

Name \_\_\_\_\_

Period \_\_\_\_\_

## The Great Genetic Debates

DNA technology has the potential to improve our lives dramatically. But it also raises a large number of moral, ethical, social, and political issues. In this project, you will research one example of DNA technology and explore its benefits and costs. You will then engage in a debate over if and how that technology should be used. The debate topics are listed below:

1. Genetically Modified (GM) Foods. Genetically modified foods boast a wide range of benefits, but are they safe for human consumption? How might they affect the environment? What impact will GM foods have on poorer nations, which are unable to produce them on their own?
2. DNA Evidence in Court. In 1995, O.J. Simpson was found “not guilty” in the murder of two people. DNA evidence linked O.J. Simpson to murders, but the defense claimed that crime scene samples could have been contaminated or could have been planted as part of a conspiracy against Simpson. How reliable is DNA evidence in court? What level of “certainty” does DNA evidence provide? Are there any instances where DNA evidence should not be allowed? Are there any risks associated with using DNA as evidence in court?
3. The Human Genome Project. If a doctor was able to see your entire genome, it could lead to earlier detection of disease and better treatment. So should everyone’s DNA be sequenced at birth and kept in a database? If so, who else should have access to it? Should employers have access if their employees are in jobs in which there is a high risk to others, such as airline pilots? What if your health insurance company (the folks who pay your medical bills) had access to it?
4. Genetic Testing. Scientists now have the ability to analyze your genome and look for specific traits. In some cases, this is very simple: If you have an extra copy of chromosome 21, you will have Down’s syndrome. But in other cases, it’s not quite as clear-cut. What if a test can only give a *probability* of developing a disorder? What about other kinds of genetic tests, such as a test to see what kind of sports your child might be good at? How far should we go with genetic testing?
5. Cloning. Cloning sounds pretty cool, but are there any practical reasons why it should be done? What benefits may arise from cloning animals? What about humans? Should the U.S. fund research into cloning?
6. Stem Cell Research. Scientists believe that human embryonic stem cells hold the key to treatments and cures for a wide variety of diseases. But others are fundamentally opposed, on moral grounds, to the use of human embryos for scientific purposes. Should the U.S. fund research that involves human embryos? If not, what impact will stem cell research in other countries have on us? Are there alternatives to using human embryos?
7. Gene Therapy. Gene therapy has the potential to cure diseases such as Parkinson’s disease, Alzheimer’s, and cancer. But the same technology could potentially be used to make “designer babies,” where parents choose various traits of their offspring, such as sex, eye color, height, etc., before they are born. How far should we go?
8. Genetic Patents: Research organizations invest a lot of money to identify gene sequences involved in genetic diseases and to establish test kits for these diseases. Once a test is complete, do they have the right to patent these sequences as their own for the purpose of profit? How might this affect the access and cost of medical treatment?
9. Other. Have a topic you don’t see here? Create your own! This must be approved by the instructor first.

### *Format*

Students will be in groups of 4 for debates. Using the above as a guide, you will frame a specific question to debate. 2 people will choose one side of the debate, while the other 2 will choose the other side of the debate. Each pair will research their position and prepare a 3 minute argument. After both sides of the

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issue have been presented, each side will be given 1-2 minutes for a rebuttal. Debates and rebuttals should reflect facts not opinions.

*Visual Aid*

Each pair must construct a short PowerPoint to use as a visual aid. The PowerPoint should begin with the *specific question* you chose to debate. Then it should contain pictures and text to summarize your arguments. It is recommended that you minimize the amount of text on your slides- you only want to include the main ideas.

*Tips*

- 1) Your goal is to persuade your audience. Provide sufficient background information, but be sure the emphasis of your presentation is given to arguments for or against your topic.
  
- 2) Be prepared for your opposition! You may want to research the opposing viewpoint so you know what to expect and can respond to it during your rebuttal. You probably don't want to share too much of your research with your opposition either. During the debate, it would be wise to jot down your opposing team's arguments so you can respond to them.

*In Your Lab Notebook..*

The debates will take place during class. After each debate, all students in the class will write a "One-minute essay" in their lab notebooks in which they will respond to the debate. Basically, you must answer the question: "Which side of the debate do you agree with most? Why?"

<i>Grading Rubric</i>	4	3	2	1	0
Question/ Issue to be debated is clearly stated (1 point)	-	-	-		
Arguments for or against your point of view are clearly stated and well-organized (2 points)	-	-			
<u>Each</u> argument is supported with relevant data, facts, or examples (3 points)	-				
Points made are rooted in reliable facts and data- not conspiracy theories or science fiction (2 points)	-	-			
Presentation style- tone of voice, gestures, enthusiasm, and engagement with the audience (4 points)					
Rebuttal- <u>each</u> of your opponents points are addressed effectively (take notes while they're talking!) (3 points)	-				
PowerPoint presentation- summarizes main points, well-organized, uses pictures to support your statements (3 points)	-				
References- 3 or more present (excluding encyclopedias); MLA format (2 points)	-	-			

Total \_\_\_\_\_ /20