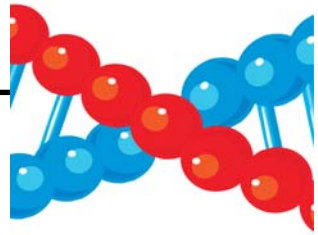
Name _____ Central Ideas



DNA Fingerprinting

DNA “fingerprinting” is fairly common in crime-solving today, but it is a relatively recent technology. It wasn’t until the 1980’s that scientists realized that they could see differences in people’s DNA, but in 1987 the first criminal was caught using DNA evidence, and the landscape of criminal justice was forever changed. Today, the Innocence Project, a non-profit organization in New York, uses DNA evidence to exonerate people of crimes of which they have been wrongly convicted. But DNA identification isn’t just used to solve crimes. It has successfully reunited family members who were separated after natural disasters, and has helped to determine people’s ethnic heritage. DNA can also be used to identify the bodies of those who have died in accidents when there is no other means of identification available.

Like a fingerprint, everyone’s DNA is different, and you leave it behind everywhere you go by shedding microscopic skin cells, hair, etc. But DNA is a little more complicated to uncover than a regular fingerprint. In order to “read” the DNA, and see the slight differences in the DNA of different people, a scientist has to get it from the nucleus of a cell. There are several ways to analyze the DNA. An original technique was called RFLP (Restriction Fragment Length Polymorphism), but it was not ideal since it requires a lot of DNA, and sometimes only a small amount of DNA can be found at a crime scene. One method requiring less DNA is called microsatellite analysis. Another method in development that uses less DNA still is called "lab-on-a-chip." This will be a machine about the size of a credit card that can be taken to crime scenes so that the DNA can be loaded for immediate analysis. The design of this machine calls for tiny tubes and pumps to do the things that scientists normally do in labs—extract the DNA from the cells, make many copies, and then analyze it. The advantages of the “lab-on-a-chip” are substantial cost and time savings.

1. What is the central idea of the first paragraph?

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2. What is the central idea of the second paragraph?

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