

Mendel's Minions

1 Choose A or B or C and complete ALL the requirements.

A Watch not less than three hours total of shows or documentaries that discuss genetics and/or genomics. Then do the following:

1 Make a list of at least five questions or ideas from the show(s) you watched.

2 Discuss two of the questions or ideas with your counselor.

Some examples include-but are not limited to-shows found on PBS (NOVA: 'Cracking the Code'), Discovery Channel, Science Channel, National Geographic Channel, and TED Talks (online videos). You may choose to watch a live performance or movie developed by a local museum or state or federal agency. You may watch online productions with your counselor's approval and under your parent's supervision.

B Read (not less than three hours total) about genetics or genomics. Then do the following:

1 Make a list of at least five questions or ideas from each article.

2 Discuss two of the questions or ideas with your counselor.

Examples of magazines include-but are not limited to-Odyssey, Popular Science, Science Illustrated, Natural History, Scientific American, Nature Conservancy, Sage, and Smithsonian. Books might include The Immortal Life of Henrietta Lacks or The Gene: An Intimate History.

C Do a combination of reading and watching (not less than three hours total). Then do the following:

1 Make a list of at least two questions or ideas from each article or show.

2 Discuss two of the questions or ideas with your counselor.

Present a report of at least 800 words or 10 minutes (with visual aids) on one of the following topics. Make sure to include the ethical issues involved in your topic. If possible, present your report to your unit or another group in addition to presenting to your counselor.

A Mendelian inheritance, DNA, RNA, genetics, genomics, sequencing, and Punnett squares

B Genetic diseases, personalized medicine, and genetic counseling

C Genetically modified food, transgenic animals, and hybrid foods

D Use of large genetics databases for forensic analysis/solving crimes, genealogical research, or medical studies (The Cancer Genome Atlas (TCGA), Catalogue of Somatic Mutations in Cancer (COSMIC), Exome Aggregation Consortium (ExAC), 100,000 Genomes Project, mitochondrial DNA, etc.)

E Pharmacogenetics and oncogenomic

F Human Genome Project

G CRISPR (Clustered Regularly-Interspaced Short Palindromic Repeats)

H Biotechnology, biologics, and biosimilar drugs

I Another related topic approved by your counselor in advance

Required Items

Strawberries (fresh or frozen)

Resealable plastic bag

2tsp dish detergent

2 plastic cups

1 coffee filter

Rubber band that can fit snugly around plastic cup

1/2c COLD rubbing alcohol

Coffee stirrer or wooden popsicle stick