



Genetics

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Science
Grades 9-12



Introduction

Genetics and DNA are major topics in high school sciences. This prompt poses a difficult question and makes students really think about whether or not they would want to know if they suffered from a genetic disease. If you had a family member that had a genetic disease such as Cystic Fibrosis, would you want to have a genetic test to find out if you also had it? Explain your reasons.

Learning Objectives

Students will research genetic diseases and develop a persuasive argument on genetic testing.

Materials Needed

- [Pre-writing graphic organizer](#)
- [Writer's checklist](#)
- Optional activities
- Chromebook/tablet/computer

Procedure

1. Students will brainstorm what they already know about genetics. Review important vocabulary terms with students such as:
 - allele, gene, genotype, cell, DNA, chromosome, etc.
2. Visit these websites about genetics. Make sure to preview all before assigning as websites and content change frequently. Make sure the information is appropriate for the grade level you are teaching.
 - [Learn Genetics Website](#): This is a comprehensive website on genetics offering many different topics with videos, articles, activities, and more. You can give students as much or as little direction as you wish. There is a plethora of information on this site, and students seem to really enjoy browsing it.
 - [Human Genome Research Institute](#): This site also offers many different resources for students (as well as teachers). This link is specific to genetic disorders on the same site.
 - [Genetic Disorder Article](#)
 - BrainPOP links are more elementary but give a basic overview and offer additional resources and reading.

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- [BrainPOP Genetics](#)
 - [BrainPOP Genetic Mutations](#)
 - [BrainPOP DNA](#)
 - [Genetic Disease Foundation Page](#)
3. Students should begin to prewrite for their persuasive essay. The teacher should reference an anchor chart. Have students fill in a graphic organizer. There are many great samples on various websites, but if you have a district or grade-level organizer that is often used, that is a great option. There is one available with this writing prompt.
 - Opening
 - Supporting Details
 - Conclusion
 4. Students will create their essay during this task. Teachers will conference with students as they create their writing piece. Students will be given a checklist to use as they create their writing piece. This will be done throughout the writing process for the essay. You can modify the checklist as needed. This can be a formal or informal writing piece, and you can use it to create a debate in class if you wish.
 5. When the rough draft of the essay is completed, students should have one or two peers edit/revise the essay and make the appropriate changes before creating a final draft.
 6. Students will complete the final draft of the persuasive essay.

Optional Assignment/Extension: The students can participate in a debate on genetic testing. This is a great activity for high school students in order to prepare them for college and the workforce. When the essay is complete, students can work in teams to prepare for the debate. You can split the class into smaller groups and have them participate in timed debates. This is something that gets the students excited often times, and it also further incorporates ELA speaking standards.

Evaluation

You should use the writing rubric that your district requires to grade the writing.