Name _____ Date _____ Period _____

ZornScience
zornscience.org

Genetic Engineering

Biology

Show your work in the blank space. Use complete sentences where asked.

1. Name the tool that does each job in making a recombinant plasmid.

Job	Tool
Cuts the plasmid and the gene at specific sequences	
Joins the cut pieces of DNA together	
Carries the gene into a bacterium	

2. A plasmid vector is 2,700 bp. A gene of 900 bp is inserted.

(a) What is the size of the recombinant plasmid?

(b) After transformation, 120 colonies grow on a plate from 0.04 micrograms (ug) of DNA. How many colonies per microgram is this?

CC BY-NC-SA 4.0 | zornscience.org

3. Sample data (made up for practice): a farmer compares two fields. In a field with a non-engineered crop, the farmer sprays 6 times per season and harvests 100 units. In a field with a Bt crop, the farmer sprays 2 times and harvests 108 units.

(a) How many fewer sprays does the Bt crop field need?

(b) Write a claim, evidence, reasoning statement about the Bt crop. Also state one thing these data do not show.

4. Decide whether each statement is evidence or a value judgment.

(a) "The sample data show 2 sprays on the Bt field and 6 on the other field."

(b) "Farmers ought to choose Bt crops."

5. Choose one use of genetic engineering from the lesson (insulin, Bt corn, or gene therapy for sickle cell disease). Write a claim about whether its benefits outweigh its risks, with one benefit, one risk, and the view of one person or group affected. Different claims can be well supported.

CC BY-NC-SA 4.0 | zornscience.org