
# RACE:
## A Teacher's Guide for High School

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**A Project of American Anthropological Association**
**Funded by Ford Foundation and National Science Foundation**

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This material is based upon work supported by the National Science Foundation under Grant No. 0307843. Any opinions, findings and conclusions or recommendations are those of the authors and do no necessarily reflect the views of the National Science Foundation.

# INTRODUCTION

Welcome to the RACE Project, a public education effort designed to enhance understanding of race and human variation. The RACE Project, developed by the American Anthropological Association with funding from the Ford Foundation and the National Science Foundation, focuses on developing a public education program that includes a traveling exhibit, public website and educational materials to provide a variety of learning experiences for everyone. The program builds on the current science and scholarship on race and human variation and we have a special interest in educational outreach to middle school and high school students, their teachers and parents.

The RACE Project is the first national collaborative effort to present an integrated view of race and human variation through biological, cultural and historical perspectives. The public education program explains how human biological variation differs from race, when and why the idea of race was invented, and how race and racism affect everyday life. The program has three primary messages. (1) Race is a recent human invention. (2) The idea of race is about culture, not biology. (3) Race and racism are embedded in our institutions and everyday life.

This teacher's guide serves as a teaching tool to assist educators in addressing race and human variation in the classroom. The guide meets national and select state standards for science and social studies and teachers may use the various lesson plans to develop a module on race and human variation for biology, social studies or social science classes. We encourage teachers to present the topic of race and human variation in an integrated fashion as we have done in the guide.

# HOW TO USE THIS GUIDE

This teacher's guide presents race and human variation through the integrated lenses of biology, culture and history. The guide includes a series of lesson plans that fall within one of three broad topic areas: (1) Exploring Human Biological Variation; (2) Exploring How Culture Shapes Race; and (3) Experiencing Race and Racism in Everyday Life.

The lesson plans can be infused into existing curriculum for science, biology, social studies and social science classes. Each lesson plan provides an overview, describes objectives, and outlines the time, materials and procedure for conducting the lesson.

We encourage teachers to consider team teaching to develop and co-teach a module on race and human variation that incorporates lesson plans in this guide. In middle school, this may involve developing a team of science teachers and social studies teachers to put together a module of complementary activities on race and human variation. In high school, the team may include biology teachers, history teachers, and social science teachers in developing a module of complementary activities on race and human variation.

# RELATIONSHIP OF THE GUIDE TO NATIONAL AND STATE STANDARDS OF LEARNING

*RACE: A Teacher's Guide* addresses national and state content standards for science and social studies education.

## National Science Education Standards

(National Research Council, 1996: http://www.nsta.org/standards)

***GRADES 9-12***

**Content Standard A: Science as Inquiry**

As a result of activities in grades 9-12, all students should develop

- Understandings about scientific inquiry

**Content Standard C: Life Science**

As a result of their activities in grades 9-12, all students should develop understanding of

- Biological Evolution

**Content Standard F: Science in Personal and Social Perspectives**

As a result of activities in grades 9-12, all students should develop understanding of

- Personal and community health
- Science and technology in local, national, and global challenges

**Content Standard G: History and Nature of Science**

As a result of activities in grades 9-12, all students should develop understanding of

- Science as a human endeavor
- Nature of scientific knowledge
- Historical perspectives

## Selected State Science Content Standards

**CALIFORNIA**

http://www.cde.ca.gov/be/st/ss/scmain.asp

Standards that all students are expected to achieve in the course of their studies are unmarked.
Standards that all students should have the opportunity to learn are marked with an asterisk (*).

***GRADES 9-12***

***Biology/Life Sciences***

**Ecology**

6. Stability in an ecosystem is a balance between competing effects. As a basis for understanding this concept:
   g. *Students know how to distinguish between the accommodation of an individual organism to its environment and the gradual adaptation of a lineage of organisms through genetic change.

**Evolution**

7. The frequency of an allele in a gene pool of a population depends on many factors and may be stable or unstable over time. As a basis for understanding this concept:
   a. Students know why natural selection acts on the phenotype rather than the genotype of an organism.

8. Evolution is the result of genetic changes that occur in constantly changing environments. As a basis for understanding this concept:
   a. Students know how natural selection determines the differential survival of groups of organisms.
   b. Students know a great diversity of species increases the chance that at least some organisms survive major changes in the environment.
   c. Students know the effects of genetic drift on the diversity of organisms in a population.

**MASSACHUSETTS**
http://www.doe.mass.edu/frameworks/current.html

***GRADES 9-10***
***Biology***
**3. Genetics**
Broad Concept: Genes are a set of instructions encoded in the DNA sequence of each organism that specify the sequence of amino acids in proteins characteristic of that organism.
3.5 Differentiate between dominant, recessive, codominant, polygenic, and sex-linked traits.

**5. Evolution and Biodiversity**
Broad Concept: Evolution and biodiversity are the result of genetic changes that occur in constantly changing environments.
5.2 Illustrate how genetic variation is preserved or eliminated from a population through Darwinian natural selection (evolution) resulting in biodiversity.

**MINNESOTA**
http://education.state.mn.us/mde/Academic_Excellence/Academic_Standards/Science/index.html

***GRADES 9-12***
**Strand lV: Life Science**
**Substrand C: Interdependence of Life**
The student will describe how the environment and interactions between organisms can affect the number of species and the diversity of species in an ecosystem.
1. The student will describe the factors related to matter and energy in an ecosystem that both influence fluctuations in population size and determine the carrying capacity of a population.
2. The student will explain how adaptations of species and co-evolution with other species are related to success in an ecosystem.

**Strand IV: Life Science**
**Substrand D: Heredity**
The student will explain how inherited characteristics are encoded by genes.
1. The student will explain that the instructions for the characteristics of all organisms are carried in nucleic acids.
2. The student will define the relationship between DNA, genes and chromosomes.

3. The student will describe the structure and function of DNA and distinguish between replication, transcription and translation.
4. The student will know that different species of multicellular organisms have a characteristic number of chromosomes, and that in typical humans there are 22 autosomal pairs and 2 sex chromosomes.
5. The student will describe how genetic information is transmitted from parents to offspring through the processes of meiosis and fertilization as they relate to chromosome recombination and sexual reproduction.
6. The student will use Mendel's laws of segregation and independent assortment to determine the genotype and phenotype of a monohybrid cross.
7. The student will differentiate between dominant, recessive, co- dominant, incompletely dominant, polygenic and sex-linked traits.

**VIRGINIA**
http://www.pen.k12.va.us/VDOE/Superintendent/Sols/home.shtml

***LIFE SCIENCE***
**Standard LS.1**
The student will plan and conduct investigations in which

- models are constructed to illustrate and explain phenomena;
- sources of experimental error are identified; and
- interpretations from the same set of data are evaluated and defended.

**Standard LS.5**
The student will investigate and understand classification of organisms. Key concepts include

- differences in number, color, size, shape, and texture of external and internal structures

**Standard LS.13**
The student will investigate and understand that organisms reproduce and transmit genetic information to new generations. Key concepts include

- the role of DNA;
- characteristics that can and cannot be inherited; and
- historical contributions and significance of discoveries related to genetics.

**Standard LS.14**
The student will investigate and understand that organisms change over time. Key concepts include

- how environmental influences, as well as genetic variation, can lead to diversity of organisms.

***BIOLOGY***
**3. Genetics**
*Broad Concept:* Genes allow for the storage and transmission of genetic information. They are a set of instructions encoded in the nucleotide sequence of each organism. Genes code for the specific sequences of amino acids that comprise the proteins that are characteristic of that organism.

3.4 Distinguish among observed inheritance patterns caused by several types of genetic traits (dominant, recessive, incomplete dominance, codominant, sex-linked, polygenic, and multiple alleles).

**5. Evolution and Biodiversity**

*Broad Concept:* Evolution is the result of genetic changes that occur in constantly changing environments. Over many generations, changes in the genetic make-up of populations may affect biodiversity through speciation and extinction.

5.3 Explain how evolution through natural selection can result in changes in biodiversity through the increase or decrease of genetic diversity from a population.

**6. Ecology**

*Broad Concept:* Ecology is the interaction among organisms and between organisms and their environment.

6.2 Analyze changes in population size and biodiversity (speciation and extinction) that result from the following: natural causes, changes in climate, human activity, and the introduction of invasive, non-native species.

## National Social Studies Curriculum Standards

(National Council for the Social Studies, 1994: http://www.socialstudies.org/standards/)

**Thematic Strand 1: Culture**

Social studies programs should include experiences that provide for the study of culture and cultural diversity.

**Thematic Strand 2: Time, Continuity, and Change**

Social studies programs should include experiences that provide for the study of the ways human beings view themselves in and over time.

**Thematic Strand 3: People, Places and Environment**

Social studies programs should include experiences that provide for the study of people, places, and environments.

**Thematic Strand 4: Individual Development and Identity**

Social studies programs should include experiences that provide for the study of individual development and identity.

**Thematic Strand 5: Individuals, Groups, and Institutions**

Social studies programs should include experiences that provide for the study of interactions among individuals, groups, and institutions.

**Thematic Strand 6: Power, Authority, and Governance**

Social studies programs should include experiences that provide for the study of how people create and change structures of power, authority, and governance.

**Thematic Strand 10: Civic Ideals and Practices**

Social studies programs should include experiences that provide for the study of the ideals, principles, and practices of citizenship in a democratic republic.

## Selected State Social Studies Content Standards

**CALIFORNIA**

http://www.cde.ca.gov/be/st/ss/hstmain.asp

***GRADES 9-12***
11.11 Students analyze the major social problems and domestic policy issues in contemporary American society.

**MASSACHUSETTS**
http://www.doe.mass.edu/frameworks/current.html

***GRADES 8-12***
USII.3 Describe the causes of the immigration of Southern and Eastern Europeans, Chinese, Koreans, and Japanese to America in the late 19th and early 20th centuries, and describe the major roles of these immigrants in the industrialization of America.

USII.30 Describe some of the major economic and social trends of the late 20th century.

**MINNESOTA**
http://education.state.mn.us/mde/Academic_Excellence/Academic_Standards/Social_Studies/index.html

***GRADES 9-12***
**Strand I: United States History**
**Substrand J: Reshaping the Nation and the Emergence of Modern America, 1877-1916**
The student will demonstrate knowledge of the causes and consequences of immigration to the United States from 1870 to the First World War.

1. Students will demonstrate knowledge of the massive wave of "New" immigration after 1870, its differences from the "Old" immigration, and its impact on new social patterns, conflicts, and ideas of national unity.

**Strand I: United States History**
**Substrand J: Reshaping the Nation and the Emergence of Modern America, 1877-1916**
The student will understand the origins of racial segregation.

1. Students will demonstrate knowledge of the imposition of racial segregation, African American disfranchisement, and growth of racial violence in the post-reconstruction South, the rise of "scientific racism," and the debates among African-Americans about how best to work for racial equality.

**Strand I: United States History**
**Substrand K: The Emergence of Modern America, 1890-1930**
The student will understand how the United States changed politically, culturally, and economically from the end of World War I to the eve of the Great Depression.

2. Students will describe key social changes related to immigration, social policy, and race relations.

**Strand I: United States History**
**Substrand O: Contemporary United States, 1970 to the present**
The student will understand the evolution of foreign and domestic policy in the last three decades of the 20th century and the beginning of the 21st century.

2. Students will demonstrate knowledge of economic, social, and cultural developments in contemporary United States.

**VIRGINIA**
http://www.pen.k12.va.us/VDOE/Instruction/History/hist_ss_framework.html

***United States History: 1877 to the Present***
VUS.2
The student will describe how early European exploration and colonization resulted in cultural interactions among Europeans, Africans, and American Indians (First Americans).

VUS.3
The student will describe how the values and institutions of European economic life took root in the colonies and how slavery reshaped European and African life in the Americas.

VUS.14b
The student will demonstrate knowledge of economic, social, cultural, and political developments in the contemporary United States by

a. analyzing how changing patterns of immigration affect the diversity of the United States population, the reasons new immigrants choose to come to this country, and their contributions to contemporary America.

# LESSON PLANS

This section includes lesson plans designed to aid you and your students in inquiry-based exploration of the importance of and relationships between human variation, race and racism. The lesson plans are grouped into three theme areas: (1) **Exploring Human Biological Variation**; (2) **Exploring Cultural Variation**; and (3) **Experiencing Race and Racism**.

**Exploring Human Biological Variation** presents teachers and students with four activities that demonstrate how the idea of race fails to represent or explain human biological variation. **Exploring Cultural Variation** provides teachers and students with five activities that demonstrate how culture shapes the way we see the world, why we *think* we see race, and how conceptions of race have changed over time. **Experiencing Race and Racism** presents teachers and students with four activities that demonstrate how race and racism are embedded in our everyday life and affect our preferences as well as our thinking about and relationships with others.

## EXPLORING HUMAN BIOLOGICAL VARIATION

### OVERVIEW

The idea of race was invented only a few hundred years ago and neither explains nor accounts for human biological variation. It is because the idea of race was entangled early on in science, the notion of human biological races persists. The following activities demonstrate *why* human biological variation is not racial.

From a biological perspective, the notion that human races exist rests on three basic assumptions about human variation. First, *many traits or characteristics are considered as discrete*. Discrete traits are represented by a small number of distinct categories, such as with the ABO blood group system. A person is either type A, type B, type AB, or type O. Second, *traits are thought to cluster together or covary by race* so that the presence (or frequency) of one "racial trait" is useful for predicting the presence (or frequency) of others. Third, many people assume that scientists have observed greater genetic and phenotypic variation between rather than within 'races.'

None of these assumptions are supported by the facts of human biological variation. In fact, most anthropologists have agreed for some time that *patterns of human variation undermine the idea of separate human races*. In fact, race-based interpretations of human diversity limit and obscure scientific research into the true sources, patterns, and importance of human variation.

The four exercises that follow provide a "starter kit" – for teaching and learning about human variation in non-racial terms. Instructors may modify them for use at different grade levels. Together, they introduce the evolutionary approach to human biology that is central to biological anthropology and provide an introduction to the *structure of human variation*. Each lesson helps students to understand both why humans vary as a single biologically diverse species and why races do not exist.

- *Continuous Trait Variation* illustrates the problem with defining 'races' with clinal or continuous traits.
    - The idea of races supposes that there are natural breaks in the distribution of human biological variation that produce clear clusters (or races) of people who share certain traits. However, the opposite is generally true: human variation is a continuum. Much like a map of temperatures, groups of individuals tend to vary gradually over geographic space in a continuous or *clinal* fashion. Skin color, for example, changes gradually from one group or location to another (see "Skin Color" Map). Knowing this, Frank Livingstone in 1962 wrote, "*There are no races, only clines*."

- *Graphing Concordance* introduces the concept of independence to show that 'racial' traits actually do not cluster together reliably within so-called races.
    - Clearly, some traits are useful for predicting others. A good example is the correlation between height and shoe size. For two groups of people, the average shoe size probably will be greater for the group with greater average height. However, many traits vary independently; they are **nonconcordant**. This fact lends support to the aphorism that "race is skin deep." There is no clear or stable relationship between easily observable traits such as skin color and what is inside the body and less observable, literally millions of genetic and phenotypic traits.

- *Apportioning Genetic and Phenotypic Variation* offers students a way to think about variation as a measurable concept, and shows that human diversity does not pattern racially at the genetic level, or "beneath the skin."
    - A startling fact is that most of the variation found among humans is local and *not* found among continental 'races.' Those who statistically have studied global patterns of human variation, starting with a famous paper by Richard Lewontin in 1972, generally find that only about 6-10% of the variation **apportions** (or is statistically explained) by continental 'races.' Some recent data even suggests that the average genetic difference between two individuals of the same 'race' is about the same as that of two individuals from different so-called 'races' (Yu *et al*., 2002). This exercise addresses the problem of how to represent human genetic or phenotypic variation in a conceptually understandable and meaningful way.

- *Gene Flow Illustration* shows students how quickly a new allele (or version of a gene) can spread throughout a population through mating.
    - People today mate across all social and cultural distinctions and barriers. However, rarely acknowledged is the fact that this is the rule, not the exception, throughout human history. This exercise helps students to understand how **gene flow** has helped to maintain a great deal of genetic similarity within the human species, including across so-called races, and to appreciate how quickly an allele can spread throughout a population via mating.

Although these activities were designed to explain the sources and nature of human biological variation, biology and life science teachers may find it useful to collaborate with social science teachers. Social, cultural and environmental factors together influence contemporary human diversity.

History and social studies teachers may shed light on such factors, past and present. Ideally, then, these exercises will provide team-teaching opportunities beneficial for both students and teachers.

