Science Time

Program Content for December 9, 2015

Read the article "**New Data Archive: DNA**" on page A11 of the Monday, December 7, 2015 edition of The Seattle Times.

Pre-reading and Vocabulary: Define each term and then use it in a sentence to demonstrate your understanding.

1. organic
2. archival
3. millennium
4. synthesize

Comprehension Questions

1. What did two recent experiments reveal about DNA?
2. How long will the new storage technology be able to keep information safe?
3. How long do current storage systems safely store information?
4. What is an exabyte?
5. What is the purpose of DNA in nature?
6. What are the building blocks of DNA?
7. What factor has led to the increased interest and possibility of storing large amounts of information on DNA?
8. What two pieces of equipment commonly found in a biology lab create a prototype of a data-archiving approach?
9. What are some uses that the DNA storage technology could be used for in the future?
10. What is one of the major challenges currently facing scientists looking to improve and use DNA as a storage technique?

Prompts and Extensions

1. A PCR machine is the name of the biology lab tool, "used to amplify fragments of DNA by making billions of precise copies," highlighted in the article. Learn more about how PCR or polymerase chain reactions take place and complete an interactive animation for yourself at this website
2. For a more in-depth examination of DNA storage technology watch and listen to this talk by the molecular biologist Nick Goldman, one of the scientists leading this research at the European Bioinformatics Institute.
3. Advancements in science rarely occur without the assistance of others and the improvement/learning from past studies. The recent ability to store information on DNA is no exception. Within this article there are numerous instances where the work of one lab or university builds upon that of another study completed in the past. Create a list of the instances in which scientists collaborated and built off of the work that occurred before them.

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