



Personal Genetics Education Project

Ethical, Legal and Social Issues in Personal Genetics

Title: History, Eugenics and Genetics

Aim: How can we as a society avoid the mistakes of the past to take advantage of the promise of genetics?

Time: This lesson can be adjusted to fill 1 or 2 classes.

Guiding questions:

- What is eugenics?
- Why would improvements in healthcare that have the potential to save lives and reduce suffering through the use of genetic information cause people to worry about eugenics?
- How did the eugenics movement in the United States impact people?
- Why did some leaders think it would be beneficial to control who could have children and who could not?
- How can we avoid the mistakes of previous years so that society can benefit from advances in healthcare without the fear of unethical treatment?

Learning objectives:

By the end of the lesson, students will be able to:

- Understand the role that society played in promoting the ideas of eugenics leaders.
- Analyze why the eugenics movement took root in the United States.
- Discuss the ethical implications of some current genomic technologies and how they relate to the past.
- Become aware of the organizations and laws that are now in place to help people take advantage of new advances in genetic knowledge without putting themselves in danger of eugenics.
- Understand that genetic information can lead to breakthrough medical treatments for devastating diseases.

Common Core Standards:

CCSS.ELA-Literacy.RST.9-10.2 Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.

CCSS.ELA-Literacy.RH.9-10.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.

CCSS.ELA-Literacy.RH.9-10.3 Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.

CCSS.ELA-Literacy.RH.9-10.4 Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history/social science.

CCSS.ELA-Literacy.RH.9-10.9 Compare and contrast treatments of the same topic in several primary and secondary sources.

Background information and note to teachers:

Eugenics is the philosophy and social movement that argues it is possible to improve the human race and society by encouraging reproduction by people or populations with “desirable” traits (termed “positive” eugenics) and discouraging reproduction by people with “undesirable” qualities (termed “negative” eugenics). The eugenics movement began in the United States in the early part of the 20th century; the United States was the first country to have a systematic program for performing sterilizations on individuals without their knowledge or against their will. It was supported and encouraged by a wide swath of people, including politicians, scientists, social reformers, prominent business leaders and other influential individuals who shared a goal of reducing the “burden” on society. The majority of people targeted for sterilization were deemed of inferior intelligence, particularly poor people and eventually people of color.¹

In the early 20th century, many scientists were skeptical of the scientific underpinnings of eugenics. Eugenicists argued that parents from “good stock” produced healthier and intellectually superior children. They believed that “traits” such as poverty, shiftlessness, criminality and poor work ethic were inherited and that people of Nordic ancestry were inherently superior to other peoples, despite an obvious lack of evidence and scientific proof. However, eugenicists were able to persuade the Carnegie Institution and prestigious universities to support their work, thus legitimizing it and creating the perception that their philosophy was, in fact, science.

¹ Black, Edwin, War Against the Weak: Eugenics and America’s Campaign to Create a Master Race (Dialog Press, 2003).

The eugenics movement became widely seen as a legitimate way to improve society and was supported by such people as Winston Churchill, Margaret Sanger, Theodore Roosevelt and John Harvey Kellogg (of Kellogg's cereal). Eugenics became an academic discipline at many prominent colleges, including Harvard University, among many others. From the outset, the movement also had critics, including lawyer and civil rights advocate Clarence Darrow as well as scientists who refuted the idea that "purity" leads to fewer negative gene mutations. Nevertheless, between 1927 and the 1970s, there were more than 60,000 compulsory sterilizations performed in 33 states in the United States; California led the nation with over 20,000. Experts think many more sterilizations were likely performed, but not officially recorded.²

Adolf Hitler based some of his early ideas about eugenics on the programs practiced in the United States. He was its most infamous practitioner; the Nazis killed tens of thousands of disabled people and sterilized hundreds of thousands deemed inferior and medically unfit. After World War II and the Holocaust, the American eugenics movement was widely condemned. However, sterilization programs continued in many states until the mid-1970s.

Many people fear that new advances in genetics, particularly embryo screening and analysis of fetal DNA, could lead to a new era of eugenics. The goal of this lesson is for students to start discussing these topics so that they can understand the complexity of the issues and engage in conversations that contrast the dangers of eugenics with the benefits that can come from genetic information. Students will see how debate and discussion can be illuminating even though complete consensus about the intersection of genetics and society will be difficult.

Here is an outline of the resources and activities in this lesson.

