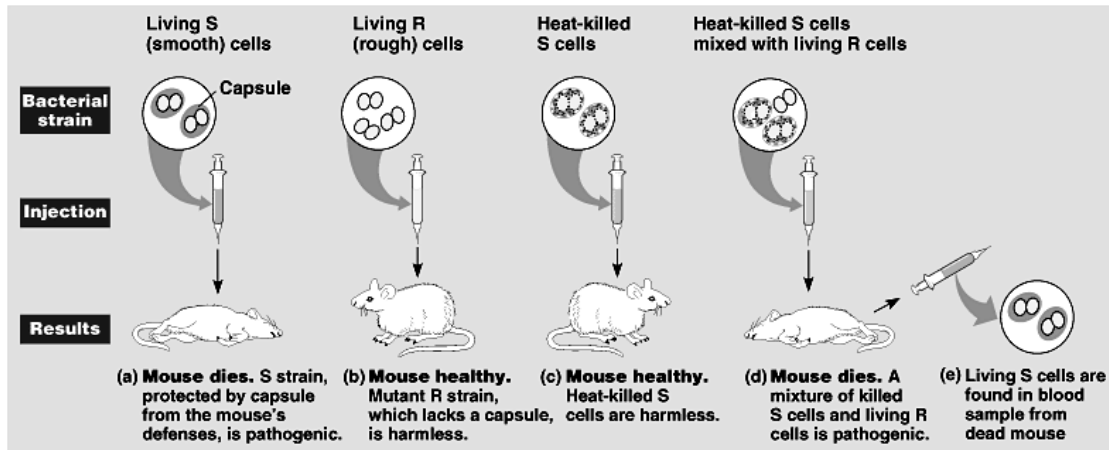


4. Use this figure to summarize the experiment in which Griffith became aware that hereditary information could be transmitted between two organisms in an unusual manner.



Purpose: To see if a harmless form of bacteria can be changed or transformed into a more deadly form.

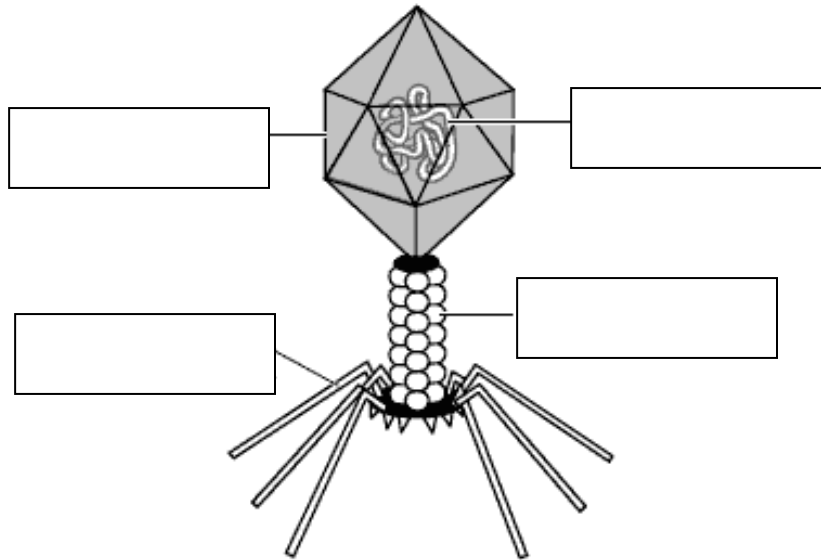
Hypothesis: IF the remains of heat-killed pathogenic (deadly) bacteria (*Streptococcus pneumonia*) are mixed with harmless bacteria, THEN some of the harmless bacteria will be changed into pathogenic bacteria by some “external agent.”

