

# Becoming More Comfortable in Your Inherited Skin

## Summary

Students will examine their concepts of "beautiful" and "ugly" and the social influences on this perception. Students will look more closely at the role genetics plays on determining the way a person looks. Finally, students will explore ways to enhance their own body images.

This lesson is written as an interdisciplinary unit for both the Health and Science classrooms. It can however, be taught in just one of the classes.

## Main Core Tie

Health Education I (7-8)

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## Time Frame

4 class periods of 45 minutes each

## Group Size

Pairs

## Life Skills

Thinking & Reasoning, Communication, Social & Civic Responsibility

## Materials

### **Day 1:**

30-45 magazine pictures of individuals (there should be a variety of people represented; e.g., shape, size, age, gender, ethnicity, ability, "beauty", etc.)

Plastic page protector for each picture (cut to fit the picture)

30-45 small sticky notes per class (approx. 1" x 2")

Pen or pencil for each student

The bilingual children's book, [I'm Too Big/Yo Soy Demasiado Grande](#)

One large sheet of butcher paper for each class

One half sheet of paper for each student

### **Days 2 & 3:**

1 coin for each student

A copy of "Building A Child" data sheet for each student

25-40 copies (classroom set) of the pictures of inherited traits from [The Genetics of Parenthood Guidebook](#) (scroll approx. half way down the page)

An overhead transparency of the same guidebook (optional)

Drawing (plain) paper for each student

Colored pencils and/or crayons (Crayola has a "My World Colors" set for various skin/eye colors)

### **Day 4:**

Poster from Day 1 with student responses

One additional, large sheet of butcher paper per class

Optional poster or quote: ["Don't fight your genes, just change your jeans"](#) (click on materials)

Writing paper for each student

## Background for Teachers

Students' attitudes toward their bodies are often negative due to a continuous comparison of self to

the 'perfect body' conjured up by the media. Students must develop a more accepting attitude of body differences. "What can and cannot be influenced in regard to size and shape is limited by innate, genetic diversity." From [healthybodyimage.org](http://healthybodyimage.org)

Familiarity with basic genetics. Web sites provided for a quick review of Punnett squares.

### Student Prior Knowledge

Prior experience constructing and using Punnett squares to explain how genetic traits are combined and passed to offspring. Knowledge of related vocabulary; e.g., allele, recessive, dominant, genotype, phenotype, etc.

### Intended Learning Outcomes

Students will identify how personal attitudes and beliefs regarding body size and shape are influenced by culture, society and media.

Students will determine how heredity and a body's natural genetics establish and maintain body size and shape.

Students will categorize traits as inherited or acquired and calculate the probability of simple genotypes and phenotypes.

### Instructional Procedures

#### **Day 1:**

(Health class)

#### **Rating the Pics**

Show students a scale of 1 to 10 which rates human beauty.

Example:

1= ugly

3= below average

5= average

7= above average

10= gorgeous/beautiful/handsome

Show one of the magazine pictures to the class. Ask the students to rate the picture based on the "beauty scale". Next, ask for specific reasons for the ratings. Students tend to make comments about facial features, clothing, moods, etc. Remind them that using words such as "ugly" and "pretty" are not specific reasons for the ratings.

Divide the class into groups of two to three students each. Distribute a couple of pictures to each group along with the same number of sticky notes. Ask each group to agree on a rating and specific reasons for their rating. Repeat for each picture. Next, have groups exchange pictures. Students are to look at the new pictures and their ratings. As a group, they will agree or disagree with the previous group's ratings. If they agree with the rating, they will simply write, "agree" on the sticky note. If they disagree, they will write, "disagree" accompanied by a rating they think is more accurate. Collect the pictures and share with the entire class some of the pictures and their corresponding ratings and reasons.

#### **Determining the Influences**

Ask students how they learned to distinguish between "beautiful" and "ugly". This is a complex question that may take some time to answer. Influences such as media (especially advertising), the popularity of TV and movie celebrities with certain looks/body shapes, comments from peers and family members, etc. should be included in the discussion.

#### **Comparing Ourselves and Coming Up Short**

Read I'm Too Big/Yo Soy Demasiado Grande to the class. Ask the students what the teenage message is in the children's book. Other prompts:

What did the giraffe dislike about its body?

What did the elephant dislike about its body?

When did they begin to like their bodies?

What do teens often dislike about their bodies?

List the answers to the last question on butcher paper to be used during Day 4.

Refer back to the rating activity by holding up one of the pictures that was rated particularly low and reading the reasons for the rating. Suggest that if class members can be so harsh with their judgments about the people in the pictures, they have the same capacity to be critical of themselves. Define "body image" as the way a person sees themselves and the judgment that goes along with that view. Distribute the half sheet of paper and ask students to write about or draw their own body image. Since this is personal information, students will not hand in the assignment, but ask them to keep it for the next couple of days.