1. Slideshow (page 4, slide notes on pages 4-11)
2. Discussion questions (page 11, handout on page 14)
3. Homework assignment (page 12, handout on page 14)
4. List of additional resources (page 12)
5. Short quiz (answer key on pages 12-13, handout on page 15)

² Stern, Alexandra Minna, Eugenic Nation: Faults and Frontiers of Better Breeding in Modern America (Berkeley, University of California Press, 2005), p. 84.

Activities: Slideshow (40 minutes), discussion (15-20 minutes).

Part 1: Slideshow (40 minutes)

The slideshow begins with a few slides that highlight some of the advances and breakthroughs that have been achieved through genetic and genomic research. However, these breakthroughs lead to sometimes difficult ethical questions, particularly related to reproductive technologies and embryo screening. As science advances, what traits might people be able to choose or select against? Is it acceptable for prospective parents to have a say in which embryos are implanted in a woman's uterus for non-medical reasons? Is it acceptable for society to dictate this decision to prospective parents? Many of the breakthroughs have saved lives and will continue to do so on a grander scale, and we, as a society, need to discuss the complex issues related to genetic technologies. Students will come away with a greater respect for personal choice and diverse opinions.

The slides then provide students with a historical overview of the American eugenics movement as an important introduction to the negative consequences of eugenics. The slideshow concludes by illustrating some of the efforts in the scientific and policy communities to safeguard against future injustices. It is valuable to explain that these historical injustices should not prevent people from taking advantage of potentially life-saving genetic technologies. The goal is that people are aware of the possibilities and can evaluate the benefits and risks of genomic medicine.

The slideshow is located on the pgEd website along with this [lesson](#), and accompanying explanatory notes for the slideshow are provided below.

Slideshow notes:

Slide 2: Genome sequencing has already had real-world impacts on patients, including twins Alexis and Noah Beery. The twins exhibited a number of developmental delays and were diagnosed with cerebral palsy at the age of two. Their mother never felt that this diagnosis explained all of their symptoms, particularly since their symptoms worsened over the course of the day. As a result of their mother's research and advocacy, the twins were diagnosed at age 5 with a genetic disorder called dopa-responsive dystonia and began taking a medication that seemed to successfully treat the condition. However, some symptoms persisted. For example, Alexis had breathing problems that were so severe that her parents had to call 911 on a few occasions. Out of concern for Alexis' safety, her parents had the twins' genomes sequenced, leading to the identification of a mutation in the SPR gene which, when disrupted, causes a deficiency in two neurotransmitters, dopamine and serotonin. Upon treatment to restore both dopamine and

serotonin, the twins' symptoms quickly improved, permitting them to resume active full lives.

Slide 3: This is a prototype of a new generation of DNA sequencers that will be portable, disposable and can be conveniently plugged into a computer. Technologies developed by this company as well as several others are facilitating our ability to sequence and decipher genomes. In 2014, companies continue to compete to bring the cost of sequencing a human genome to \$1,000 (US). As you saw in the previous image, knowledge of a patient's genome sequence can help make diagnoses and, in some cases, can lead to effective treatments.

Slide 4: The picture is of siblings Molly and Adam Nash. Molly was born in 1994 with a deadly disorder called Fanconi Anemia (FA), a genetic condition caused by a disruption in cells' ability to repair their DNA. The majority of people with FA will develop cancer, often leukemia, and may have deafness and a variety of syndromes, including problems of the heart, lungs, hands and arms. Molly needed a stem cell transplant to save her life. Her parents wanted another baby and decided to conceive a child using in vitro fertilization (IVF) and preimplantation genetic diagnosis (PGD) so that they could increase their chances of having a child without FA who also would be a perfect donor match for Molly. (PGD will be explained further in the next slide. For more details about donor matching, check here: <http://www.seattlecca.org/diseases/BMT-hla.cfm>.) This is how Molly's brother, Adam, was conceived. When Adam was born, he donated umbilical cord blood stem cells to his sister. The Nash family was the first in the United States to go public with their use of PGD and donor matching. Molly was able to receive this treatment without government approval. Since the transplant, Molly has recovered and both children are doing well.

Slide 5: PGD can be used following IVF when parents have a high likelihood of passing on a serious or deadly genetic condition to a child. Such genetic disorders include deadly childhood diseases, such as Tay-Sachs and cystic fibrosis, as well as adult-onset diseases, such as Huntington's disease and breast cancer. Typically, a single cell is removed from an 8-cell embryo and tested. Any embryos that are free of the genetic mutation for which they are being tested are then considered for transfer into the woman's uterus. This slide shows an image of a cell being removed from an 8-cell embryo (3 days after fertilization).

