**The Structure Of DNA** (p. 190 – 197)

**I. Transformation**

**1. In 1928, what did Frederick Griffith want to develop for pneumonia?**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**2. The strain of bacteria that caused pneumonia grew into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ colonies on**

**culture plates; harmless bacteria produced colonies with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ edges.**

**3. Circle the letter of each sentence that is true about Griffith’s experiment.**

a. Mice injected with bacteria from smooth colonies died.

b. Mice injected with bacteria from rough colonies died.

c. Mice injected with heat-killed bacteria from smooth colonies died.

d. Mice injected with a mixture of bacteria from smooth and rough colonies died.

**4. What result from Griffith’s experiment suggested that the cause of pneumonia was not a**

**chemical poison released by the disease-causing bacteria?**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**5. What hypothesis did Griffith form from the results of his experiments?**

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**6. Define the term transformation.**

Transformation –

**7. In 1944, what did Oswald Avery determine to be the transforming factor of pneumonia?**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**II. Viral Genes & DNA**

**1. Despite Avery’s findings, what did many scientists think was genetic material?**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**2. Define the term bacteriophage.**

Bacteriophage –

**3. What happens when a bacteriophage infects a bacterial cell?**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**4. Which molecules in the T2 bacteriophage contain :**

Phosphorus : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Sulfur : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**5. List the three steps of the 1952 Hershey-Chase Experiment.**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**6. What results did Hershey & Chase observe?**

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**7. Hershey & Chase concluded that the genetic material was : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**III. A Winding Staircase**

**1. Define the term nucleotides.**

Nucleotides –

**2. What are the three main components of a nucleotide?**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**3. What is the name of the sugar making up DNA?** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**4. List the four different nitrogenous bases of DNA.**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**5. What makes up the backbone of DNA?**

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**IV. Discovering DNA’s Structure**

**1. In 1949, what did Edwin Chargaff discover about nitrogenous bases?**

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**2. What shape of DNA did Rosalind Franklin and Maurice Wilkins discover in 1952?**

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**3. In 1953, how did James Watson & Francis Crick describe the structure of DNA?**

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**4. A purine of one DNA strand is paired with a pyrimidine of the opposite strand.**

Circle One : True False

**5. Complete the complementary base pairing of the following DNA strand.**

A T T C T G C T A G G C T T A G G A C A T T A

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