Finally, even though race is not an accurate way of describing it, we should clearly add that *human variation does exist*. Further, *ideas about race have real and important social effects*. **Exploring Cultural Variation** and **Experiencing Race and Racism** provide lesson plans for exploring the roles that culture plays in shaping how we come to "see" and "feel" race in our everyday lives.

**Lesson Plan 1:**

# *Continuous Trait Variation*

Developed by Joseph Jones and Alan Goodman

## Objectives

This introductory exercise illustrates that human biological races appear to exist only when clinal variation is not recognized and continuous traits are represented as discrete traits. Students will learn the "rule" of human biological variation, i.e., that:

- Most traits such as skin color or height vary gradually along a continuum from light to dark or short to tall. Dividing the continuum is arbitrary; and
- The frequency of traits in groups is also continuous. Even for a trait that takes on a few discrete values such as in the ABO blood groups (see below), the frequency of blood types in groups is continuous and once again, where the continuum is divided is arbitrary.

## Key Terms

- continuous trait
- discrete trait
- trait frequency
- cline/clinal variation
- ecological

## Time

Approximately 1 hour and 15 minutes (including a flexible discussion period)

## Materials

For this exercise you will need:

1. Illustrations of various discrete traits (e.g., attached earlobes; hitchhiker's thumb; different hair forms, etc. (See Figure 1). Further illustrations and explanations of these may be obtained from the "An Inventory of My Traits" (PDF) and "Comparing Inherited Human Traits" (PDF) teacher guides found at the "Teacher's Resources" page of the University of Utah's Genetic Science Learning Center website (http://gslc.genetics.utah.edu/).
2. Skin color and ultraviolet radiation maps showing clinal variation (Appendix A)
3. Blood type maps showing regional, non-racial variation (Appendix B)
4. A large writing pad and markers for recording students' trait values

**Procedure**

**1. Introduce discrete traits.** Define the concept of a discrete trait and help students create a list of about six of these. Examples include sex, blood types (ABO, MN, etc.), PTC taste sensitivity, left-over-right thumb-crossing, hitchhiker's thumb, earlobe attachment, dimples and tongue-rolling. Have students record their values for each phenotypically observable trait.

**Note:** Most of the traits that students list are thought to result from a single gene that may be observed in either a dominant or recessive form. The form of the gene observed is known as an *allele*, and every person inherits one allele from each parent. The terms "dominant" and "recessive" do not imply value. They refer only to the number of alleles necessary for a person to express a given trait or phenotype. For example, a single gene might determine whether or not a person has detached or attached earlobes. Since the detached earlobe allele is dominant, an individual needs to receive this allele from only one parent to have detached earlobes (although she or he may have received it from both parents). On the other hand, because the attached earlobe allele is recessive, an individual with attached earlobes must have received this allele from both parents. This is because, where both a dominant and a recessive allele are present, only the dominant allele will be expressed. Here, a person will have detached as opposed to attached earlobes. For students learning basic genetics, the relationship of alleles to ideas about race will be discussed further during the *Apportioning Genetic and Phenotypic Variation* exercise.

The "Comparing Inherited Human Traits" (PDF) teacher's guide contains information on which alleles are dominant or recessive for a number of discrete traits as well as which traits are shared by most people. Share this information with students, and have them determine whether or not their parents passed along either (1) two recessive alleles or (2) one or two dominant alleles for any of these traits. Note that it is not possible to discern the presence of one versus two dominant alleles simply by observing a phenotype.

**2. Introduce continuous traits and clines**. Explain the concept of a continuous trait. Help students create a list of about six of these. This probably will be easier than creating the list of discrete traits as these will likely be more familiar to most students and as we have suggested, continuity is the rule. Examples include height, weight, shoe size, skin color, and hair color.

Have students record their values for each trait. We suggest having students actually line up by height, shoe size, etc. as these will be defined as rank order in the class. Once lined up, students should call off their rank order, for example, 1 being the tallest student, 2 the next, and so on. (If shoe size data is collected, be sure to standardize female and male sizes where appropriate).

Having students line up also provides an opportunity for students to visually engage the concept of clines while highlighting the variation present within the classroom. In a phenotypically diverse setting, students will be able to identify amongst themselves a range of skin, eye or hair color/textures, for example. In less diverse settings, height and shoe size will likely still be useful for illustrating this concept.

In both cases, this idea may be reinforced in its global context with the skin color map, which shows dark skin as an "equatorial trait". That is, skin generally becomes lighter as one moves away from the equator.

**3. Check the data.** Be sure that each student's values were recorded for all traits on the large writing pad. These data will be used for the *Graphing Concordance* exercise.

**Going Further: Explaining human variation without 'race'**

If 'race' is inadequate for classifying human biological variation, it is even less useful for explaining it. How, then, do we begin to account for the phenotypic diversity observed among human populations? After all, biological variation is real even though biological race is not!

While all humans share the same basic biological makeup, different environmental conditions sometimes require different expressions of our shared genetic potential. Human biological variation refers to the range of these different expressions, and the environmental (or **ecological)** factors that influence them often include social and cultural practices. It is possible to predict geographic patterns for traits for which key ecological influences are understood, and to understand why this predictability does *not* suggest that these traits are 'racial'.

For example, let's take another look at skin color. Some anthropologists suggest that the earliest humans *evolved* dark skin to help protect against overexposure to ultraviolet radiation (UVR) that, in large amounts, can reduce body levels of an important nutrient, folic acid (e.g., Jablonski, 2004). This theory is supported by the fact that global clinal variation in skin color correlates strongly with levels of UVR exposure, which is most concentrated at the equator. Specifically, dark skin is considered an equatorial trait, and skin color among human populations is lighter as one moves away from tropical areas.

The term 'evolved' suggests that, in addition to ecological conditions, time is also important as a factor in human biological variation. Changes in skin color occurred over tens of thousands of years – actually not a very long time in evolutionary terms! In fact, this was long enough to produce skin color and other relatively "cosmetic" changes across populations, but not long enough to produce the fundamental or "deep" biological changes implied by 'racial' classification.

Ask students to compare the skin color and UVR exposure maps and to explain the nature of the skin color/UVR relationship.

**Discussion**

1. Allow students to share their findings from the first part of the exercise. Using the trait guide, students also can compare the classroom frequency of several traits to that of the larger population. For example, the guide suggests that only 25% of the population has hitchhiker's thumb. What percentage of students has this trait? Why might the class percentages vary from the percentages listed in the guide?

2. Was it easy to tell discrete from continuous traits?

   Yes, in some cases. But categorizing values for some discrete traits can mask underlying continuity. For example, hair texture is often considered a discrete trait, but is there always a clear distinction between "curly" and "wavy/straight" or between "wavy/straight" and "straight" hair? (These are commonly used categories).

   **Note:** It is useful to collect data on hair texture as a continuous trait for use during the *Graphing Concordance* exercise.

3. Most so-called racial traits are continuous, or only ambiguously discrete, as just noted for hair texture. What does this mean for the concept of biological race?

   Recall that the first assumption or condition of the biological race concept is that 'racial' traits should be discrete (See *Teaching Non-racial Human Variation*).

4. Ask students why they think skin color correlates with UVR, and what this means for the concept of biological race. Ask students for other examples of traits that correlate with known ecological factors.

**As a bridge to the next exercise, *Graphing Concordance*, ask students to follow up on the last discussion point by bringing to the next class (1) a summary of "A New Light on Skin Color" (See references) or (2) a 2-3 paragraph report on possible environmental sources of variation for another 'racial' trait.**

**References**

Iqbal, S. 2002. A New Light on Skin Color. NationalGeographic.com. Accessed on February 1, 2005.

Jablonski, N. 2004. The Evolution of Human Skin and Skin Color. *Annual Review of Anthropology* 33: 585-623.

Livingstone, F. 1964. On the Nonexistence of Human Races. In A. Montague, ed., *The Concept of Race*, pp. 46-60. New York: The Free Press.

The following undergraduate-level biological anthropology textbooks provide extensive background information for this exercise.

Park, M. 1999. *Biological Anthropology. Second Edition*. Boston: McGraw-Hill Publishing.

Relethford, J. 2003. *The Human Species: An Introduction to Biological Anthropology. Fifth Edition*. Boston: McGraw-Hill Publishing.

**Lesson Plan 2:**

# *Graphing Independence*

Developed by Joseph Jones and Alan Goodman

## Objectives

This exercise illustrates that variation in traits such as hair form or skin color typically is a poor predictor of variation in other traits among individuals and groups. Using data collected from the *Continuous Trait Variation* exercise and the maps provided, students will:

- graph classroom variation to see which traits **correlate** on an individual level;
- consider factors that possibly contribute to these observations; and
- show the independence of the global distribution of selected traits in groups.

## Key Terms

- covary
- independence
- correlation
- scatterplot graph

## Time

Approximately 1 hour and 15 minutes (including a flexible discussion period)

## Materials

For this exercise you will need:

1. Copies of data recorded from the *Continuous Trait Variation* exercise for each student
2. Diagram of independent trait variation (Figure 1)
3. Examples of graphed positive, negative and nonlinear correlation (Figure 2)
4. A large pad (graph paper)
5. Colored markers
6. Maps of world skin color, type A blood frequency, and type B blood frequency distributions (Figure 3)
7. Map comparing world skin color and type A blood frequency distributions (Figure 4)

## Procedure

**1. Introduce the concept of trait independence.** Explain to students that most traits vary independently and do not covary by 'race' (or otherwise). Anthropologists refer to this pattern as nonconcordance.

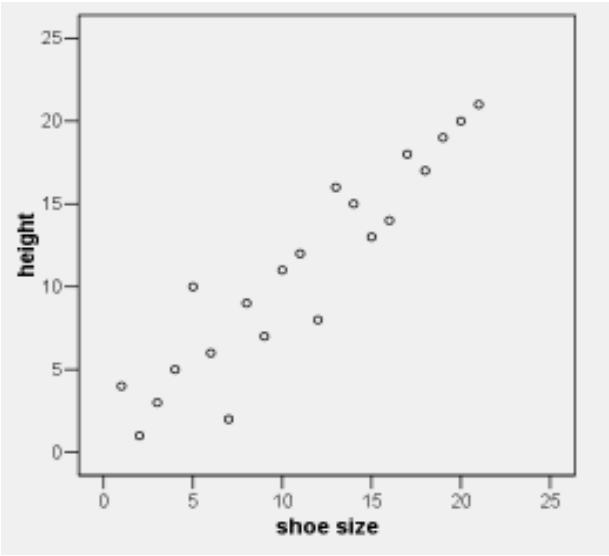
The diagram provided as Figure 1 should be useful for helping them to grasp this concept. Imagine that the four tubes represent four different individuals. If one knows the top layer, skin color, one cannot reliably predict what will be found in the other layers. For example, the two individuals to the left have the same "light" skin color but differ for the other three layers (or traits).

**2. Select trait pairs and predict correlations.** On a large writing pad, list all of the possible *pairs* of *continuous* traits (e.g., shoe size/height, height/eye color, eye color/shoe size and so forth). Working in pairs, students should select one pair of traits to graph. Write students' names next to their selections so that they can refer to the list if necessary.

Ask students which traits are most likely to covary and record their responses. Hand out copies of class data from *Continuous Trait Variation*.

**3. Graph the data.** In order to test their predictions, students will explore relationships between two traits. To do this, students will construct a **scatterplot** graph, which is used to compare continuous variables. On a scatterplot graph, one trait is represented on the X-axis and the other trait is represented on the Y-axis. Students should label each axis by trait and number each axis according to class size. It does not matter which trait is represented on either axis. Each individual is represented with a single data point.

Here is an example of a scatterplot comparing height and shoe size using data collected from 21 people during Hampshire College's *Rethinking Race* summer teacher's training institute.




By tracking their own data points across graphs, students are able to see whether or not their trait values followed overall class patterns. *Using different color markers, students also may track groups within the class*. Different colors may be used to plot data points by age or sex, or by any of the discrete traits for which data was collected. For example, blue dots may be used to plot individuals with hitchhiker's thumb and red dots used to plot individuals with straight thumbs.

**4. Identify, explore and discuss correlations.** The X-axis position of a data point in relation to its Y-axis position shows the relationship of the two variables as observed for that individual. Together, all of the data points suggest a pattern of the relationship of the two variables for the entire class. This pattern may take the form of a positive, negative or nonlinear correlation (See Figure 2 for illustrations and further explanations).

The above example shows positive correlation for height and shoe size for the *Rethinking Race* group. That is, as height increases, so does shoe size for most individuals. Not all trait pairs will correlate as strongly or obviously. Thus, *students should first discuss with their partners whether or not their selected traits correlate and, if so, the nature of that correlation. Once all of the students have done this, they should post their graphs and share their findings with the entire class*.

**5. Compare Results**. The groups of students may now put there graphs on the classroom wall. Go around the room and have each group explain the relationship they graphed.

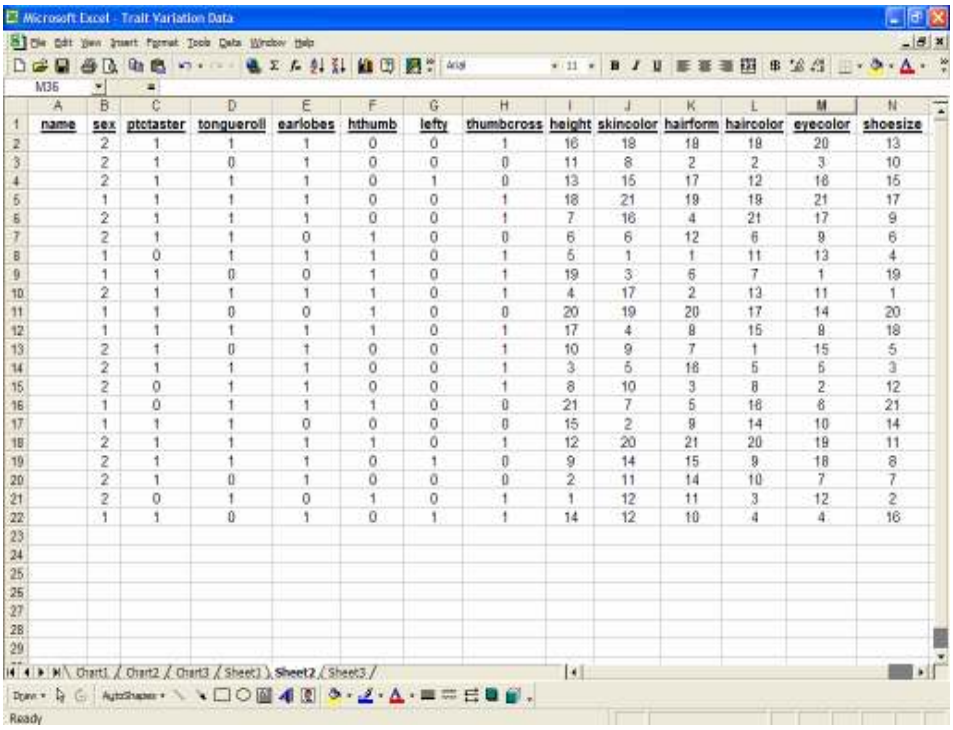
**Going Further: Maps and Group Variation**

Using maps of the global distribution of select traits, students can also see that group averages are nonconcordant. First, re-examine the global distribution of skin color (Figure 3a). In general, skin color varies by distance from the equator. Now examine the global distribution of another trait, such as blood type B (Figure 3b). The distribution of this trait is more on an east-west axis and looks entirely unlike the distribution of skin color. Ask students what might cause the distribution of blood type B?

Does the distribution of blood type A (Figure 3c) follow a pattern similar to that of skin color? Show students Figure 4, a map comparing distributions of skin color and type A blood frequency. Are distribution patterns of skin color and type A blood frequency concordant or nonconcordant? Note the difficulty of assigning 'race' when comparing only these two traits, For example, some areas that are relatively homogeneous with respect to type A blood frequency exhibit the most skin color variation. What would skin color tell us about the ABO blood system?