Slide 6: In a 2004 study, a majority of the Americans surveyed thought it was acceptable to use PGD to select embryos in order to avoid serious illness or identify a match for stem cell donation. Note that over 20% of women and 30% of men thought it would be acceptable to test for intelligence or

strength. These results provide the basis for a discussion to ensure students understand that it is difficult to discover the genetic basis of traits as complicated as intelligence or strength. Students should further understand that traits also reflect a person's environment and lifestyle.

Slide 7: The American eugenics movement began in the early 20th century. The main goal was to improve society and reduce the burden of people who some considered to be inferior. That is, just as screening for intelligence and other "desirable" characteristics would be acceptable to some people today, it was similarly acceptable in previous decades.

Slide 8: The late 19th and early 20th centuries brought an enormous amount of change to the United States. The nation shifted from an agrarian to an industrial economy and society, millions of immigrants arrived and cities grew at an exponential rate. These changes created social challenges, including increased poverty, slums, disease and child labor. Eugenacists believed that immigrants from Southern Europe were genetically inferior, as were people living in poverty (i.e., they were poor because they were genetically predisposed to be lazy). Although incorrect, eugenacists believed that preventing poor people and immigrants from reproducing, thereby reducing the population of genetically inferior individuals, would solve many societal issues.

The Immigration Restriction Act of 1924 was strongly influenced by eugenacists, who lobbied and worked closely with members of Congress to shape the legislation. The act severely restricted immigration, particularly of Eastern European Jews, Italians (as well as other Southern Europeans), and Africans, and banned the immigration of Arabs and Asians. This act prevented thousands of European Jews attempting to flee the Nazis from entering the United States during the 1920s and 30s. The US Department of State says, "In all of its parts, the most basic purpose of the 1924 Immigration Act was to preserve the ideal of U.S. homogeneity." Learn more about the impact of eugenics on US immigration here: <https://history.state.gov/milestones/1921-1936/immigration-act> and here: <http://www.eugenicsarchive.org/html/eugenics/essay9text.html>.

Slide 9: Despite many scientists' skepticism and outright rejection, some people began defining different levels of intelligence through the use of specific tests. It was around this time that IQ tests were created. This illustration shows how people were categorized by the mental age that eugenacists believed they would reach and the type of work eugenacists believed they would be able to perform. Part of the goal of eugenacists was to show that "genetically inferior" people would become a burden to society.

Slide 10: Various states and organizations promoted “positive” eugenics by encouraging people who were deemed superior to have more children. The first “Fitter Family” contest, which was based on “Better Babies” contests, was held at the Kansas State Fair in 1920. Both types of contests took a deterministic view of genetics and biology and assumed that there were “good genes” for characteristics such as honesty, morality and industriousness that were passed on to children. The Red Cross originally sponsored these competitions; families were judged in categories including size of family, attractiveness, health and generosity.

Slide 11: Many states had laws forbidding interracial marriage from the late 17th century until 1967, when the Supreme Court ruled in *Loving v. Virginia* that such laws were unconstitutional. Eugenic ideas lent a new set of justifications for such laws by providing a pseudoscientific explanation for the perils of “race-mixing.” For a more detailed explanation, read a short piece by expert Paul Lombardo:
<http://www.eugenicsarchive.org/html/eugenics/essay7text.html>.

Slide 12: The pedigree was a primary tool that eugenicists used to trace the pattern of inheritance in a family. Eugenicists “scored” family members and traced the lineage of “defective” as well as “superior” individuals. Pedigrees traced traits such as immoral behavior, degeneracy, criminality, disease, shiftlessness, intelligence and feeblemindedness. While there was essentially no sound scientific basis for the inheritance of these types of characteristics, the creation of pedigrees based on these characteristics, nevertheless, helped to establish these ideas as legitimate science. For a critique of eugenics research, refer to the essay by expert Garland E. Allen:
<http://www.eugenicsarchive.org/html/eugenics/essay5text.html>.

