Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period 1 2 3 4 5 6 7

**All animations can be found at** [**www.mcquadesbioconnect.weebly.com**](http://www.mcquadesbioconnect.weebly.com) **Biology 🡪 semester 2 🡪 Gene Expression**

**Part1: Griffith** Watch the following video about Griffiths Experiment <https://www.youtube.com/watch?v=sSa2pHZEwMs>

1. Summarize Griffiths Experiment in 6 complete sentences. You should include what he was trying to do (1 sentence), his experimental procedures (4 sentences), and his conclusions (1 sentence)

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1. Define the word “transform”: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Griffith used the term “transformation” to describe what happened. In 1 or 2 complete sentences, explain why this term is appropriate for his experimental results? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Look in your notes from class and define the word “transformation”. YOU CAN NOT LOOK THIS UP ON THE INTERNET!!! You’ll get the wrong definition, you must use your notes from class. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Look in your notes and p340 of your text and explain how Avery took Griffiths experiment 1 step farther. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. What conclusion did Avery come to? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part 2: Hershey & Chase** Watch the animation about the Hershey & Chase Experiment and answer the questions

1. First, see p340 of your textbook and define bacteriophage.

<http://highered.mheducation.com/olcweb/cgi/pluginpop.cgi?it=swf::535::535::/sites/dl/free/0072437316/120076/bio21.swf::Hershey+and+Chase+Experiment>

1. Hershey & Chase used viruses to demonstrate what?
2. Draw a picture of a phage and label the DNA & Protein coat.
3. What part of the phage enters a bacteria?
4. \_\_\_\_\_\_\_\_\_\_\_ was used to radioactively label proteins, while \_\_\_\_\_\_\_\_\_\_\_\_ was used to radioactively label DNA.
5. What conclusion could they draw from their experiment?

**Part 3: DNA Structure** Watch the following animation and use it to answer the questions <https://www.youtube.com/watch?v=_POdWsii7AI>

1. Can we clone organisms? Yes/ No
2. Based on this video, list the steps of cloning an iguana

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1. Can the environment affect how organisms look and how gene functions? Yes/ No
2. Whys is DNA so important?

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1. How many of your cells have your DNA code?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Explain how skin cells and a stomach cells can have the same DNA, but use gene expression to not make the same proteins (like skin cells don’t make digestive enzymes) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What are the 4 types of organic molecules?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ &\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ &\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. What type of organic molecule does DNA belong to?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. What type of monomer makes up DNA?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. What are the 3 parts of a nucleotide? Draw & Label it below
7. What is the sugar in DNA called?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. What 2 parts make up the “backbone” of DNA?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ &\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. What part of the DNA control your traits?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. How does DNA pair its bases?
11. Now, use your notes to identify which bases are Purines and which are pyrimidines.
12. If a sample of DNA has 22% Thymine, calculate the amount of adenine\_\_\_\_\_\_, guanine \_\_\_\_\_, & cytosine\_\_\_\_\_.
13. Purines have \_\_\_\_\_\_\_\_\_\_\_ rings and pyrimidines have \_\_\_\_\_\_\_\_ rings.

Now watch this animation and answer the following questions

<https://highered.mheducation.com/sites/9834092339/student_view0/chapter3/dna_structure.html>

1. Who discovered the structure of the DNA molecule?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ & \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What contribution did Maurice Wilkins & Rosalind Franklin make to understanding the structure of DNA?
3. When the animation says “chemical analysis of base composition of DNA by Erwin Chargaff” what specifically are they referring to? (You may have to look in your notes for this)
4. What alternates in the backbone of DNA? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ & \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. What types of bonds hold the 2 strands of the double helix together?
6. Which base pairs are more stable A=T or G=C? Why?
7. Why do we say DNA is Antiparallel?