**Going Further: Using Excel to Graph Relationships**

Using a spreadsheet program such as Excel, students can also readily graph bivariate relationships, plot trend lines, etc. Students also practice data entry (and coding for discrete traits), and learn how to properly format a graph. Some teachers may prefer to use Excel in place of the manual graphing of relationships. However, starting by manual graphing provides a greater feel and interaction with the data. Here is a sample Excel sheet with continuous and discrete trait values entered. Most discrete traits are coded as "0" if the trait was absent and as "1" if the trait was present. Sex was coded as "1" for males and as "2" for females.



| | A | B | C | D | E | F | G | H | I | J | K | L | M | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | name | sex | ptctaster | tongueroll | earlobes | hthumb | lefty | thumbcross | height | skincolor | hairform | haircolor | eyecolor | shoesize |
| 2 | | 2 | 1 | 1 | 1 | 0 | 0 | 1 | 16 | 18 | 19 | 19 | 20 | 13 |
| 3 | | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 11 | 8 | 2 | 2 | 3 | 10 |
| 4 | | 2 | 1 | 1 | 1 | 0 | 1 | 0 | 13 | 15 | 17 | 12 | 16 | 15 |
| 5 | | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 18 | 21 | 19 | 19 | 21 | 17 |
| 6 | | 2 | 1 | 1 | 1 | 0 | 0 | 1 | 7 | 16 | 4 | 21 | 17 | 9 |
| 7 | | 2 | 1 | 1 | 0 | 1 | 0 | 0 | 6 | 6 | 12 | 6 | 9 | 6 |
| 8 | | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 5 | 1 | 1 | 11 | 13 | 4 |
| 9 | | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 19 | 3 | 6 | 7 | 1 | 19 |
| 10 | | 2 | 1 | 1 | 1 | 1 | 0 | 1 | 4 | 17 | 2 | 13 | 11 | 1 |
| 11 | | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 20 | 19 | 20 | 17 | 14 | 20 |
| 12 | | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 17 | 4 | 8 | 15 | 8 | 18 |
| 13 | | 2 | 1 | 0 | 1 | 0 | 0 | 1 | 10 | 9 | 7 | 1 | 15 | 5 |
| 14 | | 2 | 1 | 1 | 1 | 0 | 0 | 1 | 3 | 5 | 18 | 5 | 5 | 3 |
| 15 | | 2 | 0 | 1 | 1 | 0 | 0 | 1 | 8 | 10 | 3 | 8 | 2 | 12 |
| 16 | | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 21 | 7 | 5 | 16 | 6 | 21 |
| 17 | | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 15 | 2 | 9 | 14 | 10 | 14 |
| 18 | | 2 | 1 | 1 | 1 | 1 | 0 | 1 | 12 | 20 | 21 | 20 | 19 | 11 |
| 19 | | 2 | 1 | 1 | 1 | 0 | 1 | 0 | 9 | 14 | 15 | 9 | 18 | 8 |
| 20 | | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 11 | 14 | 10 | 7 | 7 |
| 21 | | 2 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 12 | 11 | 3 | 12 | 2 |
| 22 | | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 14 | 12 | 10 | 4 | 4 | 16 |

## Discussion

1. Which traits correlate, and how strongly? How accurate was the list of traits students identified as most likely to correlate in part one?

2. When tracking their own values, did any of the students consistently fall outside of the overall class patterns? If so, be sure to reinforce for them that this is not evidence of 'racial' difference from other students (if the traits involved are 'racial' ones). Rather, this might be an example of local variation that limits the usefulness of the biological race concept.

3. If different colors were used to plot different groups, did group values pattern in any interesting ways? Explain.

4. The distribution of type B blood may be related to the history of infectious disease or other factors, or it might simply be due to nonselective forces of evolution. We do not yet have a clear answer.

5. The lack of any relationship between skin color and blood types is further evidence of nonconcordance and the lack of utility of race-as-biology. Ask students to explain how Figure 4 provides support for this statement.

6. If skin color does not have “deeper biological meaning,” should a doctor take skin color into account? Why? Why not?

**So far, we have focused on problems associated with classifying phenotypic variation through 'race'. The next exercise, *Apportioning Phenotypic and Genetic Variation*, will address the discredited but persistent notion that observable variation is the outward expression of deeper, biogenetic differences between 'races'. As an introduction to this exercise, students should identify and write a brief (~ one page) report on any 'racial disease' (e.g., sickle cell anemia, Tay-Sachs disease or cystic fibrosis) – its etiology, symptoms and distribution in the US population.**

## References


Brace, C.L. 1996. A Four-letter Word Called "Race". In L. Reynolds and L. Lieberman, eds., *Race and Other Misadventures: Essays in Honor of Ashley Montagu in His Ninetieth Year*, pp. 106-141. Dix Hills, New York: General Hall, Incorporated.

Diamond, J. 1994. Race Without Color. *Discover* 15(11): 82-89.

Goodman, A.H. 1997. Bred in the Bone. *The Sciences* March/April: 20-25.

Park, M. 1999. *Biological Anthropology. Second Edition*. Boston: McGraw-Hill Publishing.

**Figure 1. Diagram of Independent (or Nonconcordant) Variation.** If each layer represents geographic variation for one trait and each cylinder represents an individual, it is apparent that traits vary independently. This pattern is observed both continentally and as *local variation* within smaller geographic areas. Source: Modified from Park, *Biological Anthropology, 2nd*, ©McGraw-Hill Companies, Inc.

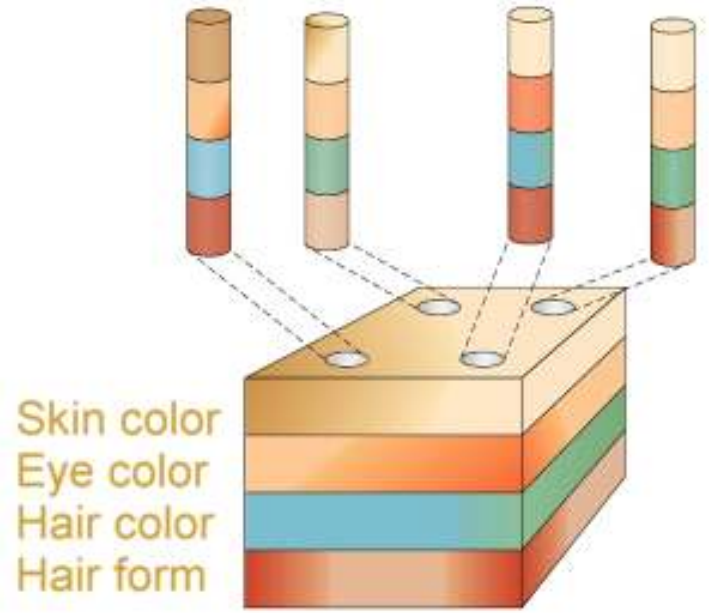
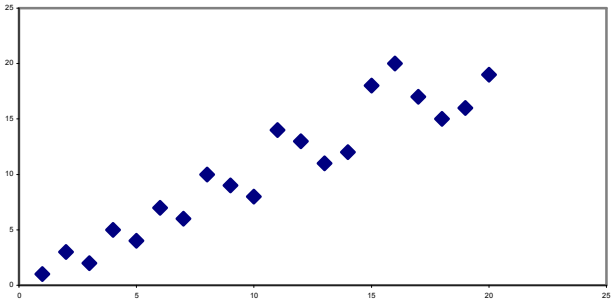
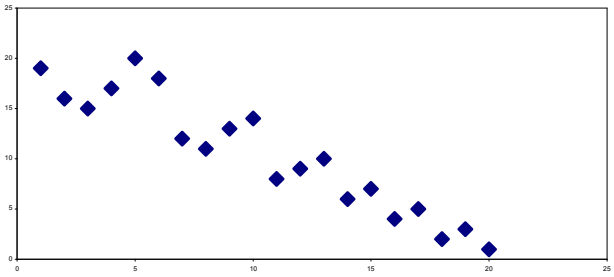


**Figure 2. Examples of scatterplots showing possible correlation patterns for continuous traits/variables.**

A. *Positive Correlation*: high or low values for the X-axis trait will correspond with high or low values for the Y-axis trait, respectively.




B. *Negative Correlation*: high values for the X-axis trait will correspond with low values for the Y-axis trait, and vice versa.




C. *Nonlinear Correlation*: values for the X-axis trait and values for the Y-axis trait do not correspond in a way that explains the relationship between the two traits. For our purposes, we may simply say that this pattern represents "no correlation".

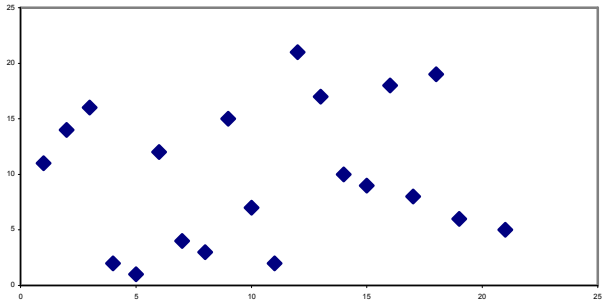
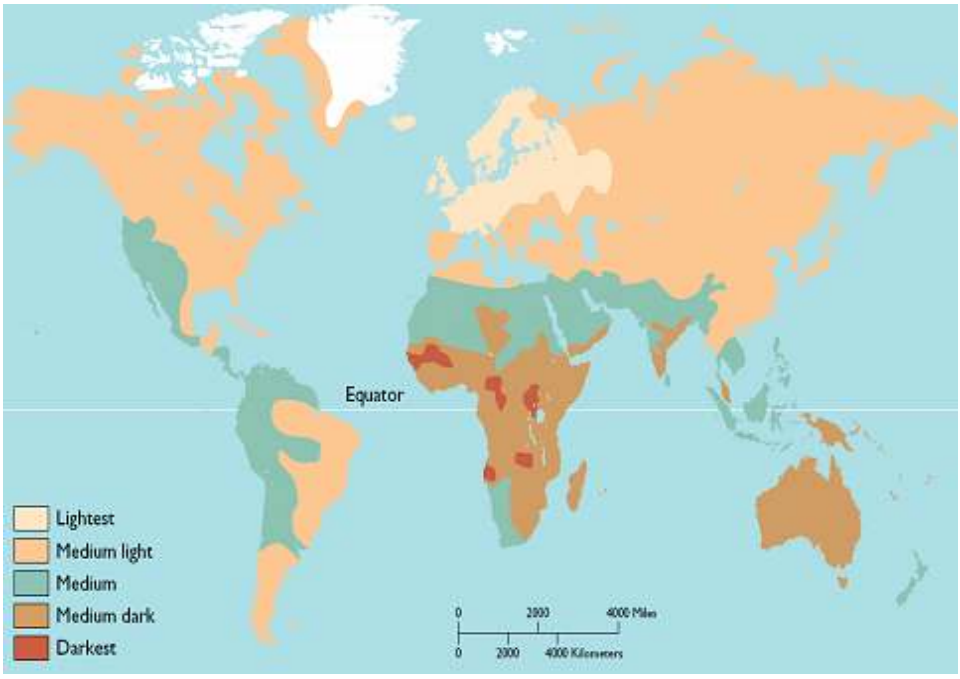


**Figure 3. (A) World Skin Color Distribution, (B) World Frequency Distribution of Type B Blood, and (C) World Frequency Distribution of Type Blood.** Source: Park, *Biological Anthropology, 2nd*, ©McGraw-Hill Companies, Inc.

A.




B.

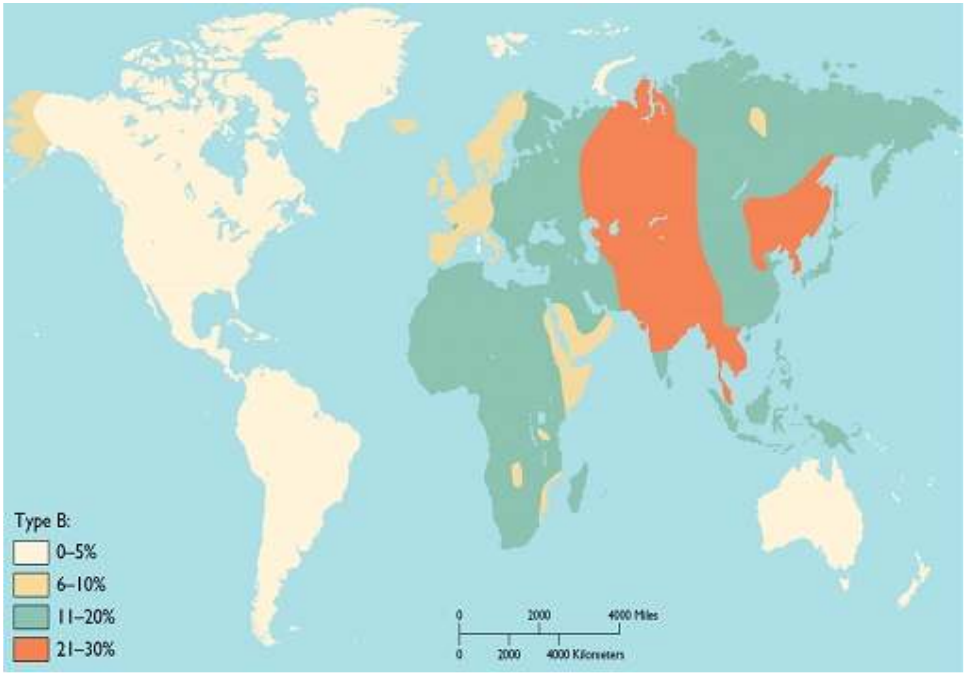


**Figure 3. Continued.**

C.

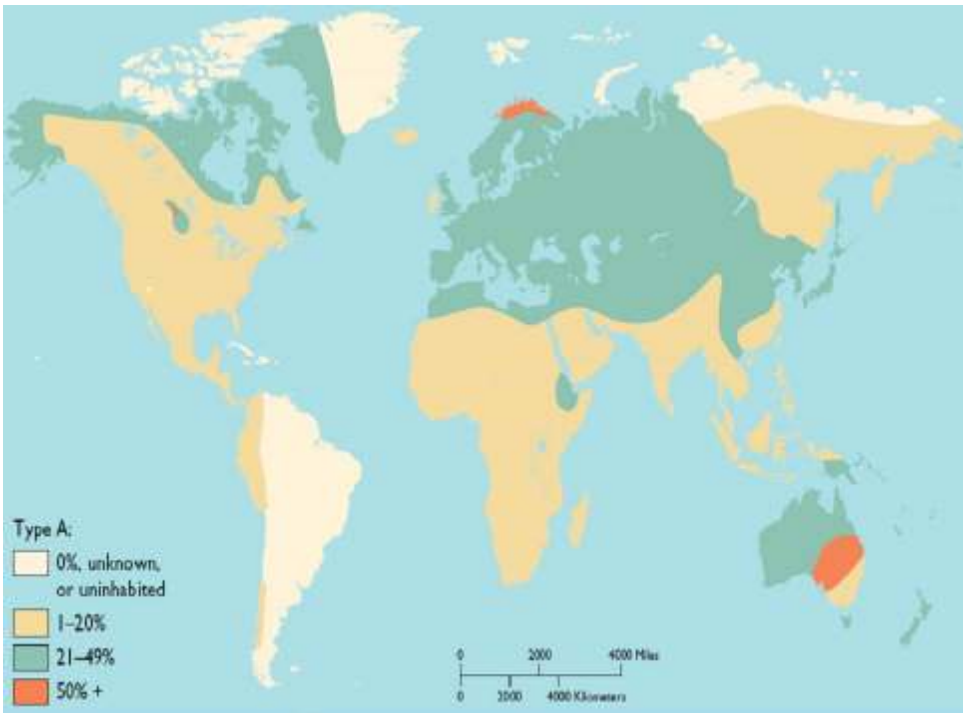
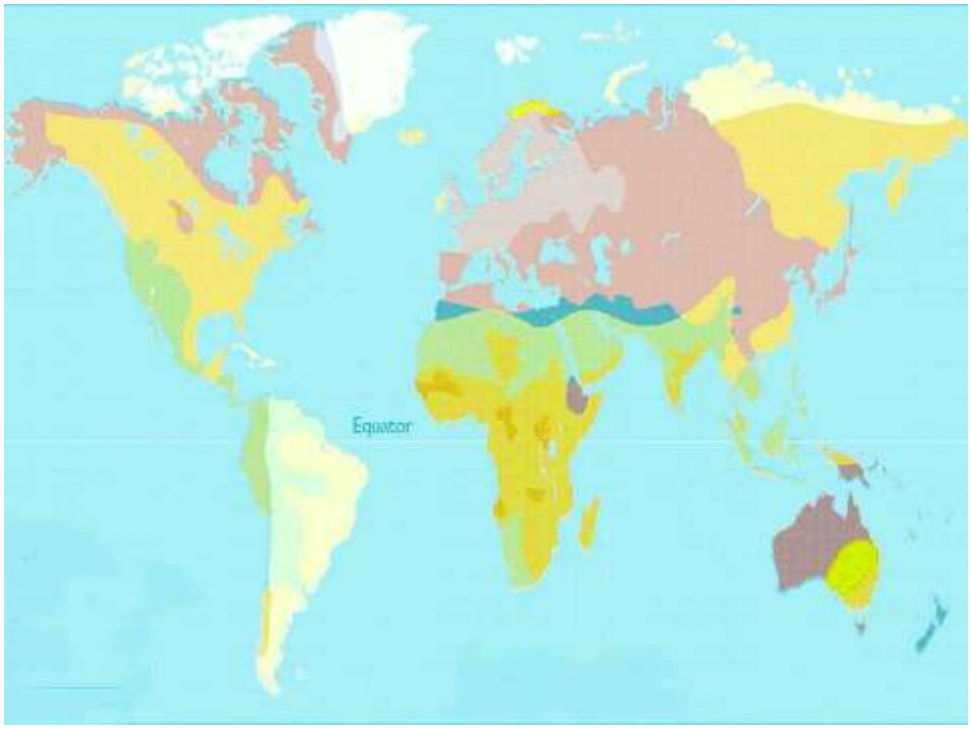


**Figure 4. Comparison of World Skin Color Distribution and World Frequency Distribution of Type A Blood.** This map was created by overlaying Figures 3a and 3c, and by contrasting the colors to highlight the range of possible trait/trait frequency combinations. Source: Modified from Park, *Biological Anthropology, 2nd*, ©McGraw-Hill Companies, Inc.