Slide 13: Carrie Buck was the plaintiff in the Supreme Court case *Buck v. Bell* in 1927. This case established that the state has the right to force a person to be sterilized without his or her consent. While many cases have criticized this ruling, technically, the decision has never been overturned. Carrie Buck was born to a poor mother who was eventually committed to the Virginia State Colony for Epileptics and the Feebleminded, at which time Carrie was placed in foster care. At the age of 17, Carrie became pregnant as the result of being raped, most likely by the nephew of her foster parents. Her foster parents then committed her to the Virginia State Colony on the grounds of feeblemindedness, promiscuity and incorrigible behavior. While at the Colony, Carrie was sterilized to prevent passing along “feeblemindedness,” which she, her mother and her daughter were all declared to exhibit. Reporters and researchers who later interviewed Carrie described her to be of average intelligence.

Slide 14: In 1927, the 8-1 ruling in *Buck v. Bell* established the right of the state to sterilize people. Supreme Court justice Oliver Wendell Holmes wrote for the majority that the interest of the state to improve the gene pool superseded that of the individual's right to maintain bodily integrity. He wrote:

"We have seen more than once that the public welfare may call upon the best citizens for their lives. It would be strange if it could not call upon those who already sap the strength of the State for these lesser sacrifices, often not felt to be such by those concerned, to prevent our being swamped with incompetence. It is better for all the world, if instead of waiting to execute degenerate offspring for crime, or to let them starve for their imbecility, society can prevent those who are manifestly unfit from continuing their kind. The principle that sustains compulsory vaccination is broad enough to cover cutting the Fallopian tubes. Three generations of imbeciles are enough."

(<http://supreme.justia.com/cases/federal/us/274/200/case.html> - 207)

Slide 15: Raymond Pearl is an example of a biologist who, though originally interested in eugenics, came to reject the basic ideas of eugenics. He published an article in 1927 entitled "The Biology of Superiority," which was "the first general attack on eugenics by someone perceived as being within the movement" (http://en.wikipedia.org/wiki/Raymond_Pearl#cite_note-allan-2). While some scientists and others advocated eugenics, many others challenged both the science and ethics of such programs, even relatively early in the movement. This is also illustrated on the slide by the quote from a panel of scientists critiquing the eugenics research at the Eugenics Records Office (ERO).

Slide 16: This slide shows a Nazi propaganda poster from 1936. The woman is holding a baby, and the man is holding a shield with the title of Germany's 1933 compulsory sterilization law, called the "Law for the Prevention of Hereditarily Diseased Offspring." The poster included the flags of nations that had passed compulsory sterilization laws as well as the year they were enacted: United States (1907), Denmark (1929), Norway (1934), Sweden (1935) and Finland (~1935). Flags at the bottom of the poster include nations that were considering sterilization laws when the poster was produced.

German scientists and eugenicists were greatly influenced by the work of prominent American eugenicists, the two groups exchanging papers and visiting one another's labs and offices. The United States passed its first law allowing sterilization in 1907, 26 years before Germany. The oil and banking magnates, the Rockefeller family, used their family wealth through their foundation to help support the German eugenics program, funding the

program where Josef Mengele worked before he became a physician at Auschwitz (for which he is known as the "Angel of Death"). (The Rockefeller Foundation later paid to relocate approximately 300 Jewish scholars out of Germany to escape Hitler's regime.) After a 1934 visit to Germany, where over 5,000 people were being sterilized each month, California eugenics leader C. M. Goethe stated to a colleague:

"You will be interested to know that your work has played a powerful part in shaping the opinions of the group of intellectuals who are behind Hitler in this epoch-making program. Everywhere I sensed that their opinions have been tremendously stimulated by American thought... I want you, my dear friend, to carry this thought with you for the rest of your life, that you have really jolted into action a great government of 60 million people." [Black, Edwin, War Against the Weak: Eugenics and America's Campaign to Create a Master Race (Dialog Press, 2003).]

Slide 17: This slide lists excerpts from the Nuremberg Code, which was enacted as a result of the "Doctor's Trial" after World War II. The code is a set of research ethics that established the principles that should be followed by doctors and researchers when involving human subjects in their research. The goal is to ensure that subjects are protected from unethical practices. These and other ethical guidelines have played a central role in enabling researchers and physicians to develop medications and protocols for treating as well as preventing disease.

Slide 18: This is a pamphlet published by an organization called the Human Betterment League of North Carolina. James Hanes (of the Hanes clothing and hosiery company) founded the organization in 1947. The goal of the organization was to promote the sterilization of those deemed mentally unfit. North Carolina had an aggressive state-run push to sterilize people. Initially, 85% of those sterilized were women and girls; in the 1960s, the sterilization of men largely ended, at which point 99% of those sterilized were women and girls. Many were rape victims who were deemed "promiscuous." Others were considered to be intellectually inferior, classified as "morons," "idiots" or "feebleminded." People with mental illness as well as physical illness, such as epilepsy, were also sterilized.

