Viruses insert segments of unwanted DNA into our cells. Mistakes (mutations) are made when DNA is copied. Other changes (mutations) can be caused in the DNA from environmental toxins or radiation. With all of these bits and pieces of Damaged DNA there has to be a way to cut out the bad spots. This cleanup of damaged DNA is done by a group of proteins called restriction enzymes (or restriction endonuclease). Restriction enzymes are called in when a piece of unwanted DNA is located and they snip it out. They do this by recognizing certain sequences in the code and the cutting at those spots. Sort of like cutting out coupons on the dotted line. Plants, animals, and bacteria have been using restriction enzymes as part of their cell defense and repair systems for millions of years. In the last thirty years humans have started to use these enzymes for other purposes. Today they are one of the basic tools of genetic engineering.

The bacteria E. coli makes a restriction enzyme that you will use in the lab. The enzyme is called EcoR1 (this says that it came from E. coli, strain R, and was the very first one identified). EcoR1 recognizes the DNA sequence

And cuts between the G and A on both sides.

Look at the strand of DNA drawn below and show where it will be cut with the restriction enzyme EcoR1. Paste the result in your journal.
Title of Reading: 4-8 Cutting DNA

A) What one question do I have about this article?

B) Show or describe the reading to a parent or guardian (Name ____________________).
What comments or questions did they have concerning the reading?
(Biology Homework Time __________)

1 Point
A & B

Main Idea

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