Standard #6	Standard #4

This lesson relates to Michigan Model for Comprehensive School Health Education:

Grade 6 Lesson IV-1: Heredity and Environment.

- Equipment & Materials**
- For each group of 4-5 students:
- ✓ Flip chart and a marker
 - ✓ Game poster as shown in Appendix 5-1, p. 97.
 - ✓ Sheet protectors
 - ✓ Overhead pens—one for each group of 4-5 students (various colors if possible)

- Teacher Preparation**
- Prior to the start of this lesson:
- ✓ Make copies of the game poster and put in sheet protectors—one for each group.
 - ✓ Mount a game poster on the flip chart to record all group responses.
 - ✓ Position the flip chart in the room for class discussion during the Attention Grabber activity.
- Teacher tip:** *Using the sheet protectors and overhead pens allow you to reuse the game posters. After the small groups have indicated their response to a question, you may use the game poster mounted on the flip chart to gather all the groups' responses for discussion. For example: After each statement is read and after the individual groups have agreed on an answer, have one member from each group come up to the flip chart game poster and indicate their group's response OR you may call out to each group and enter them yourself.*

Additional Preparation

This lesson may generate discussion that reveals a risk of eating disorders among students. Before presenting the lesson, verify procedures for referring a student for evaluation and intervention.

Key Message & Background Information for Teachers**Key Messages:**

My body will develop in its own unique way. Choices I make affect, but do not completely control, my body's size and shape.

Background Information:

Our bodies are influenced by three factors: our genetic code, our behavior, and the environment. Although there is disagreement in the scientific community about how strong a role each plays, there is general agreement that all are critical. Our genetic code is found in molecules within each cell of our body. The molecules are known as deoxyribonucleic acid (DNA). With the exception of identical twins, no two humans are genetically the same.

In the U.S., many products, including food, supplements, and exercise equipment, are marketed on the premise that we can completely control our body shape and size. These products imply that if we just eat the "right" foods, or do the "right" kinds of exercises, we can have "perfect" bodies. The truth, of course, is that body shape and size are strongly influenced by genetics. In fact, genetic influences are so strong that studies have documented that twins, raised in very different environments, have very similar body weights.

Environmental factors and behavior affect weight, too. For students, environment includes factors like what kinds of foods are available in the home and at school, what kinds of physical activity opportunities (parks, trails and bikes) are available, and social factors like having friends that enjoy going for walks or playing ball. Behavior includes things like which foods we choose, how much we eat and how physically active we are. Children need to understand that eating well and being physically active can help us stay strong and healthy, but these behaviors do not completely control body weight.

Prepare Students**6 min.**

Gather students together in a group seated on the floor.

Introduce the lesson:

- Today we're going to spend some time thinking about how our bodies end up to be the way they are.
- We will look at three different factors that affect our bodies' shape and size: genes, environment, and behavior.

Attention Grabber

5 min.

Tell students:

- Take a moment and think about one of your friends.

Ask students to:

- Describe one thing about your friend. Don't say your friend's name.

Possible responses include physical descriptions or personal characteristics.

Write responses on the flip chart.

Tell students:

- Many of your answers are either physical or personal characteristics.
- Each of us can be described by many of these characteristics.

Ask students which of the characteristics on the list are physical or personal. Put a star next to those.

***Teacher tip:** Don't place a star by characteristics such as "His father is in the army," or "His mother is a doctor."*

Ask students:

- Where do these characteristics come from? Solicit responses from the class.

Tell students:

- Each characteristic we have starred is the result of at least one of three factors that can interact with each other.

Write the words "Genes," "Environment," and "Behavior" on the chart.

Ask students if they can define each term.

Write definitions under each word as you explain them to the class. (For example: "Genes = blueprints," "Environment = things and people around you," "Behavior = what you do.")

Tell the students:

- Genes are found in each cell in our bodies. They are like blueprints or instructions for our bodies. Our genes have information that is inherited from our parents and grandparents. They help tell our bodies how to grow. Your skin color, natural hair color, and eye color are all examples of characteristics that come from your genes.
- Your environment is made up of all the things and people around you. Your environment includes your friends, your school, the food available in your house and school, playgrounds in your neighborhood. Your environment can make it easier or harder for you to do things.
- Behavior is what you do. For example; choosing a healthy snack, running, studying, watching television, and playing sports are all behaviors.
- Many of our characteristics are the result of the interaction of these three things.

