

# STUDENT WORKSHEET

## ACTIVITY 1: GENETIC ENGINEERING

Name \_\_\_\_\_ Date \_\_\_\_\_ Class/Hour \_\_\_\_\_

KWL CHART			
Exploration Question	What do I know?	What do I want to know?	What did I learn?
What is bacterial transformation?			
What is genetic engineering?			

Answer the questions below after viewing these videos: *Soybean Genetic Modification* [www.youtube.com/watch?v=wTraZwHDHXk](https://www.youtube.com/watch?v=wTraZwHDHXk), *Restriction Endonucleases (enzymes)* <https://www.youtube.com/watch?v=GJrAsW41a64>, and *3D Animation – Bacterial Transformation 3D Animation* <https://vimeo.com/170630548>

1. What is bacterial transformation? \_\_\_\_\_  
\_\_\_\_\_
2. Can bacteria transform naturally? If so, how? \_\_\_\_\_  
\_\_\_\_\_
3. What are plasmids? \_\_\_\_\_  
\_\_\_\_\_
4. What is the role of plasmids in bacterial transformation? \_\_\_\_\_  
\_\_\_\_\_
5. What is the role of DNA ligase? \_\_\_\_\_  
\_\_\_\_\_
6. Explain how the calcium chloride bath is used to insert the foreign DNA into the bacterial cell. \_\_\_\_\_  
\_\_\_\_\_
7. What happens when DNA is transcribed and replicated? \_\_\_\_\_  
\_\_\_\_\_
8. What do the scientists do to confirm that transformation has taken place? \_\_\_\_\_  
\_\_\_\_\_