Independent Variable: Bacteria

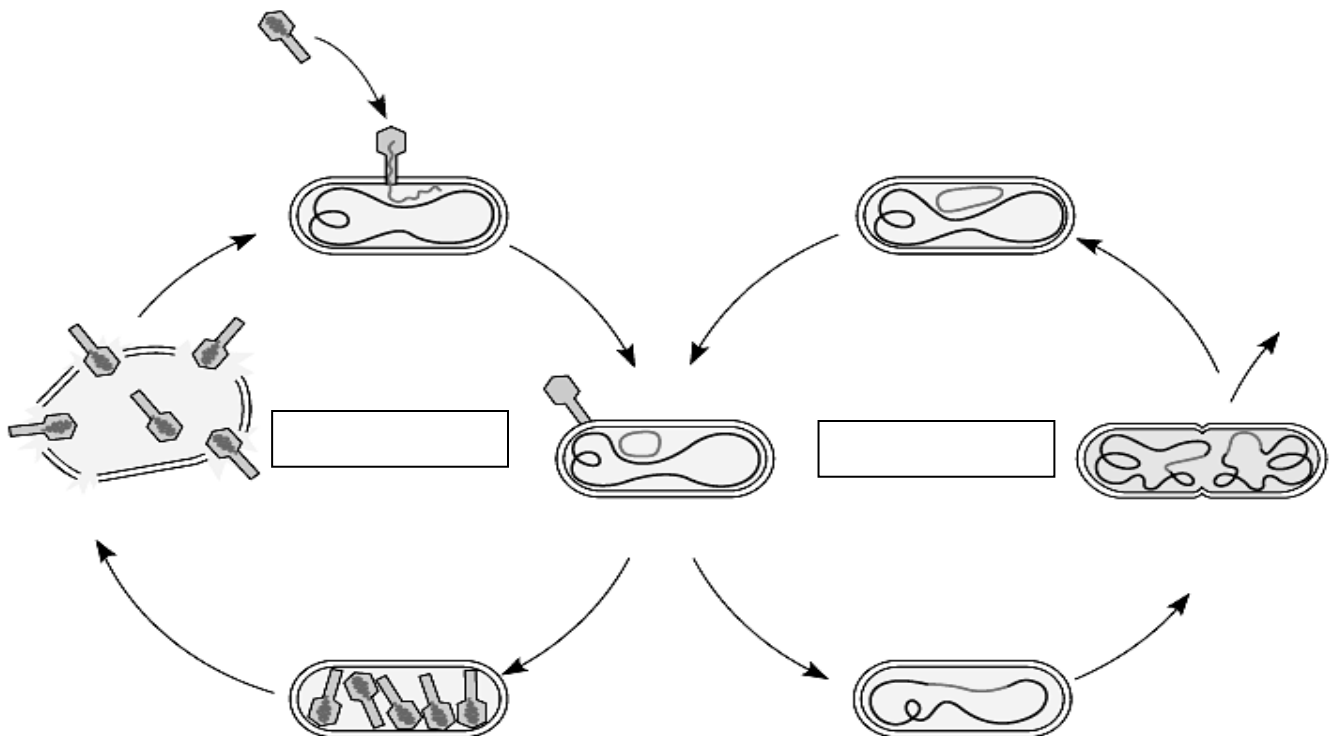
Dependent Variable: Mouse

Conclusion: A chemical agent “transformed” the harmless bacteria.

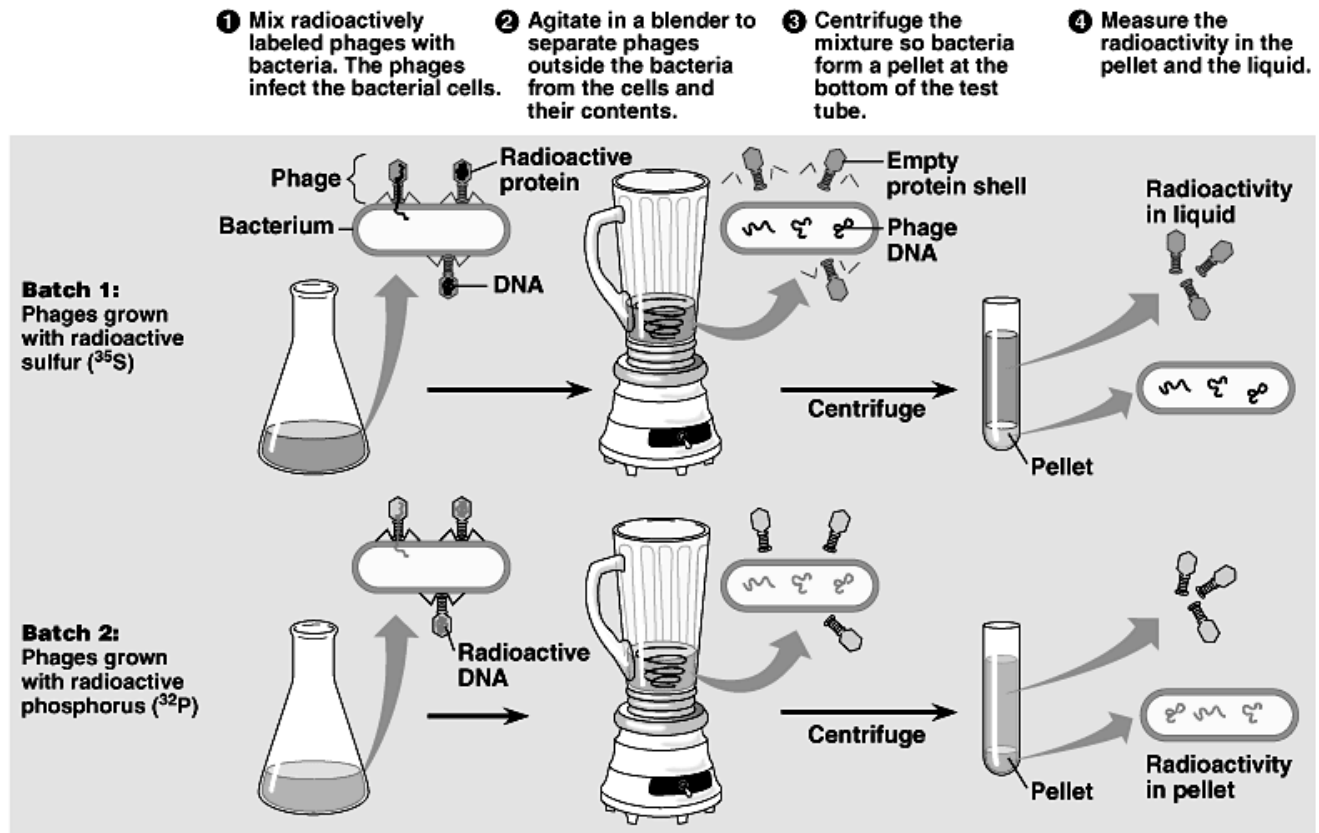
8. Label the *head*, *tail sheath*, *tail fiber*, and *DNA* of the diagram of a bacteriophage below,