**Lesson Plan 3:**

# *Apportioning Phenotypic and Genetic Variation*

Developed by Alan Goodman and Joseph Jones

## Objectives

This exercise addresses the problem of how to represent human genetic or phenotypic variation in a conceptually understandable and meaningful way. Students will:

- Learn some basic concepts in human genetics
- Discuss empirical data on human genetic variation
- Understand that important phenotypic and genetic differences amongst humans occurs at the individual level and are not reflected in group averages

## Key Terms

- apportionment
- gene
- locus
- allele

## Time

Approximately 1 hour and 30 minutes (based on grade level, and including a flexible discussion period)

## Materials

For this exercise you will need:

1. Clear bottles (plastic or glass) with wide tops (approximately 1 bottle per student)
2. Marbles or other small and brightly colored objects in at least two high contrast colors such as red and blue or black and white (approximately 100 marbles per student)
3. Handout on trait frequencies by 'race' (See Figure 1)
4. (optional) M & Ms, Reece's Pieces or other edible colored candies

## Procedure

### Simple Version

Assign students to work in groups of two or three. Give each set of students two clear jars representing two "races", and marbles that will represent individuals. The number of individuals (marbles) selected

is an arbitrary decision, but should be the same for each 'race'. We suggest 100 marbles/individuals per jar. This number allows 1 marble to equal 1%.

1. **Assume all variation is *between* the two 'races'**. Ask students to fill the two jars with marbles representing all variation between 'races'. Students should end up filling one jar with one color of marble and the other jar with another color. Explain to students that each marble represents an individual. Depending upon grade level, different colors may represent (1) simply the presence or absence of different traits, or (2) the presence of different alleles [allelic variation]. Thus, every individual of 'race' (jar) "A" will have one trait or allele, while every individual of 'race' (jar) "B" will either not have that trait or will have a different allele.

2. **Assume all variation is *within* the two 'races'**. Now, students should fill the two jars with marbles of two different colors representing all variation within the two 'races'. The proportion of one color to another does not matter, but must be the same for each 'race'. For example, each jar might have 50 black and 50 white marbles or 9 blue and 91 red marbles. Thus, each 'race' will have the same frequency for a given trait or allele.

3. **Using real data on human variation**. This step requires that students understand the definition of an allele as actual human genetic data are used. Data may be found in a variety of sources such as Cavalli-Sforza, *et al*. (1994). Table 1 is abstracted from Nei and Roychoudhury (1982) and Lewontin (1972) and consists of genes with two commonly found alleles.

Assign each group at random to a different gene from Table 1. As in the previous two steps, students are to select a color marble to represent each of the two alleles and then fill up the jars, with one marble representing one individual, or one percent of the 'race'. For example, for the first gene, Auberger, the 'Caucasian' jar should contain 62 marbles of one color and 38 of another, while the 'Negroid' jar will contain 64 marbles of one color and 36 of another. Note that in Table 1 data are usually provided for three ''races''

After each group has successfully put the appropriate amount of marbles in each of the jars, go around the room and ask each group how important race seems to be in statistically "explaining" their trait. The students should be able to hold up and display their jars for the rest of the class.

*Using M & M's*. For more fun, one can complete any of the above exercises using colored candies. In our experience, Reece's Pieces work particularly well because they have a hard outside and come in a limited number of colors.

**Going Further: Comparing more 'races', alleles, and genetic systems**

In the simple version, only two 'races' were compared for a single genetic system with two alleles. However, the exercise can easily be expanded to include a third 'race', a genetic system with more than two alleles variants, or more than one genetic system at a time. Doing so will remind students of the complexity obscured or ignored by racial classification.

To include a third race, all that is needed is a third jar. A third or fourth variant simply requires a source such as Cavalli-Sforza, *et al*. (1994) and a third or fourth color marble. And considering more than one genetic system requires adding the appropriate number of color marbles (i.e., the number of alleles involved).

Adding a second or third trait requires an assumption of independence or non-concordance. The frequency of having trait A of one gene system and trait B of another is simply the product of frequency A and B.

**Discussion**

1. After students complete part one, ask them whether or not there is a trait in the real world that actually varies by race like this.

   Skin color variation between Europeans and Africans most often is mentioned, but even in this example there is some "overlap." There is no genetic trait that works this way.

2. For part 2, if a "blue" individual was more susceptible to a certain disease, would knowing his or her race be useful for predicting whether or not this person will actually ever have the disease? This question is currently a source of great debate among anthropologists, bioethicists and medical practitioners. Students should refer to their homework assignments from the previous exercise, which will provide concrete examples for them to consider regarding race and disease.

   What other factors might influence this outcome? This, of course, will depend on the specific disease chosen. The main point is to have students consider genetic variation as one of many factors (environment, social status, cultural practices, etc.) that combine to influence health and other forms of observed variation. One could also ask if human variation in reality is more like this example than the prior one.

3. After completing parts 1 and 2, one can consider what real data might look like.

   Our experience is that most individuals will think that 'races' must be much like the first example – all variation between 'races'. But, as we will see, this is not the case.

4. The genes used in part three are mostly of no known function. However, students may want to look up what is known about the particular gene.

5. It is important to point out that the above is a statistical exercise that assumes that 'races' are meaningful units of analysis.

   With this assumption, race can be said to statistically capture a percentage of human variation. But is there is another system that might better *explain* existing variation? As students have seen with these exercises, the evolutionary model does this by offering both descriptions and reasons for human biological variation.

For students with some background in genetics, this exercise may be modified to introduce the forces of evolution: gene flow, genetic drift, mutation and natural selection.

## References


Cavalli-Sforza, L.L., P. Menozzi and A. Piazza. 1994. *The History and Geography of Human Genes*. Princeton: Princeton University Press.

Lewontin, R.L. 1972. The Apportionment of Human Diversity. *Evolutionary Biology* 6:381-398.

Nei, M. and A.K. Roychoudhury. 1982. Genetic Relationship and Evolution of Human 'races'. *Evolutionary Biology* 14:1-59.

Yu, N., *et al*. 2002. Larger Genetic Differences within Africans than Between Africans and Eurasians. *Genetics* 161:269-274.

**Figure 1. Frequencies of Alleles by 'Race'**[1]

| Gene | Allele | Caucasoid[2] | Negroid | Mongoloid |
|---|---|---|---|---|
| Auberger | $Au^a$ | 0.62 | 0.64 | --[3] |
| | Au | 0.38 | 0.36 | -- |
| Secretor | Se | 0.52 | 0.57 | -- |
| | se | 0.48 | 0.43 | -- |
| Xg | $Xg^a$ | 0.67 | 0.55 | 0.54 |
| | Xg | 0.33 | 0.45 | 0.46 |
| Plasminogen | $PGP^1$ | 0.71 | 0.86 | -- |
| | $PGP^2$ | 0.29 | 0.14 | -- |
| Acid phosphatase ACP | $P^b$ | 0.60 | 0.83 | 0.79 |
| | $P^c$ and other | 0.40 | 0.17 | 0.21 |
| Acid phosphatase $Sap_b$ | SapB | 0.77 | -- | 0.88 |
| | SapO | 0.23 | -- | 0.12 |
| Alcohol dehydrogenase-3 | ADH1 | 0.60 | -- | 0.62 |
| | ADH2 | 0.40 | -- | 0.38 |
| $\alpha$1 Acid Glycoprotein | $Or^s$ | 0.36 | 0.41 | 0.27 |
| | $Or^f$ | 0.64 | 0.59 | 0.73 |
| Adenosine deaminase | $ADA^1$ | 0.95 | 0.97 | 0.97 |
| | $ADA^2$ | 0.05 | 0.03 | 0.03 |
| Diego blood group | $Di^a$ | 0.00 | 0.00 | 0.04 |
| | Di | 1.00 | 1.00 | 0.96 |
| MN blood group | M | 0.54 | 0.58 | 0.53 |
| | N | 0.46 | 0.42 | 0.47 |

[1] Source: Lewontin (1972) and Nei and Rochoudhury (1982)
[2] **Racial terminology appears in the original texts.**
[3] Missing data are represented by '—'

**Lesson Plan 4:**

## *Gene Flow Illustration*

Developed by Carol Mukhopadhyay and Yolanda Moses[4]

### Objective

Students will understand the rapidity with which a new gene can spread through a population through mating.

### Time

5-10 minutes

### Materials

Glitter or something that will stick to student hands but can be removed with washing. The glitter represents genes from one stranger outside the community. You could use two or three different colors to represent different genes.

### Procedure

*Step 1*. Instructions. Students (Ss) are to imagine that the Teacher (T) is a stranger to the community. To meet people, T will go around and shake hands with Ss. Since people like to interact, once their hand is shaken, they will shake hands with three others Ss. No one whose hand has been shaken can participate more than once. Eventually, everyone will be contacted.

*Step 2*. T spreads enough glitter on his/her hand so that it will "spread" when another hand is shaken. T begins by shaking hands with three students in class. The glitter should stick to hands of students but not be perceptible.

*Step 3*. Students proceed as outlined above, shaking hands with 3 other Ss. It takes very few rounds for everyone to be contacted once.

*Step 4*. Students examine their hands and see how quickly the 'glitter' has spread. This graphically illustrates how few "hand-shakes" it takes for a new gene to spread through a population.

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[4] Material from *How Real Is Race? A Sourcebook on Race, Culture, and Biology*, (2007), p. 58, by Carol Mukhopadhyay, Rosemary Henze and Yolanda T. Moses, published by Rowman & Littlefield Publishing Group Books, appears by permission of the author and publisher. **This material is protected by copyright. All rights reserved. Please contact the publisher for permission to copy, distribute or reprint.**

## EXPLORING CULTURAL VARIATION

### OVERVIEW[5]

Race, as a description of human biological variation, may not be real. But it is definitely a cultural, social, and historical reality with real consequences.

Most educators and students have little difficulty recognizing that race in the United States is real. And most probably experience race as a **cultural reality** even if they believe it is biologically real. Some educators may have even been introduced to the concept of race as a cultural or social "construct," to the idea that race is socially or culturally "constructed".

But the idea that race is a human invention, a cultural invention, a social creation, is quite complex and can be difficult to communicate. People often resist the idea that race is *only* a cultural construct. How could race be purely cultural when it seems —and is—so real and has such profound historical and contemporary consequences?

The following section offers a sample of lesson plans that address some of the major themes or conceptual points students need to "get" if they are to understand that race is both a cultural invention and profoundly real. They are all appropriate for either middle or high school students. Most are also suitable for adults, including teachers and other educational staff. Some could be adapted to younger students. Additional teaching activities and more detailed conceptual background material can be found in Mukhopadhyay, Henze, and Moses (2007) as well as in other resources found at the end of this Guide.

*Culture is Real*

Lesson plans 1-4 all address the concept of culture. In order to understand the idea that "race is a cultural creation," students must understand the concept of culture and how profoundly culture shapes our experience of reality. Students (and educators) often think they know what *culture* is. They've heard the word and many schools offer "cultural" programs, "cultural" assemblies, "cultural" festivals and other celebrations of "cultural" diversity.

To anthropologists, culture is more than material artifacts, more than special foods or celebrations, more than social organizations, social structure, social roles and social behavior. The term culture includes shared meanings, shared belief systems, shared cultural knowledge, shared ways of perceiving and interpreting the world around us. Culture shapes every aspect of human experience…what we hear, smell, taste, what we see, and what we feel. It guides our social interactions and organizes our social world. Human social organization is largely a cultural invention—but one that is very real.

Race is also a cultural invention—and it, too, is experientially, emotionally, cognitively, perceptually real, deeply internalized in our psyche, in our brains, in our senses.

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[5] This overview, by Mukhopadhyay, draws heavily on the introduction to Part 2: Culture Creates Race, in Mukhopadhyay, Henze and Moses (2007) *How Real Is Race? A Sourcebook on Race, Culture, and Biology.*

Lesson Plan 1, *Culture Shapes How We See the World*, first addresses the power and pervasive presence of culture through the use of a racially and socially neutral example, in this case, greeting behavior. The goal is for students to experience the subtle, deeply internalized, impact of culture on their daily lives before dealing with the more charged issue of race. We want them to experience a minor form of **culture shock** when they realize that they are observing the world through a cultural lens, through a cultural filter that has shaped and indeed, in this example, distorted "reality."

Lesson Plans 2-5 address race as a system of classification. Classification is basic to human thinking, to human language, and to human life. Reality is enormously complex with almost infinite variations. This is true for the world of nature, whether plants, animals, whether colors or sounds, whether minerals, like rocks, or the phenomenon of time.

Humans rely on classification, in part to reduce chaos. Classifying is a method for reducing the complexity of reality, for putting things in a finite number of "boxes" or "categories." These categories help us generalize about the social or physical world, guiding our behavior. Classifying helps us decide which attributes of things are relevant and should be noticed and which can be ignored.

Lesson Plan 2, *Color Terms*, provides students with a natural world example of the arbitrariness of classifications. Color is a physical reality, a continuum with infinite possibilities, as easily seen in a paint store. Culture, however, using language and a limited number of color terms, divides this physical reality into categories of color. Different languages have different numbers of color terms, thus dividing this same reality differently. Different languages also employ different types of criteria for classifying colors (e.g. wetness, brightness, hue).

Lesson Plan 3, *Kinship Terms*, draws on anthropological studies of kinship and family to demonstrate how classification works in the social world of "relatives." Indeed, the classification of humans into "relatives" or "families" (vs. non-family, non-relatives) is itself a cultural division of the social world, although one that is wide-spread, indeed universal.

Kinship is at least partially about biology. But the way the world of relatives is classified varies cross-culturally. We tend to think of the US American way of labeling relatives as "natural" and perhaps even universal. But not all persons labeled "relatives" are biologically related to us (e.g. mother's sister's husband). And where there is a biological link, not all biological distinctions are considered significant nor recognized with separate kinship terms (e.g. mother's brother vs. father's brother are both our "uncle"). Many cultures make more distinctions than we do and encode these distinctions into their kinship terms. For example, the US term "cousin" lumps together many biologically different kinds of relatives and doesn't even recognize gender!

Specific kinship systems, and the ways different cultures classify relatives, however, do not arise purely by chance. Instead, they emerge out of a cultural context, reflecting particular cultural and historical factors, social conditions, features of the context in which they developed. Thus, kinship terminologies emphasize (or ignore) distinctions that have (or do not have) cultural relevance.

Lesson Plan 4, *Classifying in Other Cultures: A Cultural IQ Test*, continues the theme of cross-cultural variations in classifications of the same reality. Most IQ (and many other) tests rely at least partially on classification—does the test taker know what things or concepts are alike and which are different. Yet given what we know about classifications, it is not surprising that many such tests are culturally bound. This activity provides a few illustrations.

These four activities are a useful prelude to discussions about race. Race is also a system of classification, a way of dividing the infinite variability of human beings into smaller groupings. These activities prepare students for the idea that racial classifications and associated racial markers, like skin-color, are cultural inventions rather than natural, universal, inevitable.[6] They also help students to understand how racial categories function like other culturally-shared preconceptions, shaping how we perceive other people. What specific features of human beings we notice, such as skin color or hair texture or nose shape, and how we interpret the features we see, are powerfully influenced by our culture.