**Days 2 & 3:** (Science class)

### **Getting Started**

Ask students, "Why does everyone look different from everyone else?" Review the information a Punnett square provides along with associated vocabulary. Inform students that today's activity will help them understand the many possible combinations available to offspring as they are being produced. In reality there are thousands of different gene pairs and millions of possible gene combinations. In this lab however, they will only look at some of those gene pairs and traits. Also for simplification purposes, it is assumed that all parents are heterozygous.

Divide the class into pairs. Give each student a coin and designate the "heads" side as dominant and the "tails" side, recessive. Determine who will be the father and who will be the mother. Distribute the "Building a Child" data sheet to each student (parent).

### **Combining Alleles: It's a Toss Up**

The father determines the sex of the baby since the mother always contributes an X chromosome.

Heads = X chromosome, so the child is a girl

Tails = Y chromosome, so the child is a boy

Fill in the results on the data sheet.

Name the child.

Each partner will flip a coin, at the same time, for each of the 30 traits listed on the "Building a Child" data sheet. Two "heads" indicates a homozygous dominant trait; "heads" and a "tails", heterozygous dominant; and two "tails", a recessive trait. Pay attention to those traits which are polygenic (the phenotype is determined by two or more genes) and therefore, require multiple coin flips; e.g., skin, hair and eye color. Go to the web site listed below for a color scheme of skin color. Note: the author uses the term, "mulatto" instead of heterozygous.

Students circle the allele donated by the mother and the father, determine the child's genotype, and do a small, colored sketch of the trait which has been passed on to the child (phenotype).

### **Sketching the Offspring**

Once the data sheet is complete, students draw and color a full-size portrait of the newly created child--13 years later as a teenager. Partners should compare sketches of the same child to see how similar they are. Next, comparisons can be made with the entire class.

### **Discussing the Outcomes**

Discussion prompts might include:

What differences do you notice between children (drawings)?

How is it possible for siblings, from the same parents, to look very different? very similar?

How much control do parents have over the genotype and phenotype of their child?

If technologically possible, do you think parents should have the right to choose their child's geno/phenotype? Why? or why not?

**Day 4:** (Health class)

### **Acquired or Inherited?**

Begin by showing the poster of class responses to the question, "What do teens often dislike about their bodies?" developed on Day 1. With their latest knowledge of geno/phenotypes, ask students to decide whether traits listed are inherited or acquired.

### **Positive and Negative Body Image**

Refer back to Day 1's definition of body image. Continue by defining negative body image as feeling ashamed of, or uncomfortable with, one's body. Next, define positive body image as feeling proud of, or comfortable with, one's body. Ask students to take out, or think back on, their descriptions or illustrations of their own body images. Have students silently determine whether their views of themselves reflect a negative or positive body image. Remind students that everyone has days when they feel uncomfortable in their bodies, but that people who have a more permanent negative body image, have a greater chance of developing an eating disorder, suffering from depression and experiencing low self-esteem.

### **Toward A Better Body Image**

Show students the poster "Don't fight your genes, just change your jeans" and ask them their interpretations of the message. Refer back to the class list of "What teens often dislike about their bodies" and ask students to identify which traits can be changed without extensive medical procedures; i.e., surgery. Next, ask pairs or small groups of students to come up with, and record, 5-10 additional ideas for helping teenagers become more comfortable with their bodies (the sections on improving body image for males and females on the National Eating Disorders Association web site may be helpful.) Compile a class list of groups' ideas. Instruct each student to create a list of their own by selecting the ideas they feel are most realistic and helpful for enhancing the body image of themselves and other teenagers.

### Extensions

Develop a brochure with ideas for improving body image and share with 5th or 6th graders of near by feeder schools.

### Assessment Plan

Students will be assessed on their completed data sheet for "Building a Child" and how well the geno/phenotypes match the sketch. Students will also be assessed on the lists they compile for enhancing body image.

### Rubrics

[Becoming More Comfortable in Your Inherited Skin](#)

### Bibliography

[www.woodrow.org/teachers/bi/1994/parenthood.html](http://www.woodrow.org/teachers/bi/1994/parenthood.html) [www.sc2000.net/~czaremba/labs/humanv.html](http://www.sc2000.net/~czaremba/labs/humanv.html)  
[healthybodyimage.org](http://healthybodyimage.org) Iowa 4-9 Science Project: [www.aealo.k12.ia.us/instruct/sci4-9/Genetics/GENET691.html](http://www.aealo.k12.ia.us/instruct/sci4-9/Genetics/GENET691.html)

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