According to the task force established in 2011 by North Carolina Governor Beverly Perdue, 2,990 of the almost 7,600 operations were performed on people between the ages of 10 and 19. The total number of 7,600 includes only those operations directed by the state eugenics board and not those performed locally, and likely unreported, by an individual doctor or hospital.

Slide 19: Protests against forced sterilization took place around the nation during the 1970s, including the one in North Carolina depicted in this slide.

Many individuals opposed the practice from the start; protests against forced sterilization grew out of the civil rights and women's movements. Many states, including California, outlawed the practice in the mid and late 1970s. Though the *Buck v. Bell* Supreme Court decision allowing the practice has never been overturned, many cases at the state and federal level reject these ideas.

Slide 20: Elaine Riddick has been an outspoken victim of forced sterilization in North Carolina. She was born into poverty and raised by her grandmother. At the age of 14, she was raped by a man in her neighborhood and became pregnant. She gave birth in March 1968 and was sterilized immediately afterward without her knowledge or consent. Her grandmother, who was illiterate, signed the consent form for sterilization because she was told Elaine would be sent to an orphanage if she refused. Elaine did not discover what had happened to her until she married and tried to conceive a child. In 2011, the governor of North Carolina established a commission to determine how much to compensate Elaine and the estimated 1,500 to 2,000 other living victims of sterilization. There was much debate about whether any amount of money could compensate for not only the loss of fertility, but also the branding of victims as feeble-minded and promiscuous.

Elaine Riddick's case is discussed in detail in David Zucchino's January 2012 article, "[Sterilized by North Carolina, she felt raped once more](#)," in the *Los Angeles Times*.

Slide 21: North Carolina became the first state in the United States to approve payments to victims of its eugenic sterilization programs in 2013, after 10 years of debate and legislative votes. The state officially sterilized at least 7,600 people. According to the November 2013 article "[Eugenics claims forms mailed](#)" in the *News & Observer*, reparations claims are being accepted until June 2014 and payments will likely begin in 2015.

Slides 22: Today, safeguards have been established to ensure that the ethical implications of new technologies are discussed and debated before those technologies are employed on a large scale. In this way, the benefits and advances arising from scientific research and medical procedures can be achieved both ethically and humanely. For example, the National Human Genome Research Institute (funded at \$152 million in 2012) of the National Institutes of Health (NIH) houses the Ethical, Legal and Social Issues (ELSI) program, which supports research and public engagement in the area of ethics and produces publications that inform the general public about ethical issues.

Slide 23: Another example of the efforts of the United States government to ensure that progress in science, research and technology proceeds in an ethical and socially acceptable manner is the Presidential Commission for the Study of Bioethical Issues. Founded under a different name in 1974, the commission is well known for the development of the Belmont Report, built on the ideas of the Nuremberg Code. The Belmont Report states that “the primary principles underlying ethical research with human beings are respect for persons, beneficence, and justice. The methods used to recognize these principles are informed consent, risk/benefit analysis, and appropriate selection of patients.” (Quote is from “[A Summary of Important Documents in the Field of Research Ethics](#),” *Schizophrenia Bulletin* (2006) 32 (1): 69-80.doi: 10.1093/ schbul/sbj005.) Topics that have been examined by the commission include research involving radiation, cloning and the use of embryos. Members of the Commission are appointed by the President and change regularly. Current projects include studying privacy issues in whole-genome sequencing and synthetic biology.

Part 2: In-class discussion (15-20 minutes)

The following questions for discussion are included on a handout for students on page 14 of this document. Distribute the handout and divide students into pairs or small groups to discuss. Allow 10-15 minutes for small group discussion and then bring students back together for a whole class discussion, as time allows. You may want to revisit some of the slides during the discussion.

1. Why did some scientists, politicians, social reformers and business leaders think they should prevent specific groups of people from having children while encouraging others to have large families? What were they hoping to accomplish?
2. Should the government or doctors have the right to decide that a certain person or group of people should not have children? Are there circumstances in which it would be justified to prevent certain people from having children? If so, what would such circumstances be? If not, why not? Should the preparedness of an individual to have children be used to determine whether that individual can have children? How would you feel if a judge told you that you were not fit to have children?
3. There was no sound scientific basis for eugenics, and yet categories such as “feeble-minded” were created for classifying individuals. Eugenicians also believed that qualities such as poverty, criminality,

and good or bad work ethic were passed down through genes. Why do you think so many people believed these ideas? What do you think was appealing to some people about them? Explain.