Lesson Plan 5, *US Census: Classifying Ourselves and Others,* illustrates another basic theme about race and culture. Race and racial categories shift over time. This is not surprising since they are cultural inventions and respond to changing circumstances and goals. Cultural inventions can be reconfigured or even dismantled. This activity examines US Census racial categories, historically, to illustrate the fluctuations of these categories over time. In addition, the activity introduces the ideas of one's chosen racial and ethnic identity and the assignment of one's racial or ethnic identity by others. The US Census racial and ethnic categories influence how we see ourselves and others.[7]

These activities lay the groundwork for Part 3, **Experiencing Race and Racism**. Race is a culturally and historically specific way of categorizing human beings, created within a cultural context, for certain goals, to accomplish particular ends. It did not arise in a vacuum, by accident, simply out of the human propensity and need to classify. Likewise, some aspects of racism reflect wide-spread, deeply internalized, unconscious, long-standing, and continuously reinforced culturally-shared ways of seeing people and social groups rather than conscious, individual, intentional, discrimination or oppression.

## References

Mukhopadhyay, C., R. Henze and Y. Moses. 2007. *How Real Is Race? A Sourcebook on Race, Culture, and Biology*. Lanham, MD: Rowman & Littlefield Education.

[6] For more detailed educator-oriented background material on these subjects, see Mukhopadhyay, Henze and Moses (2007), Chapters 5, 6, and especially chapter 8, Cross-Cultural Overview of Race. For applications to contemporary school settings, see Part 3: Race and Hot-Button Issues in Schools.

[7] For additional activity ideas and ways to use census material in student projects, see Mukhopadhyay chapters 7 and 8 in Mukhopadhyay, Henze and Moses (2007).

**Lesson Plan 1:**

# *Culture Shapes How We See the World*

By Carol Mukhopadhyay[8]

## Objectives

Students will:

- Be able to describe how cultural knowledge can lead us to misinterpret the behavior we observe.
- Be able to provide examples of what it means to say culture shapes reality.
- Understand how greetings are part of a culture's system of symbols.

## Overview

Anthropologists have long appreciated the role direct experience plays in understanding complex phenomena. This is especially the case when trying to teach about "culture". How does one adequately describe the subtle yet profound ways in which culture shapes individual and collective perceptions, interpretations and emotional responses. How can we adequately demonstrate the "symbolic" nature of culture, the varied "collective meanings" human cultures bestow on the world, the enormity of cultural knowledge an individual acquires in the process of "growing up". And, how can we impress students who believe they carry little cultural baggage, with the degree to which they, too, experience the world through a cultural filter.

This activity illustrates the idea that culture profoundly affects how we experience reality, in this case, what we see and observe. It involves students observing a fairly elaborate [ten minute] greeting "ritual" of the "Albatross" culture which, unknown to students, is a hypothetical culture.[9] In the "live" version, two pre-selected individuals play the roles of the Albatross man and woman. Class members are invited into the Albatross culture to observe and, for some, to participate in the greeting ritual. They are often asked to look for recurring "cultural themes," particularly about gender and gender relations that are reflected in specific aspects of the greeting ritual.

Numerous aspects of the ritual indicate a male-dominated culture. The Albatross female and the female "guests," unlike males, go barefoot, sit on the floor, and aren't given the opportunity to wash their hands before eating the ritual food offerings. Males are served first by the Albatross female while the Albatross male sits on his chair, directing her [speaking, of course, in unintelligible Albatross "tongue"]. He periodically tilts her head towards the ground in what appears to be a "bow". At the

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[8] Adapted from Mukhopadhyay, Culture as Knowledge: Do We See Reality or Reality Filtered through Culture? In Rice, Patricia C.; McCurdy, David W., *Strategies in Teaching Anthropology*. 3rd, ©2004, pp.160-166. Electronically reproduced by permission of Pearson Education, Inc., Upper Saddle River, New Jersey.

[9] This is an adaptation of a simulation called "The Albatross" which was circulating among multicultural education people in the 1970s (Gochenour and Theodore, 1977). Although the basic ritual is similar, the pedagogical context, principles illustrated, and discussion aspects are different. The Appendix was developed solely by Mukhopadhyay to explicitly link the game to themes in stratified society.

end of the ritual, the Albatross couple selects a female guest to join them, she is seated on the floor by the male, and he "bows" her head towards the floor.

After the greeting has been performed, "guests"—i.e. class members—are asked to describe what they have just seen, to identify recurring themes and the portions of the ritual which illustrate these themes. Predictably, students are convinced they are observing a male dominated society and provide descriptions replete with inferences and culturally-specific interpretations of behaviors which support these presumed cultural themes.

Finally, having reached consensus, the instructor suggests that perhaps the entire class is wrong, that the Albatross may attach different meanings to these behaviors. The instructor, or the Albatross couple, then proceeds to explain the meaning of the ritual in the Albatross culture.

Students are invariably shocked at how deeply they have misinterpreted what they have observed. Discussion follows of the various "lessons" about culture to be learned from the activity, including how our deeply internalized cultural knowledge [including from popular media] provides a cultural lens through which we observe "reality."

**Time and Context of Use**

The simulated greeting ritual takes approximately 10 minutes and at least 40 minutes should be allowed for the subsequent discussion. I have used both a "live" and a videotaped version of the Albatross simulation successfully with pre-college teachers and with a variety of students: from anthropology majors and graduate students to undergraduates who have never taken an anthropology course. It works as well with a class of 125 students [especially if you have access to a video projector] as in a small classroom. I have managed to make it relevant to virtually every class I teach, emphasizing different points for different groups [e.g. Language and Culture, Ethnographic Methods, Human Sexuality, Gender and Culture classes].

More Detailed Procedures for the "Live" Simulation

The simulation can be run "live" by having pre-selected volunteers learn the roles of the Albatross female and male and recruiting, on the day of the performance, 6-10 students [equal males and females] to participate as "guests" in the culture. While enormously effective "live", it can be difficult and time-consuming to recruit, train, and suitably garb the actors. In 1990, with the help of the Chico State, California, media center, I videotaped a live version of the simulation, complete with 8 naïve student "participants". After coming to San Jose State, a heavily commuter school, I have found it easier to use the videotaped version. It has proven virtually as effective as the live simulation.

If using live actors, you should plan on 1-3 hours of preparation time. Two "actors" – one male and one female—must be pre-selected and "taught" the different stages in the ritual as well as the underlying themes of the culture. They must create some appropriate clothing and perhaps body decoration, although this need not be elaborate. You must decide on some "food" to serve and some liquid to drink. Some practice will be necessary. Actors can be taught the parts easily by having them

view the Albatross video tape, reading the detailed description below, and then giving them a "cue" card listing each of the stages in the greeting ritual.

**Materials Needed for Live Version**

- Dishes or bowls for: 1) hand washing 2) liquid to drink 3) food to eat. For food, the videotaped version uses crushed olives but they are served from a dish labeled "marinated bumblebees". For liquid, we used cold, diluted coffee—but I told students it was, predictably, marinated bumble bee juice.
- A circle of chairs, enough for the male participant and with the Albatross male chair somewhat apart. There should be enough room between chairs so that each female can sit on the floor next to a male.

**Preparation of Students for the Simulation**

You can preface the simulation by telling students they will be visiting a new and interesting culture. They are to try to observe carefully the elaborate greeting ritual and to also identify the underlying themes of the culture, especially gender themes. If the class is large, and you want to reduce visitors to 8-10 students, the remaining students will simply be "observers" and you should encourage them to take "fieldnotes" on what they see. After the simulation, have "participating" students return to their seats and begin the discussion phase.[10]

**Stages in the Actual Greeting Ritual**

***Stage 1: Seating of Albatross couples and guests.***

- Albatrossian couple enters the room, the Albatrossian sits on the male chair, the Albatross woman kneels on the floor to his right. They "speak" to each other in their language, which consists of hisses, indicating disapproval; hums, indicating approval, and clicking sounds for transmission of other messages.
- Class enters room. "Participant-observers" are selected. Males sit on remaining chairs while females (only) are asked to remove their shoes and are seated on the floor by each male. Faculty person or coordinator helps seat participants.

***Stage 2: Greeting Ritual—6 parts***. After each part, the Albatross woman returns to her seat by the male. They "speak" briefly, there is a short pause, and then the Albatross male carefully and gently tilts her head towards the earth, in a kind of "bow."

- *Gender-specific greetings*. First, the Albatross male gets up and greets each male in turn. In the generic greeting the Albatross male holds each guest by the shoulder or waist and rubs his right leg against the leg of the guest, sometimes turning in a circle. Then the guest reseats

[10] If you are using the videotaped version, there is a written introduction to the tape. I would, however, tell students they will be seeing a couple from the Albatross culture but that the rest of participants are students like themselves, who know nothing about the culture, and have volunteered to participate in the greeting ritual.

himself in his chair. After all males are greeted, the Albatross woman greets each female guest individually. She asks the guest to stand, she then kneels, runs both hands down the lower legs and feet gently, ceremoniously. The participant than returns to a seated position on the floor. Actors interpret and elaborate these generic greetings, often in very creative ways.

- *Washing the Hands*. The Albatross woman circulates a bowl of water to males, beginning with the Albatross male. Each male dips his right hand into the bowl and then shakes off the water. Only males participate. Then the Albatross woman returns to kneel by the Albatross male.
- *Serving the Food*. On a clicking cue from the Albatross male, the female rises, obtains the food, and offers it to each male, beginning with the Albatross male. Then, each female guest is given food. She does not eat herself.
- *Serving the Drinks*. Once again, the Albatross female gets the drinks, and serves them first to the males, beginning with the Albatross male, and then to the females. She does not drink herself.
- *Selection of Ms. Big Feet*. The Albatross couple examines the feet of each female and, unknown to guests, selects the female with the biggest feet. She is led to the male Albatross chair and is told to kneel at his side, like the Albatross woman. He "bows" her head and then that of the female "guest".
- *Gender-specific greetings*. The same initial greeting is repeated, first for males, then for females.

***Stage 3: Albatross couple leaves with Ms. Big Feet.*** The Albatross couple instructs the selected female guest to leave the room with them.

**Discussion of the Ritual**

***Note: This is the most important phase. What follows, however, can be altered and expanded to fit your own learning objectives and class.***

Have students first describe the ritual, allowing them to give their interpretations of what they observed—both general cultural themes and specific parts of the ritual. You may prefer students to write their description, either as an exercise or to help them organize their ideas. You may ask them to share their impressions with their "neighbor". You may also immediately elicit descriptions from the class as a whole.

Generally, there is overwhelming consensus that this is a male-dominated culture and women are subservient. Students easily, in creative ways, supply specific examples of behaviors from the ritual in support of their interpretation. Should someone suggest an alternative interpretation, ask other class members if they agree with these new opinions. Generally, they will discard any but their own, culturally biased interpretation. Allow them to feel confident with their interpretation.

Having obtained consensus on the meaning of the Albatrossian greeting ritual, especially for gender relations, either you or your actors next proceed to explain the real meaning of the Albatross rituals. I begin by stating that Albatross culture is not male-dominated but is a culture in which women have superior power and prestige to men. The reason is that Albatross view women as similar to the Earth because, like the Earth, they are essential to the survival and continuance of Albatross culture. Like

the Earth, they reproduce...from their bodies come human beings just like food comes from the earth. Hence, they are "close" to the Earth and like the Earth, are "pure" and "sacred". Only they [and not males] are pure enough to sit or walk directly on the ground or to take food without first purifying themselves. Their superior status, because of their closeness to the Earth, is reflected in the women's greeting ritual, in their cultural standards of beauty [large feet, more contact with the ground], and in the symbolic "bowing" of their heads by males, in recognition of their closeness to the earth. I then ask students to reinterpret, in light of this understanding of Albatross beliefs, the specific behaviors they observed in the ritual.

As noted earlier, students are generally shocked, sometimes deeply concerned, that they have so misinterpreted what they thought they were seeing. In short, a form of "culture shock" often occurs. This provides an opportunity to discuss, in an experientially real way, the complex concept of culture and how it affects our perceptions of reality.[11] By the time I do this simulation, I have introduced the basic concept of culture [and related terms, like ethnocentrism] which students have dutifully recorded in their notes. After the activity, I reintroduce these terms…they have acquired more salience. Among the many lessons to be "learned", I usually emphasize the following:

- Misinterpretation occurred because students ignored the fact that the "mental products" of culture can differ—i.e. that cultures can bestow different meanings on the same behaviors. Students simply went ahead and applied their own cultural meanings to a new cultural context.
- Misinterpretation also occurred because students were too quick to "interpret" and make inferences about Albatross culture. They did not wait until they had a chance to ask the Albatross themselves…to obtain the ALBATROSSIAN view or perspective.
- Students AGREED or reached consensus on the meaning of Albatross behavior, yet they were still wrong. Hence, consensus among observers—especially from the same culture—does not guarantee accuracy. Consensus simply indicates that observers share the same cultural knowledge (and biases) which they use to interpret behavior.
- It is important to understand that we cannot always rely on our own cultural knowledge to interpret the behavior of others, especially from other cultures or microcultures. It is essential to obtain the native perspective or interpretation. In short, ask the natives what it means!
- It is therefore important to avoid premature interpretations of behavior, especially when dealing with an unfamiliar culture, and when you do not understand or have access to the cultural knowledge/belief systems of that culture.
- In short, it is essential to seek the native perspective on their culture. In short, ask the natives what their rituals mean!
- Close observation of behavior <u>can</u> help one to function in an unfamiliar situation or culture, particularly if one concentrates on IMITATING rather than INTERPRETATING the behavior.

[11] Other possible discussion topics are the experience of cultural immersion—self-reflection about feelings, including "culture shock" and ethnocentrism, strategies for initial contact, for observing in order to participate, etc. Another topic is cultural and social conformity, the power of the group to "define reality" to ignore, even squelch, non-mainstream perspectives, even when accurate.

## Evaluating Student Learning and other Follow-Up Activities

At the conclusion of the discussion, tell students that the Albatross culture does not exist and that the two Albatross representatives were student actors. But emphasize that the ethnographic record shows there are beliefs that resemble those in the Albatross culture. Even if this was not the case, culture allows humans to create such meanings for such behaviors. More important, their experience was not artificial; they did not observe "reality" directly; rather, they experienced reality through a cultural lens.

This activity is an excellent foundation for writing assignments. In my large general education human sexuality classes, I assign the following topic to assess students understanding about the concept of culture: "What are the lessons [about culture] to be learned from the Albatross activity". In gender and culture classes, I ask students to use the activity to illustrate the complexities of assessing the status of women cross-culturally. In a language and culture class, I ask students to analyze their original written description of the activity, looking for language that contains unwarranted, culturally-infused inferences (e.g. phrases such as "the women **had** to sit on the floor," "the men got to eat first," or "she bowed to him"). I have also been able to incorporate questions about the Albatross activity into "objective" multiple choice exams.

## Supplementary Materials

Videotape of Albatross simulation made at California State University, Chico. For a copy of the CD version of the simulation, contact Mukhopadhyay at the Department of Anthropology, San Jose State University, San Jose, CA 95192-0113.

## References

Gochenour, T. 1977. The Albatross. In D. Batchelder and E.G. Warner, ed., *Beyond Experience: The Experiential Approach to Cross-Cultural Education*. Brattleboro VT: The Experiment Press.

Mukhopadhyay, C. 2004. Culture as Knowledge: Do We See Reality or Reality Filtered through Culture? In P. Rice, & D. McCurdy, ed., *Strategies in Teaching Anthropology*. *Third Edition*, pp.160-166. New Jersey: Pearson/Prentice Hall.

 

**Lesson Plan 2:**

# *Color Terms*

Developed by Carol Mukhopadhyay[12]

## Objectives

Students will be able to provide examples of the arbitrariness of color classifications.

## Time

Can range from 20 minutes to over an hour depending on how it is used and the cultural and linguistic backgrounds of students.

## Materials

Numbered paint chips in a wide continuum of colors representing basic color categories: brown, blue, green, red, yellow, etc. (at least 4 or 5 sets).

## Procedure

*Step 1.* List basic color terms on board.

*Step 2.* Students divide paint chips into basic color categories (whole class, led by teacher; or small groups)

*Step 3.* Chart paint chip numbers, listing under basic color terms. Students are most likely to disagree on boundaries of color terms. Students from different cultural or linguistic backgrounds, nationalities, or genders may group same colors differently.

*Step 4.* Discuss results and significance. Point out reality is a continuum but language arbitrarily divides reality into distinct categories. This reinforces the concept of "continuous distribution" in chapter 1.

*Step 5.* Find someone fluent in a non-European language and have them list their basic color terms. They may have a different number. Or there may be the same number but the boundaries between colors may differ (i.e. a chip called "blue" in English may be labeled "green" in Spanish). Repeat the same process above but with your non-European language speaker.