10. Label the diagram below (*Fig.18.5*) and use it to help explain the two methods of viral replication.



12. Use this figure to summarize the experiment in which Hershey and Chase became aware that hereditary information could be transmitted between two organisms in an unusual manner.



(b) The experiment showed that T2 proteins remain outside the host cell during infection, while T2 DNA enters the cell.

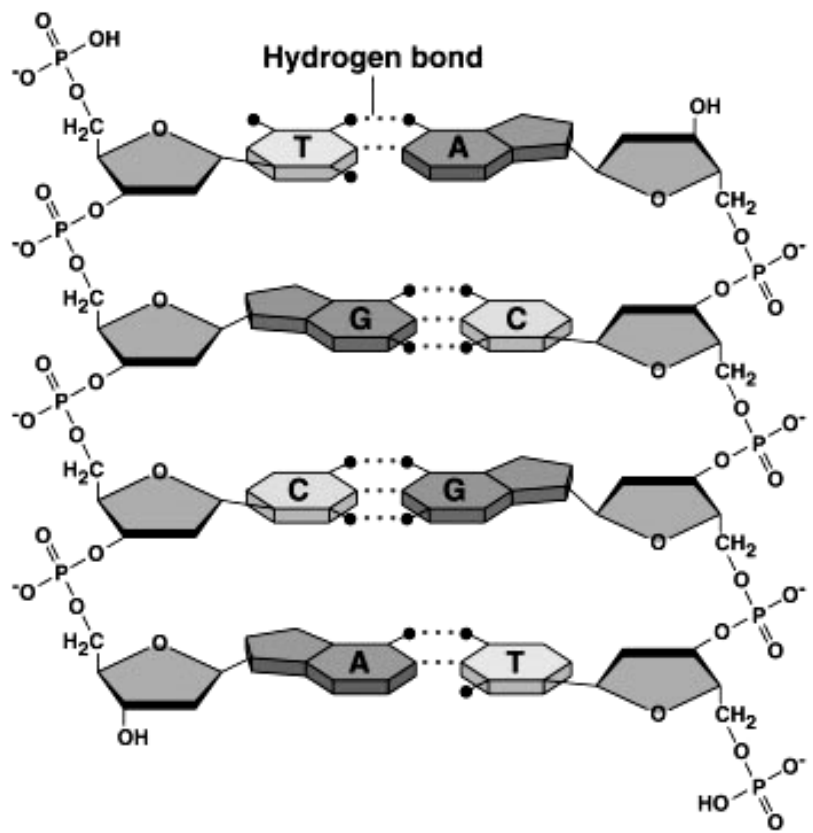
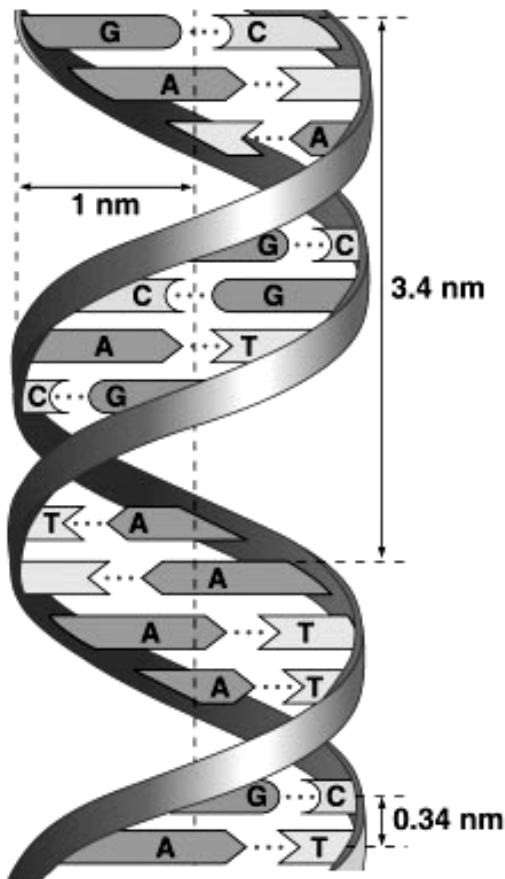
Purpose: To determine which part of a bacteriophage (bacteria-infecting virus) the protein or nucleic acid/DNA, “reprograms” the host bacterial cell.

