

Recombinant DNA Webquest

<http://www.dnai.org/b/index.html>

Techniques

- Read the short introduction, then click on the lower middle tab labeled: "Techniques"
- Scroll to the top of the page and click on the tab labeled: "Cutting and Pasting"
- Scroll over the right hand side and click on the "A" button, next to Cutting and Pasting DNA

1. What are restriction enzymes used for? _____

2. What are DNA ligase enzymes used for? _____

3. How do restriction enzymes know where to cut a DNA molecule? _____

4. What DNA sequence does the restriction enzyme called EcoRI bind to? _____
5. What do the restriction enzymes do, once they bind to the recognition sequence? _____

6. What are "sticky ends"? _____

7. Which enzyme is used to re-attach the sticky ends? _____
8. Scroll back to the right hand side and click on the "A" button, next to Recombining DNA. Play the movie on large. You will probably have to just read the script, unless you can get the volume control to work.
9. What are plasmids? _____
10. What are plasmids used for? _____

11. What is the first step in this process? _____

12. What nitrogen bases would the foreign piece of DNA need to be, in order to compliment the sticky ends of the plasmid? _____
13. What happens to the recombinant DNA, once it is finished? _____

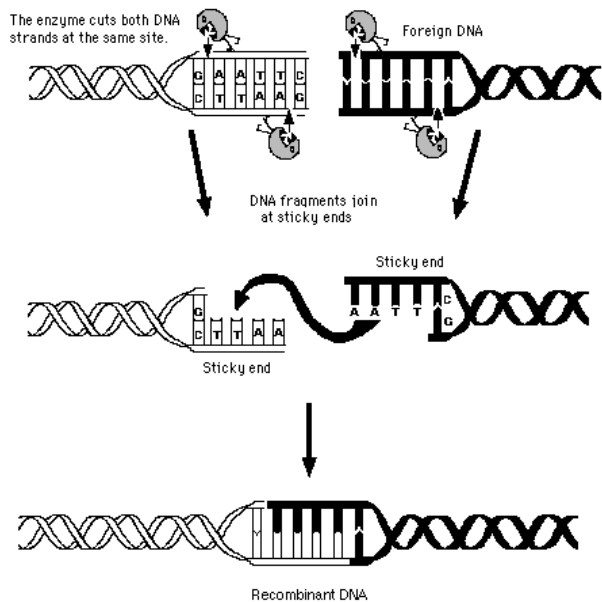
Production

- Scroll down to the tab labeled "Production"
 - Click on the upper tab labeled "Problem"
1. What was one of the first applications of recombinant DNA? _____
 2. Before 1922, what happened to diabetics? _____
 3. What purpose does insulin perform? _____

 4. During most of the 20th century, what were the main sources of insulin? _____

5. Why did we stop using cows and pigs to get insulin? _____
- _____
6. Summarize the basic idea behind using recombinant DNA to produce insulin: _____
- _____
- _____
7. Scroll up and click on the tab labeled "Pieces of the Puzzle". The scroll over the puzzle piece and click on the P4 piece. Watch the video clip to see the precautions scientists must take when working in a biotech lab.
8. Scroll up and click on the tab labeled "Putting it together".
9. Besides bacteria, what other organism is used to produce insulin? _____
10. What was used to make the DNA for insulin? _____
- _____
11. What was used to make the second strand of DNA? _____
12. Into what gene are the DNA strands inserted? _____
13. What is the tetracycline used for? _____
- _____

Restriction Enzyme Action of EcoRI



Inserting a DNA Sample into a Plasmid