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[12] Material from *How Real Is Race? A Sourcebook on Race, Culture, and Biology*, (2007), p. 116, by Carol Mukhopadhyay, Rosemary Henze and Yolanda T. Moses, published by Rowman & Littlefield Publishing Group Books, appears by permission of the author and publisher. **This material is protected by copyright. All rights reserved. Please contact the publisher for permission to copy, distribute or reprint.**

**Lesson Plan 3:**

# *Classifying Relatives*

Developed by Carol Mukhopadhyay[13]

## Objectives

Students will understand that labels for relatives, like for color, are somewhat arbitrary divisions of reality.

## Time

Can range from 15 minutes to well over an hour depending on the purposes for which it is used, whether non-US English kinship terminology is addressed. It could also be used for a longer term project involving student research.

## Overview

Students explore *kinship terms* or labels for relatives in English and in another language and culture. Kinship terms are labels used to *refer to* relatives, such as "uncle" or "sister". We may use different terms when *addressing* relatives. For example, we talk about someone being our "sister". But if we see her, we generally address her by her name (Hi, Shana!). We are not concerned here with how relatives are addressed. Students should focus on the labels used when we formally *refer* to relatives, such as the label "sister" or "cousin".

## Procedure

*Step 1*. Describe concept of kinship terms—ways of classifying and categorizing relatives (see conceptual background material).

*Step 2*. Show students how to construct a "kinship chart", a chart that uses symbols to represent different types of relatives. See Palomar Website below or any standard cultural anthropology text.

*Step 3*. Students construct kinship chart of their family (including beyond their household).

*Step 4*. Students identify US American English *kin terms* for each relative on their chart (in small groups or individually).

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[13] Material from *How Real Is Race? A Sourcebook on Race, Culture, and Biology*, (2007), pp. 114-115, by Carol Mukhopadhyay, Rosemary Henze and Yolanda Moses, published by Rowman & Littlefield Publishing Group Books, appears by permission of the author and publisher. **This material is protected by copyright. All rights reserved. Please contact the publisher for permission to copy, distribute or reprint.**

*Step 5*. Discuss which kinship-biological distinctions are ignored and which recognized. Discuss possible reasons, including roles of various relatives, living arrangements, economic sharing. Note new categories of relatives in contemporary society, such as "my half-sister," "my mother's husband," or "my father's partner".

*Step 6*. Compare American English *kin terms* to those from another language, using either bilingual students in class, or other multilingual people that students can interview

*Step 7*. Summarize key point. Cultures, through language, classify the same biological reality in different ways, reflecting cultural and historical context.

For further information, including sample kinship charts, consult the excellent Palomar College Cultural Anthropology tutorials, especially the two on Kinship Terminology at: http://anthro.palomar.edu/kinship/kinship_5.htm

**Lesson Plan 4:**

# *Classifying in Other Cultures: A Cultural IQ Test!*

Developed by Carol Mukhopadhyay[14]

## Objectives

Students will be able to recognize and cite examples of how things can 'go together" in many different ways and how different cultures can select different criteria for classifying the same things. Students will recognize that most IQ tests are at least partially based on cultural knowledge that is learned and that is culturally-specific.

## Time

5-10 minutes

## Procedure

Explain that most IQ tests rely on culturally shared notions of what things "go together". They partially test students' knowledge of cultural classification systems. Illustrate these points by giving students a hypothetical "test" of their aptitude and intelligence. Some examples are ethnographic or ethnographically-rooted; others are hypothetical. In each case, students select the *most different* of the set of items.

*Set 1. Auto, turtle, basket, bird*
Students generally select auto or basket using the culturally familiar categorizing device of machines vs. non-machines or and movement vs. non-movement. At least some non-western cultural groups, however, would see birds as most different because their culture emphasizes shape and birds are relatively angular rather than rounded in shape. Our culture tends to emphasize use or functionality. Thus correctness would be culture-dependent.

*Set 2. Laundry, beer, clothing*
Students generally, with great assurance, select beer as most different. Functionality places clothing and washing machines together. Yet, at least one culture views clothing as different because laundry and beer are both "foamy". Visual appearance is most salient. US slang for beer ("suds") also recognizes the attribute of foaminess.

*Set 3. A chair, a spear, a couch*

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[14] Material from *How Real Is Race? A Sourcebook on Race, Culture, and Biology*, (2007), pp. 116-117, by Carol Mukhopadhyay, Rosemary Henze and Yolanda Moses, published by Rowman & Littlefield Publishing Group Books, appears by permission of the author and publisher. **This material is protected by copyright. All rights reserved. Please contact the publisher for permission to copy, distribute or reprint.**

Students again select the "wrong" answer—at least from the perspective of traditional West African cultures. US Americans tend to emphasize use, thus placing couch and chair together as types of sitting devices (i.e. "furniture"). Ashanti apparently would see the "couch" as the most different because both a chair and a spear can symbolize authority.

*Set 4. A pig, a goat, a snake OR a cow, a pig, a chicken OR a horse, a cow, a pig*

This hypothetical example can stimulate discussion of alternative classifying devices. One can use "edible" vs. "inedible" animals—i.e. which are "food" and which are not, although it depends on which culture. Some Hindus (but perhaps not in Nepal) would find a goat edible but not a pig. US Christian might view cows-pigs different than a horse.

**Discussion**

Students explore other alternative responses and what they might reflect.

**Lesson Plan 5:**

# *Census Activity*

Developed by Mary Margaret Overbey and Stephanie Downey

## Introduction

The US Census is one of many places that Americans face race in their everyday life. In filling out the Census form, US citizens must select an identifier of their race and/or ethnicity. The US Census illustrates how the idea of race in the United States has changed over time. The question of race has been included on the US Census since the first census was taken, in 1790. Yet, the number of terms and terms used to describe race have changed quite dramatically from 1790-2000.

Prior to 1970, a census taker recorded the race of US citizens and one's race was usually assigned by the census taker. After 1970, the US Census was filled out by citizens, allowing them to choose their own race. In 1970, too, a question on ethnicity was included in the Census – "is the person Spanish/Hispanic/Latino?" Beginning with the 2000 Census, citizens are allowed now to check one or more race identifiers.

## Objectives

Students will understand how the concept of race has changed over time in the US. Students will understand that, in the US, we learn to easily categorize others even when the "person" we are categorizing is a computer simulation, not a real person.

## Materials

Three US Census forms, from 1870, 1950 and 2000 are provided. A computer simulated image of a "person" published on the cover of TIME Magazine in 1993 is available on the TIME website, http://www.time.com/time/covers/0,16641,19931118,00.html. A series of questions are included to engage students in a discussion of the activity outcomes.

## Procedure

*Step 1.* Teacher prints two copies of the TIME cover and cuts out the image of the "person" from one copy.

*Step 2.* Students are presented with census forms from three different years: 1870, 1950 and 2000. Students are asked to identify themselves on each of the forms.

*Step 3.* Students are presented with the cut-out version of the "person." Teacher does not tell students that the image is a computer simulated image. Students are asked to identify the "person" on each of the forms.

*Step 4*. Teacher with students' responses tallies the outcome of the census exercise for students' identities in 1870, 1950 and 2000.

*Step. 5*. Teacher with students' responses tallies the outcome of the census exercise for the identity of the computer simulated "person" in 1870, 1950 and 2000.

*Step 6*. Teacher discusses the outcomes of the census tallies with the students, comparing the results of the tallies of self-identity with those assigned to the computer simulated "person".

*Step 7*. Teacher initiates a discussion with the students and asks the following questions.

- Which category would you haven chosen for yourself in each of these three years? Why?
- Before 1960, the census taker was actually responsible for categorizing people. We did that here in categorizing this photo of the young woman (show computer simulated image). How did you make your decision on where to put this person?
- What sort of thoughts or feelings did you have as you made those selections? What questions came up?

*Step 8*. Teacher reveals that the photo of the young woman is a computer simulated image and shows the original TIME cover. Teacher asks the following questions.

- Why was it so easy to categorize the young woman?
- How and why do people categorize others just by looking at them?

*Step 9*. Teacher and students discuss the history and future of race in the US Census and consider the following questions.

- How would you explain the differences in the US Census forms over the course of 130 years? What do you think is responsible for the differences?
- Based on what you've seen and said, what is the significance of these forms for the concept of race? For the concept of human variation (range in human physical characteristics)?
- If you could design these census categories what would they be? Why?
- What do you think these categories might be in the year 3000? Why?

**ATTACHMENT**

**Census Forms**

**1870 Census**
--Color
White
Black
Mulatto
Chinese
Indian

**1950 Census**
--Race
White
Negro
American Indian
Japanese
Chinese
Filipino
Other race

**2000 Census**

--Is person Spanish/Hispanic/Latino?

--What is the Person's race? Mark one or more races
White
Black, African Am, or Negro
American Indian or Alaska Native (print name of enrolled tribe)
Asian Indian
Chinese
Filipino
Japanese
Korean
Vietnamese
Native Hawaiian
Guamanian or Chamorro
Samoan
Other Pacific Island (print race)
Other Asian (print race)
Some other race (print race)

**References**

These as well as all US Census forms are available at
http://www.ancestry.com/trees/charts/census.aspx

TIME Cover - "The New Face of America" (1993)
http://www.time.com/time/covers/0,16641,19931118,00.html

## EXPERIENCING RACE AND RACISM

### OVERVIEW[15]

A long-standing belief held by many in the US is that race, racial discrimination, and a system of stratification based on race is a universal, human phenomenon. Some would like to believe that it is "built into our genes" as humans. The anthropological evidence shows this is just one more long-standing and convenient myth.

Race is not simply a cultural or psychological phenomenon, although the capacity to create such classifications clearly exists. There are numerous ways to classify humans, numerous characteristics, physical and non-physical, which can differentiate groups. And noticing differences does not necessarily lead to those differences becoming the basis for structured social inequality.

The US system of social classification and hierarchy based on race, the elaborate racial ideology, the centuries of racism justified by that ideology---these did not emerge by chance or due to the human potential to recognize difference. The US system of racial classification developed in the context of what anthropologists call ***social stratification,*** that is, a system of structured social, political, and economic inequality.[16]

Race emerged as a complex cultural and social invention to preserve, maintain, and legitimize a system of inequality based on ancestry, on so-called racial ancestry. The US American system of stratification utilized a few, superficial, but visible, biological markers of ancestry to create an ideology of race, a racial "worldview" (Smedley, 1993) based on distinct, permanent, ranked categories of humans, created by God or nature. Racial categorization assigned individuals, at birth, to permanent, different, and unequal social strata and used racial status to regulate access to opportunities. In a society already inegalitarian, race became the dominant *legitimizing* social ideology.

The rhetoric of race and race-based capacities and characteristics was used to both justify and mask a class-based stratified society. Race in the United States was a central basis for organizing labor and maintaining an economically stratified system, first in the agricultural and then in the industrial sectors. Racializing the labor force masked the pervasive class stratification and structural inequality that has always characterized American life.

Racial ancestry, bolstered by racial science (and religion), became the rationale for other forms of stratification and inequality. A race-based system of social classification became a way of maintaining the social, cultural and political dominance of "White" (Euro-American, Protestant) upper strata elites, while simultaneously recruiting new immigrant populations to fulfill labor demands.

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[15] This overview draws heavily on Mukhopadhyay's introductions to Part 2, from Mukhopadhyay, Henze and Moses (2007) *How Real is Race? A Sourcebook on Race, Culture, and Biology*.

[16] The analysis that follows is described in detail in Chapter 7, from Mukhopadhyay, Henze and Moses (2007) *How Real is Race? A Sourcebook on Race, Culture, and Biology*.

But the initial use of race to justify economic exploitation created ideological contradictions with U.S. political rhetoric. The ideology of race was harnessed to reconcile these contradictions, to explain how social inequality can be consistent with a meritocracy, with democracy, freedom, with a society based on individual worth, hard work, and achievement.

The use of race to mask other, economic and political structural roots of inequality, continues today. Most students, indeed most US Americans, continue to believe in a meritocracy, that merit—rather than class or family advantages, often linked to race—determine one's social and economic position.

Lesson Plan 1, *Experiencing Inequality: Starpower*, is designed to introduce students, through a complex simulation called Starpower, to the phenomenon of stratification, as it plays out in a society that emphasizes meritocracy, fairness, has some mobility, and in which societal rules ("laws") are ostensibly applied equally. While not developed explicitly to simulate race-based stratification, it can be adapted to for those purposes. Alternatively, it can simply provide an experiential basis upon which to embark on a more meaningful discussion of race and stratification in U.S. society

Lesson Plan 2, *The Whiteness Quiz*, explores the shifting nature of concepts of Whiteness and of stereotypes of lower status ethnic groups in the United States. It demonstrates that negative stereotyping, in fact some of the very same stereotypes, have been applied to different groups at different historical points in time. It also shows how the images of these groups shifted as they "moved" up the stratification ladder and other groups occupied lower economic rungs. "Whiteness" then, and the ability of groups, especially European ethnic groups, to "Whiten" themselves, is partially linked to their socioeconomic status.

Lesson Plan 3, *The Preference Activity*, introduces the idea that marriage and sexual mating systems can be used to either promote—or prevent—a system of race-based stratification. It also addresses the question of biology and how, if race is a cultural invention, can we identify people racially?

Lesson Plan 4, *Race and Medicine*, challenges students to think critically about how ideas of race influence health and medical practices. Late in 2004, the US Food and Drug Administration approved the heart failure medication BiDil for use among "self-identified blacks." Students examine critically the implications of this event and the larger issue of how ideas about race influence health patterns and practices.

Just because races are not biologically real, that is scientifically meaningful descriptions of human variation, it does not mean that that there is no biological component of U.S. racial categories. There are some biological "markers", such as skin color, hair texture, facial features, that can, in some contexts, serve to "mark" a person, racially. They often, as in the United States, reflect diverse ancestral geographic roots of different populations. Of course, even these biological markers are embedded in and shaped by our cultural expectations.

Nevertheless, it is important to ask, how did these external markers of racial ancestry persist over time in the United States? Lesson Plan 4, in Part 1, Biology, The Glitter Activity, illustrates the preference strategy employed in most of human history. To prefer and marry "out," that is, outside your own

group, spreads your genes far and wide and, among other things, establishes many social networks in the process. More "in-laws", a broader network of "relatives", in many places, apparently has been a wise strategy, pursued by most relatively egalitarian societies.

All cultures regulate marriage and mating to some degree. But stratified societies tend to have stricter regulation, partially to preserve social inequality. Marriage "within" one's own class, caste, kinship group, among other "royalty", or within families at your own "level" is encouraged, if not enforced more formally, and marrying "outside" often prohibited. Marrying "within" preserves family status while marrying "out" could erase the boundaries between ranks.

In the United States, the same principles applied, historically and continue to some extent today. A system of racial endogamy (marrying within one's own racial group) was established, especially for legal marriage and legal rights of offspring. This was maintained through both legal and extra-legal mechanisms, including violence and threats of violence. In the post-slavery era, it took more insidious and often less obvious forms, such as segregated housing, schools, and other public facilities. Even after the US Supreme Court in 1967 declared anti-miscegenation laws, which forbid interracial sexual relations or marriage, to be unconstitutional, more informal processes have continued to have a powerful influence on mating "choices".

Social control of preferences, marriage, and kinship affiliation has been crucial to maintaining a system of stratification based on race. "From kinship and blood calculations to anti-miscegenation laws, segregated schools, and housing discrimination, all are cultural devices that maintain racial boundaries, keep races fixed and permanent, prevent new races from emerging, and old ones from disappearing."

In short, it is through cultural processes, not "nature", that the US has preserved biological markers of a system of racial stratification. It is cultural processes that are responsible for biology's meaning and continuing cultural and social significance in the United States.

## References

Mukhopadhyay, C., R. Henze and Y. Moses. 2007. *How Real Is Race? A Sourcebook on Race, Culture, and Biology*. Lanham, MD: Rowman & Littlefield Education.

Smedley, A. 1993. *Race in North America: Origins and Evolution of a Worldview*. Boulder: CO: Westview Press.

 

**Lesson Plan 1:**

# *Experiencing Inequality*[17]

**('Starpower' Activity)**

Adapted by Carol Mukhopadhyay.
From Starpower. Behavioral Sciences Institute. 1969. By R. Garry Shirts.

## Objectives

Students will

- Understand the concept of stratification on multiple levels
- Understand the concept of a meritocracy as a legitimizing ideology in a class-stratified society
- Experience some of the emotional and strategic responses of lower-status, middle-class, and upper-status individuals in a stratified society
- Understand the role economic and political structure plays in individual achievement.

