

Dealing with DNA controversy: issues, arguments, and ethics

Issue-Oriented Science

It is important to be able to read and evaluate scientific information appearing in the media (newspapers, magazines, and the Internet). This is especially true when the topic is controversial. Science articles often incorporate technical vocabulary. Sometimes the articles are written by nonscientists and provide inaccurate or biased information. All of this makes it difficult for the reader to evaluate the issue with an open mind and to form an opinion based on scientific evidence rather than "gut" feeling.

You will use the Internet to objectively research a current science issue. After gathering and reflecting on five "Supporting arguments" and five "Refuting arguments," you will write a short position paper that clearly states your point of view and in which your reasoning is supported by fact rather than emotion.

Your controversial statement:

- Use the Internet to research arguments that support this statement.
- List your arguments on the following pages, with their sources. Remember to consider the reliability of a source before you list the argument.
- At least four of the five arguments must be scientifically or statistically based, not based on emotion.

Name:

Date:

Supporting arguments

Argument:

Source:

Argument:

Source:

Argument:

Source:

Argument:

Source:

Argument:

Source:

List three organizations, individuals, or types of individuals who are (or could be) in support of this statement, and why.

- 1.
- 2.
- 3.

Name:

Date:

Refuting arguments

Argument:

Source:

Argument:

Source:

Argument:

Source:

Argument:

Source:

Argument:

Source:

List three organizations, individuals, or types of individuals who do not (or might not) support this statement, and why.

- 1.
- 2.
- 3.

Position paper

Use the information on the other side of this page to write your four paragraphs paper. Each paragraph will have the following components:

Paragraph #1 (Introduction)

- Describe the theory or controversy that exists by defining science terms.
- Clearly identify the position of the paper in the third person.

Paragraph #2 (Body)

Describe at least two arguments to support the position of the paper. The arguments need to be:

- Clearly explained in detail;
- Based on scientific evidence that has been verified with valid experiments (emotional reasons are unacceptable);
- Acknowledged with the source(s) of information used to build your argument.

Paragraph #3

Refute the main argument for the opposing viewpoint.

Paragraph #4 (Conclusion)

Summarize the main points *and* suggest future action. Your future action should describe one of the following:

- Additional research that is needed to strengthen your position;
- Additional research that is needed to expose weaknesses of the opposing position;
- Application of this theory to a similar topic;
- Governmental laws that are needed immediately to support your position.

»»»» *Adapted and reprinted with permission from Lynn Ocorr.*

Some controversial statements:

- Humans are more evolved than organisms such as fruit flies.
- Gene testing should be available for disorders that can't be cured or prevented.
- Embryonic stem cells should be made available for scientific research.
- Oils from genetically modified crops should be labeled "genetically modified."
- Genetically-modified organs from pigs should be available for transplant into humans.
- 95% of the information from the Human Genome Project is junk.
- Scientists should control the applications of their research.
- Patents on gene sequences enable drugs and tests to be developed.
- Genetically modified mice should be used as disease models for humans.
- Humans will misuse science and technology.
- Everyone's DNA should be profiled (and available for certain purposes e.g. crime).
- People should be able to determine their children's genes.
- Science is personal.
- Gene technology is necessary.