Hypothesis: IF radioactive phosphorus – ^{32}P used to “tag” the viral DNA is found in the more dense pellet containing E.coli bacteria and the radioactive sulfur – ^{35}S used to “tag” the viral protein coat is found in the less dense liquid, THEN the DNA functions as the bacteriophage’s genetic material.

Independent Variable: Virus **Dependent Variable:** Location of ^{32}P / ^{35}S

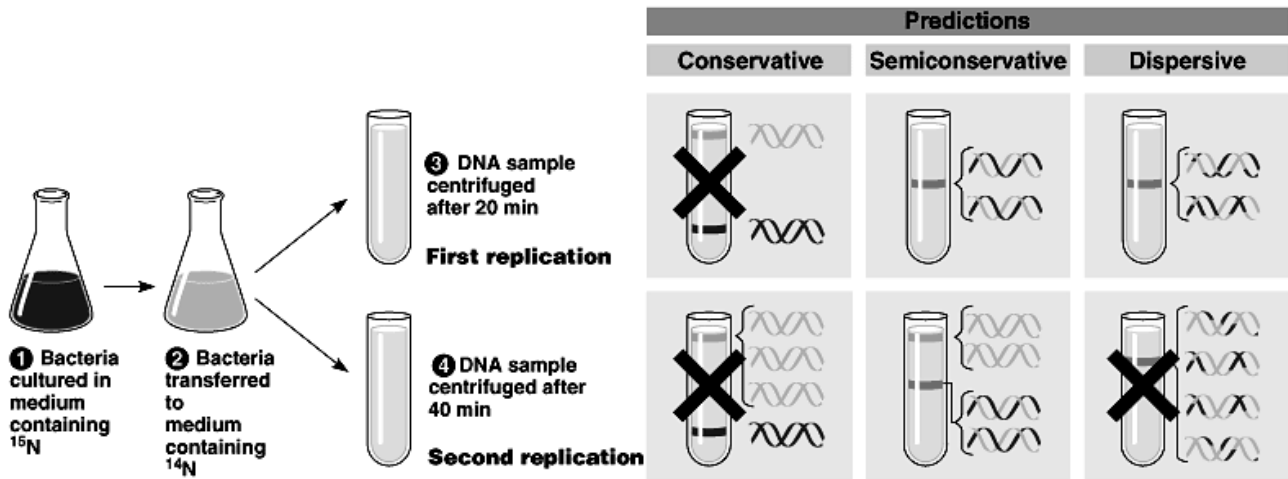
Conclusion: ^{32}P found in the pellet – DNA is the genetic material

21. Review the structure of DNA by labeling the diagram below and answering the questions that follow.



- a. distance across molecule _____
- b. distance between nucleotides _____
- c. distance between turns _____
- d. components of the backbone _____
- e. components of the “rungs” _____

26. Use this figure to summarize the experiment in which Meselson and Stahl confirmed the semiconservative mechanism of DNA replication.



Purpose: To determine if DNA replication is conservative, semiconservative or dispersive.

Hypothesis: **IF** DNA replication is semiconservative (one strand is conserved and acts as template to build the other strand), **THEN** E.coli bacteria grown first in “heavy” nitrogen – ^{15}N and then grown in “light” nitrogen – ^{14}N will consist of one band of intermediate density ($^{15}\text{N}/^{14}\text{N}$) and one band of light density ($^{14}\text{N}/^{14}\text{N}$) after centrifugation.

Independent Variable: Bacteria

Dependent Variable: DNA Band location

Conclusion: DNA replication is semiconservative

28. Review the process of DNA replication by labeling the diagram below.