## Introduction

First developed in the 1960s (Shirts 1969), Starpower creates a limited-mobility, three-tiered society based on differential wealth. Participants engage in "chip trading sessions" to increase their individual wealth and societal status. Variations in wealth are ostensibly based on "merit" [success at trading chips] but most members of each "strata" [squares, triangles, circles] unknowingly receive different resources [trading chips] at the beginning of the game and at each subsequent "trading session". Thus most participants remain in their original group. To preserve the mobility premise, an occasional lower status person receives enough trading chips to allow them to change groups. After several trading rounds, the wealthy group [squares] "earns" the right to make rules for the rest of the game. Trading continues under the new rules. Shirts' version assumes power inevitably corrupts and that the "wealthy group" will make unfair rules that generate frustration and even revolt by other groups. My experience shows students respond in a variety of ways, sometimes opting to create an egalitarian society through rules that redistribute "wealth". Perhaps their enrollment in a cultural anthropology class makes a difference! In any case, at some point the instructor ends the game and then facilitates a discussion of the experience.

Students' emotional responses and behavior are generally linked to their social position in the simulated society. The "triangles" [lower class] become despondent, angry, self-blaming, self-critical, resentful, often giving up on playing the game…or sometimes simply cheat. Other groups also react in ways characteristic of the middle and upper classes. The game illustrates the complex processes of economic, social, and political stratification, linkages between wealth and political power, the ways in

[17] A very brief description of this activity, as an Activity Idea, appears in Chapter 7, Mukhopadhyay, Henze and Moses (2007) *How Real is Race? A Sourcebook on Race, Culture, and Biology*, Lanham, Maryland: Rowman & Littlefield Education.

which stratification is maintained and justified, and how stratification is experienced on a personal level, by members of different "strata" and by different individuals within the same strata. Starpower is effective because it allows students to understand how stratified systems "work" structurally and to experience how they "feel".

Starpower is particularly useful for demonstrating the subtleties of "meritocratic" political democracies, like the United States, in which the rules seem "fair." Yet the unequal distribution of wealth assures that most "squares" will end up "squares" and most "triangles" will remain "triangles" regardless of their individual merit and a set of equally applied rules for achieving "success" in society.

Starpower can also illustrate how race, ethnicity or other visible markers of social identity function in stratified societies. Participants in each group sit separately and wear a visual symbol of their group membership as squares, triangles, or circles. This offers an opportunity to discuss the role of visual markers in stratified societies, as both internal and external symbols of one's identity that facilitate differential treatment. Such visual markers can become potent symbols of group membership, substituting for and masking the class basis of the hierarchical system.

**Time and Player, Room and Material Requirements:**

This is a complex game to set up and carry out—but well worth the effort. It's useful for any class that addresses stratification and systems of inequality. It can be tailored to particular types of inequality, such as race or gender. The game requires at least two hours—about 45min-1 hour for the "trading sessions" and at least that for the discussion and analysis. It can be used effectively in either one long class or in 2 separate class sessions in the same week. The game works best with from 25-35 participants although it can handle 18-45 students. If one reduces the "strata" to two groups, one can play with as few as 12 students.

Since each group must meet and confer between trading sessions, it is best to have a room with movable chairs unless there is sufficient empty floor space for the group to stand together or sit on the floor. During trading sessions, students move around the room seeking a trading partner and stand while they are making a trade.

**More Detailed Description and Procedures**

The description that follows is my "bare-boned" version. Over the years, I have modified the original game, changing chip values, sometimes altering trading rules to allow more or less mobility, sometimes going with the "flow" of the particular class, sometimes manipulating the class in a certain direction. Regardless, participants' reaction cannot always be predicted, especially after the "squares" are given the power to make rules. So there is no "template" for this game. Each session is excitingly different!

**Materials Needed**

- Trading chips [or pieces of paper] of different colors representing 5 different point values (10, 5,

4, 2, 1). Gold, green, blue, pink, and white are often used for these values.

- Bonus Trading Chips: worth 5 points each. At the end of each trading round, each group receives 3 of these chips to distribute to 1-3 members of their group. The group unanimously decides who receives the chip. If they can't decide, they forfeit the chips.
- Envelopes containing the 5 chips each participant receives at the beginning of each trading session. I make enough envelopes for at least 3 rounds. Contents of envelopes depend on one's social "group. I discreetly mark envelopes but also keep each group's envelopes in a separate pile.
  - Square envelopes: 1 gold, 1 green, 3 other chips
  - Circle envelopes: 0 gold, 1 green, 4 other chips
  - Triangle envelopes: 0 gold, 0 green, 5 chips of other colors
- Several "mobility" envelopes. These contain at least 1 gold and 1 green chip. At least 1 triangle receives one each round. In early rounds, this allows them to move "up" to a square. Occasionally, I give a "square" a low value envelope. The impact varies depending on how far it is into the game. After several rounds, it has no mobility impact!
- Symbols (squares, circles, triangles) for members of each group to wear (around their neck, pinned to their shirts, etc.)
- A badge for the police officer (optional). In addition to these materials, you can either create posters for game rules or simply write them on the board.
- Scoring Chart listing values for each chip color and showing the number of additional points participants receive for having several chips of the same color: 5 of a kind =5 points, 4 of a kind=4 points, 3 of a kind =3 points.
- List of Trading Rules:
  - You must touch while you are trading.
  - You can only talk while trading. (note: this exclude talking to the director or police)
  - Once you initiate a trade, you must trade before going on to another trader
  - Players with arms folded do NOT have to trade.
  - All chips must be hidden at all times (except when exchanging chips)
  - One for one trades only
  - All rules will be enforced and penalties (deducing points) levied.
- List of Bonus Session Rules:
  - Each group receives 3 chips and each chip is worth 10 points
  - Chips can be given to 1, 2, or 3 group members
  - Chips must be distributed by unanimous vote
  - Undistributed chips (after 4 minutes) are forfeited.
- Scoring Card for Each Group or Create 3 Separate Sections on the Board for Each Group.

**Procedures and Basic Stages in the Game.**

1. **Divide students into three groups**. Have them sit in pre-arranged chairs, and distribute symbols for them to put on [squares, triangles, circles]. I sometimes say they are distinct racial, ethnic, religious, or geographical communities.

2. **Introduce Purpose of Activity.** Tell students it is designed to illustrate how "exchange" works in small-scale societies. They will engage in several trading sessions. Each session they will receive a packet of 5 chips of different values, randomly selected. Their goal is to devise a clever trading strategy that will allow them to amass as many points as possible. They will accumulate points from each session. After several trading rounds, we will total the scores. Those with the highest number of points will "win" the game. You may want to tell them to draw upon their knowledge from the course. I sometimes attach a point value to the activity, saying it is a "test" of previous course material. I say "grades" on the activity will be based on individual point totals at the end of the game. This makes it more "serious"—but can also create too much tension among students.

3. **Explain Trading Sessions and Trading Rules (see above).**

4. **Begin Trading Session.** Distribute envelopes to each group (reminding them to hide their chips). Give them a few minutes to create a strategy. Then tell them they can now stand up and move around the room, looking for a trading partner. After about ten minutes, tell them the trading session is now closed and they should return to their seats.

5. **Calculate and Record Scores on Board or Chart.** Students individually calculate their scores and write their score in the appropriate space for their group (using their initials). Alternatively, appoint a recorder in the group to collect and write scores on the board.

6. **Distribute 3 bonus chips to each group**. Groups decide who will receive (3-5 minutes). Add the points to the scores of these people. If they can't make a decision, take back the chips.

7. **Rearrange Groups.** With the whole group watching, tell them group membership will now be based on "scores" and the top scorers will be squares, the bottom scorers are the triangles, and the remainder circles. This is an opportunity to reiterate the meritocracy rhetoric. You will have to decide the cut-off scores. Shift individuals between groups as appropriate, physically and in the group membership list on the tally board. Have switchers trade old symbols for new, appropriate ones.

8. **Begin Trading Session 2.** Use same procedures as above, including a few "mobility" envelopes. At the end of the trading session, add round 2 scores to round 1 scores for each students. Rearrange groups again—although there will be less movement. Unless time is limited, do a third trading session before proceeding to the next stage.

9. **Give Power to Squares.** At the end of trading session 2 or 3, use meritocracy rhetoric to justify giving rule-making powers to the squares. I often state their scores to show they've mastered the course material on trading and exchange and they therefore deserve to make the rules for the rest of the game. This is where you begin playing it by ear!!!

10. **Squares Make New Rules.** Have squares discuss what rules they want to make. Members of other groups can sit in on the process and you can allow them to make comments. However, the

squares alone get to make the decisions. The content of these discussions is always significant and relevant for the post-game processing. I sometimes jot down snippets for future reference. This is the most fascinating, volatile, and unpredictable part of the game…and one that you should monitor to make sure it doesn't get out of hand. If you are playing the game in two sessions, you may want to wait until the second session to have the squares change the rules to minimize the out-of-class tension students sometime experience.

11. **New trading sessions, using the new rules**. Squares now are in charge of the police officer. The police officer need not administer the rules fairly. Nor are points always added up "accurately" by the scorekeeper, who may be the police office, the instructor, or someone from the squares.

12. **Play it By Ear…**always monitor the students and the situation so that it remains a positive learning experience. What happens next, especially the response of triangles and circles, depends on what kinds of rules the squares make as well as the class itself. Most often, squares initially try to preserve power, some more paternalistically than others. Some honestly think they "deserve' to be squares…others are suspicious. Non-squares usually try to influence the squares. If the new rules are harsh, tensions increase and both squares and lower groups respond in a variety of predictable ways. If rules remain "fair", it takes more rounds for tension to build---and apathy can occur. Some students never realize the game is "stacked"! Sometimes squares with a commitment to social justice dominate and try to figure out how to redistribute chips (a fascinating process). It is impossible to describe the range and complexity of what occurs and the extent to which students replicate what we as social scientists know about human behavior and responses in situations of stratification. You'll have to experience it yourself!

13. **Stop the Game. Begin the Discussion**. At whatever point you stop the game, it is important to allow students to process how they are feeling before beginning the more abstract discussion. You may want to have students write down their reactions and reflections, immediately or after class. Regardless, it is important to move beyond this. One way is by asking students to describe the strategies they employed in the game, then placing these different strategies into the larger context of stratification and how one's class position affects one's strategies. I usually let the discussion take its own course but always try to make links between their experiences and the more abstract ideas and processes involved.

14. **Summarize What Has Been Learned.** At the end of the discussion, or the next time the class meets, I provide students with a more formal handout summarizing some key features of stratified societies (See appendix). I try to connect them, once again, with the Starpower simulation. The amount of time I spend discussing this handout varies with the class and the semester.

## References

Shirts, R. G. 1969. Starpower. La Jolla, CA: Behavioral Sciences Institute.

 

## STUDENT HANDOUT: STARPOWER: Key Points of the Game

By Carol Mukhopadhyay

**1. Illustrates general features of stratified societies**

1.1 Unequal distribution of and access to key resources and labor

If groups being with different resources, it is almost impossible for them to compete equally even if the rules are fair and equally applied

- Unequal resources produce inequalities in potential for authority/power, in the strategies one uses, in one's attitudes about the "system", in one's attitudes towards members of one's group, and in one's attitudes towards other groups.

1.2. Status Differentiation. From inferior to superior marked by distinct "cultural" symbols or markers of one's status

- Rights, duties, opportunities, and interactions are dependent on one's status
- Ascribed vs. Achieved Status. Is one's position "ascribed" (based on birth, what one is 'born into")? Or is it "achieved" (based on one's own actions rather than one's birth). Does it differ at the beginning of the game? Later on in the game?

1.3. Formal Political Organization

- Illustrates the emergence of the "state": the squares supported by the "police" or "military"
- Unequal access to and participation in decision-making by lower status groups

1.4. Ideology: variety of belief systems exist which justify (legitimize) stratification.

- Meritocracy: focuses on achievement and hence implies it is a "just" system. One gets rewarded in accordance with one's capacities and hard work (e.g. Horatio Alger)
- Some Mobility—those who "move up" demonstrate the system is "fair", based on "merit"
- Political Democracy emphasized—"equal rights" for all. Equal Opportunity laws.
- Luck. An alternative ideology: It's just a matter of luck [hiding that the system is "set up"]. Words like "unfortunate" imply it's "fortune" rather than the system
- Blame the Victim—it's your fault. Get victims to also blame themselves.
- Secrecy and ignorance. "Hide chips from each other"…Cultivate individualism.

**2. Illustrates People's Reactions and Strategies Reflect Their Class Status and Position.**

2.1. Lower Class Strategies:

- Individualistic: break the rules, apathy, resentment, cheating, anger, depression, withdrawal, develop alternative things to do in class
- Collective: protest, non-cooperation; strike, social ostracism of upper groups

2.2. Middle Class Strategy: inaction, don't take sides, try to preserve one's chips

2.3. Strategy of Upper Class. Alternative strategies depending on values and goals. All emphasize group unity, however.

- Preserve power through paternalism, authoritarian rules, emphasizing "law and order", manipulate and alter rules when threatened. Each strategy produces different reactions in other groups. Uphold & reiterate legitimizing ideologies: emphasize "fairness" and "merit" and "equal opportunity" rules. Deny system is unjust.
- Prioritize social harmony—create a more just system and give up (some, all) power and privilege
- Prioritize justice [experience guilt]—create a more equal and just system and give up (some, most, all) power and privilege

2.4. Police Strategy: uphold rules but especially for lower status groups; bend rules for upper classes; identify with authority; maintain distance from lower status groups.

2.5. Attitudes towards the "game" or "system": who enjoys the "game"? Who would like it to continue? Who feels alienated? Who wants it to end—quickly!! How about those who "moved up"? Did that alter their view of the game? How did they feel about those "left behind"? What expectations did those "left behind" have about those who "moved up"? Were they disappointed? Did they feel betrayed? How did oldtimers feel about "newcomers"? What does this illustrate?

2.6. Alternative Group Strategies for Bonus Chips: share, give to low, give to high; long-term vs. short-term strategies.

**3. How Systems of Inequality are Maintained. Use of informal and formal mechanisms of social control.**

3.1. Paternalism is more effective than authoritarian regimes. Squares don't want to alienate lower groups. They want to maintain social solidarity and a feeling that "leaders" care about those under them. Cultivate "good intentions" and concern for "common good", as if the "mother" or "father" of the people.

3.2. Divine sanction also legitimizes authority (e.g. The Instructor becomes "God" who ordains the squares)

3.3. Social Separation of Classes. Reduces social pressure from lower groups on upper classes; diminishes envy by lower classes, prevents empathy or guilt by upper groups

3.4. Constantly reinforce the idea of a "just" ideology: that the system is just, fair, natural-biologically rooted, or supernaturally sanctioned.

3.5. Why Do Lower Classes continue "to play"? hope, lethargy, a culture of obedience, waiting for someone else, self-blame (so try-harder)

 

**4. Alternative Outcomes and Their Significance.**

4.1. Trading off social good will and social solidarity against amassing wealth and political power. What are the plusses and minuses of each system? Why do some choose different alternatives? Does having wealth (for several generations-rounds of the game) make one more likely to share?

4.2. Complexities of trying to "restructure" the system: will simply making the trading rules "fair" help? Is "affirmative action" enough? Does the solution require equalizing wealth? At every round? Will some inequality still emerge?

**FOLLOW-UP DISCUSSION:**

- Discuss with students the complexities of trying to "restructure" the system.
- Ask, will simply making the trading rules "fair" help?
- Is "affirmative action" the solution? Will that be sufficient?
- Does the solution require equalizing wealth? At every round?
- Will some inequality still emerge?
- How does this relate to school achievement?

**Lesson Plan 2:**

# *Whiteness Quiz*

Developed by Joseph Jones

## Introduction

In the United States, Whiteness has been a relatively "unmarked" or unrecognized racial category. While race and racism clearly involve value judgments linked to skin color and other physical traits, White racial identity has avoided mainstream attention and served as the "normal" standard against which other "racial" groups are measured. Recently, however, Whiteness studies has evolved as the investigation of historically fluid yet salient racial identities based on the maintenance (or pursuit) of "White privilege." Here students explore early 20th-century stereotypes about European American and other ethnic groups today considered "White."

## Objectives

Students will:

- Explore and discuss United States White racial and ethnic identities
- Understand that certain ethnic groups "became" White in the United States during the 20th century
- Understand how different racial identities are linked to each other and influenced by various historical social processes

## Materials

- Excerpts from William W. Cook's *American Institutions and Their Preservation* (1929, Norwood, MA: Norwood Press)
- An overhead or data projector. Excerpts may also be copied and distributed.

## Procedure

*Step 1.* Prepare students by explaining that they will be reading and discussing negative stereotypes. Provide limited specific information, sharing, for example, only that the selections were written in the late 1920s.