4. It is not uncommon for individuals or couples to decide against having children so as to avoid passing along a trait that they believe they carry (e.g., susceptibility for a deadly disease such as Huntington's or Tay-Sachs). Could such decisions be considered eugenic? Why or why not?

Homework assignment

The handout on page 14 also includes the following two questions that can be used for homework for teachers looking to extend the lesson. Asking students to provide written answers to the discussion questions above is another possible way to assign homework for this lesson.

1. Until 1967, it was legal for states to bar people from marrying someone of another race. The laws that prevented such marriages were called anti-miscegenation laws. How do you think these laws reflected eugenic ideas?
2. How can we, as a society, both benefit from genetic technologies as well as prevent such technologies from being used to discriminate against certain groups? Explain.

Additional resources for teachers:

[Image Archive on the American Eugenics Movement](#), *Cold Spring Harbor Laboratory*.

[Eugenics in the United States](#), *Wikipedia*.

[Timeline of the American Eugenics Movement](#), *Facing History and Ourselves*.

"History, Eugenics and Genetics" quiz answer key (see page 15 for quiz)

1. Eugenics is the philosophy and social movement that argues it is possible to improve the human race and society by encouraging reproduction by people or populations with “desirable” traits (termed “positive” eugenics) and discouraging reproduction by people with “undesirable” qualities (termed “negative” eugenics). It became a popular idea in the United States in the 1920s. See page 2 of this document for more possible answers.

2. Pearl’s rejections were mainly about the lack of scientific evidence that heredity was responsible for the range of human characteristics with which eugenics was concerned. Others rejected the theories of eugenics, all of which hinged on incorrect scientific thinking, in favor of approaching issues like “criminality” or “feeblemindedness” as social problems resulting from sexism, racism, poverty and cultural shifts in the United States in the 20th century.

3. Elaine Riddick is an activist bringing attention to the history of women who were sterilized by the government against their will or without their consent. She was sterilized as a teenager after getting pregnant as a result of being raped. As an adult, she came forward and has helped lead the effort to have victims of sterilization compensated by the state of North Carolina.

4. Possible answers include the Nuremberg Code, the Presidential Commission on Bioethical Issues, the ELSI program of the National Human Genome Research Institute. Also, while the *Buck v. Bell* ruling has never been overturned, many state laws and other statutes exist to protect individuals from eugenic practices and more broadly from medical misconduct.

Name _____

Date _____

Student handout: Discussion questions

Questions for in-class discussion:

1. Why did some scientists, politicians, social reformers and business leaders think they should prevent specific groups of people from having children while encouraging others to have large families? What were they hoping to accomplish?
2. Should the government or doctors have the right to decide that a certain person or group of people should not have children? Are there circumstances in which it would be justified to prevent certain people from having children? If so, what would such circumstances be? If not, why not? Should the preparedness of an individual to have children be used to determine whether that individual can have children? How would you feel if a judge told you that you were not fit to have children?
3. There was no sound scientific basis for eugenics, and yet categories such as “feble-minded” were created for classifying individuals. Eugenicists also believed that qualities such as poverty, criminality, and good or bad work ethic were passed down through genes. Why do you think so many people believed these ideas? What do you think was appealing to some people about them? Explain.
4. It is not uncommon for individuals or couples to decide against having children so as to avoid passing along a trait that they believe they carry (e.g., susceptibility for a deadly disease such as Huntington’s or Tay-Sachs). Could such decisions be considered eugenic? Why or why not?

Questions for homework:

1. Until 1967, it was legal for states to bar people from marrying someone of another race. The laws that prevented such marriages were called anti-miscegenation laws. How do you think these laws reflected eugenic ideas?
2. How can we, as a society, both benefit from genetic technologies as well as prevent such technologies from being used to discriminate against certain groups? Explain.

Name _____

Date _____

"History, Eugenics and Genetics" quiz

1. What is eugenics? In what decade in American history did eugenics become a popular idea?
2. On what grounds did scientist Dr. Raymond Pearl and others reject the theories of eugenics?
3. Who is Elaine Riddick?
4. What are some of the protections in place in the United States that protect people participating in scientific research?