Mary's Characteristics

14 min.

Explain/Demonstrate

Practice

Start the activity with the following:

- Divide the class into groups, with 4-5 students in each group.
- Give each group a game poster in a sheet protector.
- Give each group a colored marker.

Tell students:

- Notice that we have a game poster on the flip chart and each group has the same game poster. There is a column marked for Genes, Environment, and Behavior.
- I am going to tell you about a friend of mine. Mary (use another name if appropriate) is a very interesting person. I am going to tell you about Mary's characteristics.
- For each one, your team is to decide if this characteristic is the result of her genes, environment, or behavior.
- When your group has reached a decision, mark it on your game poster. (If you would like to tally group response: Have one student from each group come up and mark their group's response on the flip chart game poster, OR call out to each group and mark them on the flip chart game poster yourself.)

Teacher tip: Check to see if everyone understands the directions.

Read each characteristic below. After each, tell the students to make their decision and put their checks on the chart in the right places.

Direct the class to come back together as one group.

Discuss their choices. Mention the following points:

Characteristic	Discussion Points
Mary is the tallest girl in her class.	<i>Mostly genes. Our height is mostly determined by our genes. In some extreme situations, like if we don't get enough food, it can be impacted by our environment and behavior.</i>
She has lots of freckles.	<i>Genes and environment. Freckles are a characteristic you get from your genes. However, freckles are brought out by the sun. If you don't go outside, your freckles aren't very noticeable.</i>
Mary is on the track team. She is one of the fastest girls on the team.	<i>Genes and behavior. Mary's genes give her the ability to be fast. But it is practice that makes her the fastest girl on the team.</i>
Last year, Mary got a C in math.	<i>Behavior, environment and genes. Our genes affect our basic ability to understand math. Studying and doing homework greatly affect our grades. If Mary's parents helped her with her homework, that would be part of her environment.</i>

Characteristic	Discussion Points
Mary surfs in the ocean near where she lives.	<i>Environment and behavior.</i> <i>If Mary didn't live near the ocean, she wouldn't be able to surf. And if she didn't make the effort to go to the beach, she wouldn't be able to surf either.</i>
Sometimes Mary does not get up when her alarm goes off and is late for school.	<i>Behavior.</i> <i>Mary's behavior in the morning is what makes her late for school.</i>
Mary often wears a warm jacket to school.	<i>Environment and behavior.</i> <i>The weather where Mary lives and the clothes she owns determine the clothes she wears. She has to put the coat on.</i>
Mary has a small mole on her right cheek.	<i>Genes.</i> <i>Mary's mole is the result of her genes.</i>
Mary sometimes spikes her hair.	<i>Behavior.</i> <i>Mary's hair is the result of her behavior.</i>

Review**5 min.****Tell** students:

- You have probably noticed that most of these characteristics are the result of more than one factor.
- This is also very true for body weight.

Ask students:

- How do you think the three factors of genes, environment and behavior affect body weight?

Teacher tip: *try to allow the class to apply the exercise to the concept of weight. Lead them to the following understanding:*

- **Genes** - Genes set the framework for your body's size and shape. They control the range of sizes we can be—our own personal maximum and minimum.
- **Environment** - Environment provides the choices available that can then affect body weight. Examples:
 - Δ *If the only snack food available is apples, you will not snack on potato chips.*
 - Δ *If there is a really good playground close to your house, you might be more likely to play outside.*
 - Δ *If your best friend likes to watch TV, you may be less likely to get exercise than if your best friend likes to ride bikes.*

- **Behavior** - Behavior means the choices you make from the foods available to you in your environment and the choices you make about how you will spend your time. Examples:
 - Δ You look in the cupboard and find apples and potato chips. You choose which to eat?
 - Δ There is a playground next door and you have some video games. You decide which to use?
 - Δ You have two best friends. One likes to ride bikes and one only likes to watch TV. You decide which one to invite over?
- **All three factors affect your body weight.**

Tell students:

- Remember, everyone is not supposed to have the same size and shape. Every person has a different genetic pattern, and environment that affects his/her weight.

Game Poster

My Friend Mary:

Characteristic	Genes	Environment	Behavior
Tallest girl			
Freckles			
Fastest girl on track team			
C in math			
Surfs in the ocean			
Late for school			
Wears a warm jacket			
Mole			
Spikes hair			