*Step 2.* Quiz students about the subjects of selected excerpts from *American Institutions and Their Preservation*. Record the top 2 or 3 answers for review upon completion of the entire quiz.

*Step 3.* Discuss student responses.

**Key questions and points:**

- Which stereotypes were students most familiar with?
- (Why) do some stereotypes continue to resonate more broadly than others today?
- Since these groups were not, who was considered “White” during this period of US history?
- What social factors in the United States during the 1920s might have influenced Cook's perceptions of these different groups?
- Do stereotypes exist today about different "racial" groups in the United States?
- What social factors might influence these, and how?
- What does this information suggest about the nature of race and racial identity?
- How does this information influence your own ideas about race and racial identity?

**Lesson Plan 3:**

# *Preference Activity*

Developed by Carol Mukhopadhyay[18]

## Objectives

Students will:

- Understand the role social factors (vs. individual desires) play in mate choices, especially in family preferences, cultural norms, and societal laws.
- Be able to provide examples of social criteria (group traits) vs. individual criteria (attributes of the person).
- Understand the continuing role of racial endogamy in mate/date choice.
- Understand how former legal restrictions on interracial marriage and interracial mating helped to preserve a system of racial stratification.

## Grades

9-12: Probably requires more mature students, perhaps with dating experience.

## Time

30-60 minutes, depending on how much time is spent analyzing student responses.

## Materials

- Conceptual background material is useful. An accessible overview for teachers, and perhaps students as well, is provided in Mukhopadhyay, Henze and Moses, 2007 (Chapter 9).
- Sheets of paper for students to write individual responses and summarize group responses.

## Procedures

*Step 1*. My Ideal Mate. Students list characteristics of their "Ideal Mate" on a piece of paper. Tell them to imagine writing an ad for a long-term mate. What characteristics or attributes would they be looking for? Give them 5-10 minutes. They should do this individually.

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[18] Material from *How Real Is Race? A Sourcebook on Race, Culture, and Biology*, (2007), pp. 175-178, by Carol Mukhopadhyay, Rosemary Henze and Yolanda Moses, published by Rowman & Littlefield Publishing Group Books, appears by permission of the author and publisher. **This material is protected by copyright. All rights reserved. Please contact the publisher for permission to copy, distribute or reprint.**

*Step 2*. My Parent's Ideal Mate for Me. Students make a separate list of the kind of characteristics or traits parents or other adult family members would look for if they were choosing a long-term mate for them. Again, have them do this individually.

*Step 3*. Students analyze results (in small groups, or the class as a whole), beginning with their Ideal Mate. Ask students to look for patterns in the type of traits listed. Do some types appear more often than others? Student trait list can usually be classified into three main categories: physical traits, personality or character traits, and common-activity or interests. For example, ask how many students listed physical features and if so, what kinds. You could list them on the board, under "Physical Traits." You might discuss if some physical features have cultural elements (e.g. does the concept of "physically fit" have a cultural dimension? Is a "nice smile" really an indicator of culturally-valued personality traits?) Try to get them to be specific about what traits make someone "attractive" or what is meant by "good features," and whether these are culturally shaped notions.

Ask what other types of traits besides physical traits are listed. Students tend to primarily list personality or character traits. So you might create another list on the board, Personality/Character traits and have students add items that fit. You may need a third list, common activities or interests, for additional traits not covered by the first two categories.

Next, introduce the notion of Individual vs. Social Characteristics of persons (see Chapter 7 for a discussion of *social status* and related terms). Point out that their Ideal Mate traits usually refer to the individual person, whether physical, personality, or interests considerations. Virtually all fall into a more comprehensive category called "Individual Traits." Contrast this with the concept of Social Traits -- that is traits having to do with one's social status or group membership, whether achieved or ascribed. These would include things like religion, race, ethnicity, gender, occupation, nationality, social class, sexual orientation, age, or family background. Ask for any Ideal Mate traits on their list that would fall in this category (sexual orientation is often one, although unspoken; race or religion may be others).

*Step 4*. Students compare their own list to that of their parents/family elders (in groups, or as a class). Notice similarities and differences. This time, ask them to use the different categories (especially the notion of Social vs. Individual Traits) when comparing lists. Generally, they will find their families are much more interested in social status characteristics, than in Individual Traits like looks or personality.

*Step 5*. Discuss the most common type social status characteristics. Even in culturally diverse schools, we have found that race, ethnicity, gender, religion are the most frequently mentioned. This provides an opportunity to discuss these "hot button" issues (see also Chapter 13). What is often less vocalized but also present are economic and social status considerations, such as money, job, educational level, family background and family status.

*Step 6*. Link class results to earlier chapters on class and racial stratification. Link also to other school "hot button" issues, like conflict and dating issues (see Part 3).

**Follow-Up**

To add a cross-cultural comparative aspect and to provoke discussion and reflection on US culture, introduce students to a culture with a different system of mating, marriage, and perhaps family arrangements. See modules on kinship, sex and marriage in the Cultural Anthropology section of the Palomar College website: http://anthro.palomar.edu/tutorials/cultural.htm or see films like *Masai Women*, *Dadi's Family*, or other films at Documentary Educational Resources. For arranged marriages, see popular films by Mira Nair or an accessible article by Serena Nanda on Arranged Marriages in India (2000).

**Lesson Plan 4:**

# *Race and Medicine Project*

Developed by Donna Browne

## Objectives

Students will explore the question "Should medical decisions be based on race?" through the case of BiDil, a heart failure medication indicated for use by "self-identified black" patients. In 2004, BiDil became the first US Food and Drug Administration (FDA)-approved medicine targeted for a specific "race." Students will be challenged to think critically and develop a position about BiDil and the larger issue of how race does or *should* relate to health practices based on research.

This activity reinforces ideas from lessons "Graphing Concordance" and "Apportioning Phenotypic and Genetic Variation" in the *Exploring Human Biological Variation* section of this guide.

## Materials

For this activity you will need:

- "Sorting People" (Part of PBS's *Race: The Power of an Illusion* Web site; available online at: http://www.pbs.org/race/002_SortingPeople/002_00-home.htm.

- "Race-Based Medicine Continued…"; an article by Nicholas Wade of the *New York Times* published November 14, 2004 and available online at: http://www.nytimes.com/2004/11/14/weekinreview/14nick.html?ex=1258261200&en=a50bf2000a68861c&ei=5088&partner=rssnyt

- Optional: Intel's *Showing Evidence Tool* for analyzing and evaluating information (available for free at: http://www97.intel.com/en/ThinkingTools/ShowingEvidence/).

  ***Note: Although designed for use with this tool, the activity may be conducted without its use.***

## Procedure

*Step 1.* Teacher orientation with *Showing Evidence*. If using this online tool, you should familiarize yourself with it and set up the project before beginning the activity. The site includes a tutorial, instructional strategies, and sample projects. For an example of a classroom-tested project on BiDil, race and health,

Sign into the student page with the following information:

Teacher ID *dbrowne1961@yahoo.com*
Team ID *will be assigned*
Team Password *anatomy*

Choose "Race and Medicine new" under "Project Name"

*Step 2*. Introductory activity: "Sorting People." Students are presented with images of different people and asked to sort them by "race." The difficulty (impossibility!) of this task illustrates that biological markers of race are unreliable.

*Step 3*. Background on BiDil. Have students read "Race-Based Medicine Continued…" for background on BiDil and as an introduction to the issue of race in contemporary health and medicine. The article provides different perspectives of people in favor of and opposed to BiDil's FDA approval as a "race-specific" drug, and the stakes involved in racial medicine.

*Step 4*. Introduce students to the *Showing Evidence Tool* and allow them to begin constructing their arguments.

- Students should start by making a claim based on a specific question (e.g., "Is race a useful variable in medical practice?") and their interpretation of the article. Record them in the claim box on the left.
    - Example: Race is not real in a biological sense.

*Step 5*. Students research the issue further, using the tool to organize data that either supports or weakens their claims.

- Put the information about this evidence in the evidence column on the right.
- Connect the evidence to the claim.
- Rate the evidence by pressing the "Rate the Evidence" button and using the information below to assess the quality of the evidence.
- Rate the claim based on the evidence you research.

When conducting research, students should carefully evaluate the quality of their sources. For example, they should ask: Who wrote this? What are the author's credentials? Is the information current or dated? This is an important part of developing a "critical" position on any topic.

Step 6. Students weigh the data for and evaluate their claims and draw conclusions.

Step 7. Discuss their findings. Ask, for example, what their research suggests about the following questions.

- Is race "real" – in a biological sense? In a social sense?
- Is race significant medically?
- Should certain medicines be marketed to certain races?
- Does racism influence medical care?
- (How) has your research changed your opinion on any of these questions?

# RESOURCES

This section provides resources for conducting the lessons provided in this guide and for further exploring the topics of human variation, race and racism in your classroom. The resources include:

- A glossary of key terms from and related to RACE lesson plans;
- A bibliography of selected works on teaching about human variation, race and racism; and
- A list of Web sites useful for middle school and high school educators.

A complete glossary, bibliography, and list of Web sites are available at www.understandingRACE.org.

## Glossary

**Allele:** the alternative form of a gene or DNA sequence that occurs at a given locus. Some loci have only one allele, some have two, and some have many alternative forms. Alleles occur in pairs, one on each chromosome.

**Anthropology:** the study of humans and their cultures, both past and present. The field of anthropology includes archaeology, biological anthropology, cultural anthropology, linguistic anthropology, and applied anthropology.

**Anti-miscegenation Laws:** U.S. laws that forbade sexual relations or marriage between people of different races. Declared unconstitutional in 1967 (Loving v. Virginia).

**Apportionment:** statistical quantification.

**Base pairs:** the rungs of the ladder are composed of four bases in pairs that specify genetic instructions – adenine (A), thymine (T), guanine (G) and cytosine (C). "A" always pairs with "T", and "G" always pairs with "C".

**Biological anthropology:** the subfield of anthropology that focuses on the biological evolution of humans and human ancestors, the relationship of humans to other organisms and to their environment, and patterns of biological variation within and among human populations. Also referred to as physical anthropology.

**Biocultural:** a method of studying humans that looks at the interaction between biology and culture.

**Biocultural approach**: the use of biological and cultural research methods and interdisciplinary theory to study human biological variation and other factors such as health in relationship to social and cultural practices, environment and change.

**Census:** an official, usually periodic enumeration of a population, often including the collection of related demographic information. Census racial categories vary by country and over time, reflecting their political, cultural and scientifically problematic nature.

**Classification:** the ordering of items into groups on the basis of shared attributes. Classifications are cultural inventions and different cultures develop different ways of classifying the same phenomena (e.g. colors, plants, relatives, and other people).

**Cline:** a gradual, continuous change in a particular trait or trait frequency over space.

**Continuous trait:** a characteristic that is measured on a scale that is ordered and does not have gaps or divisions (e.g., skin color).

**Culture:** the full range of shared, learned, patterned behaviors, values, meanings, beliefs, ways of perceiving, systems of classification, and other knowledge acquired by people as members of a society; the processes or power dynamics that influence whether meanings and practices can be shared within a group or society.

**Culture shock:** the disorienting experience of realizing that the perspectives, behaviors and experiences of an individual, group or society are not shared by another individual, group or society.

**Discrete trait:** a biological characteristic that takes on distinct values and properties (such as ABO blood type).

**DNA (Deoxyribonucleic acid):** the molecule that encodes heredity information.

**Ecology:** the study of the dynamic relationships of organisms to each other and the total environment.

**Ethnicity:** an idea similar to race that groups people according to common origin or background. The term usually refers to social, cultural, religious, linguistic and other affiliations although, like race, it is sometimes linked to perceived biological markers. Ethnicity is often characterized by cultural features, such as dress, language, religion, and social organization**.**

**Ethnocentrism:** the deeply felt belief that your own cultural ways are universal, natural, normal, and even superior to other cultural ways.

**Ethnography:** anthropological research in which one learns about the culture of a society through fieldwork, the data-gathering methods that are combined with and/or built upon first-hand participation and observation in that society.

**Evolution:** the transformation of a species of organic life over long periods of time (**macroevolution**) or from one generation to the next (**microevolution**) due to four **evolutionary forces**. Anthropologists study both the cultural and biological evolution of the human species.

**Gene:** a unique combination of bases (see **base pairs**) that creates a specific part of our body.

**Gene flow:** a mechanism for evolutionary change involving genetic exchange across local populations. Gene flow introduces new alleles into a population and makes populations more similar genetically to one another.

**Genotype:** the genetic endowment of an individual from the two alleles present at a given locus.

**Independence:** the tendency of some human traits to vary independently, often in response to environmental or selective conditions. As a result, most traits do not cluster along racial classifications.

**Kin terminology:** the terms that systematically designate distinctions between relatives of different categories.

**Locus:** the specific location of a gene or DNA sequence on a chromosome.

**Meritocracy:** the idea that merit and individual effort, rather than one's family or social background (including race, gender, class and legacy), determine one's success, one's social and economic position. Similarly, the idea that social inequalities are the result of individual differences in merit and effort.

**Natural selection:** a mechanism for evolutionary change favoring the survival and reproduction of some organisms over others because of their particular biological characteristics under specific environmental conditions.

**Nonconcordance:** see **Independence**

**Phenotype:** the observable or detectable characteristics of an individual organism. A person's phenotype includes easily visible traits such as hair or eye color as well as abilities such as tongue-rolling/curling.

**Race:** a recent idea created by western Europeans following exploration across the world to account for differences among people and justify colonization, conquest, enslavement, and social hierarchy among humans. The term is used to refer to groupings of people according to common origin or background and associated with perceived biological markers. Among humans there are no races except the human race. In biology, the term has limited use, usually associated with organisms or populations that are able to interbreed. Ideas about race are culturally and socially transmitted and form the basis of racism, racial classification and often complex racial identities.

**Racism:** the use of race to establish and justify a social hierarchy and system of power that preferences or advances certain individuals or groups of people usually at the expense of others. Racism is perpetuated through both interpersonal and institutional practices.

**Social class:** a social grouping of people based on common economic and other characteristics determined by society and reflecting a social hierarchy.

**Stratification:** in reference to society, a system by which social, economic and political inequalities are structured in society.

**Symbol:** a sign or attribute that stands for something else, to which it may or may not have any relationship. For example, the bald eagle and "Uncle Sam" are symbols of the United States.

**Trait:** a characteristic or aspect of one's **phenotype** or **genotype**.

## Bibliography of Selected Works


Bolgatz, Jane. 2005. *Talking Race in the Classroom*. New York, NY: Teachers College Press.

Lewis, Amanda. 2003. *Race in the Schoolyard: Negotiating the Color Line in Classrooms and Communities*. New Brunswick, NJ: Rutgers University Press.

Mielke, James, Lyle Konigsberg, and John Relethford. 2006. *Human Biological Variation*. New York: Oxford University Press.

Mukhopadhyay, Carol, Rosemary Henze, and Yolanda Moses. 2007. *How Real Is Race? A Sourcebook on Race, Culture, and Biology*. Lanham, MD: Rowman & Littlefield Education.

Pollock, Mica. 2005. *Colormute: Race Talk Dilemmas in an American School*. Princeton, NJ: Princeton University Press.

Upadhyay, Bhaskar R. 2006. Using student's lived experiences in an urban science classroom: an elementary school teacher's thinking. *Science Education* 90 (1): 94-110.

## Web Sites

The Websites listed below provide a wealth of information and suggested activity plans for further engaging your students about past and present issues of race, racism and human variation.

www.understandingRACE.org

The RACE Project Website.

www.pbs.org/race

The companion Website to California Newsreel's documentary *Race: The Power of an Illusion* about race in society, science and history. This site contains many additional lesson plans, online activities and informative interviews with anthropologists and other scholars.

www.pbs.org/mattersofrace

The companion Website to the PBS four-part documentary, *Matters of Race*, on contemporary United States racial identities. The site includes a teacher's guide for using the documentaries.

http://www.slaveryinnewyork.org/about_exhibit.htm

The Website for the popular New York Historical Society exhibit, *Slavery in New York*. The site includes an educator's guide and other downloadable classroom resources.

http://anthro.palomar.edu/tutorials/

A collection of anthropology tutorials by Dennis O'Neil of Palomar College that cover a range of topics related to human biological and cultural variation.

http://www.facinghistory.org/campus/reslib.nsf

Facing History and Ourselves is an international educational and professional development organization. Its mission is to "engage students of diverse backgrounds in an examination of racism, prejudice, and anti-Semitism in order to promote the development of a more humane and informed citizenry." This site contains free and restricted content including lesson plans and teaching strategies.