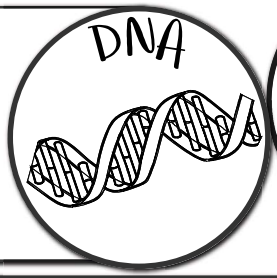
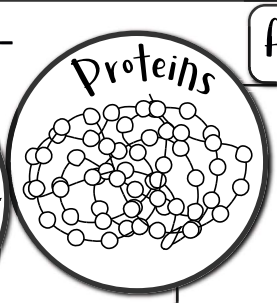
Name: _____

Another Experiment was Needed to Prove

More people started looking at DNA as being important





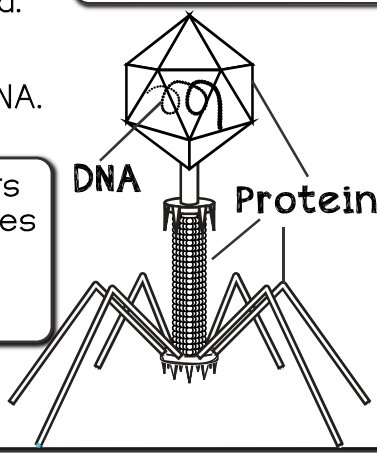
After Avery's experiment, some scientists still claimed that protein was responsible for transmitting genetic information. They said his samples could have been contaminated with a protein that was not denatured by heat or destroyed by protease.

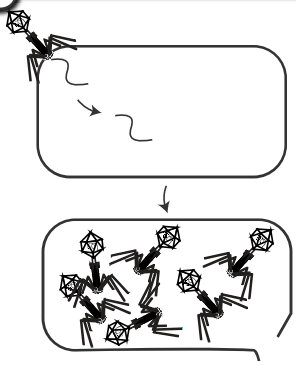
What else scientists knew at the time:

Bacteriophages are viruses that infect bacteria. They have protein and DNA.

What elements proteins are made of:
C, H, O, N, S

What elements DNA nucleotides are made of:
C, H, O, N, P

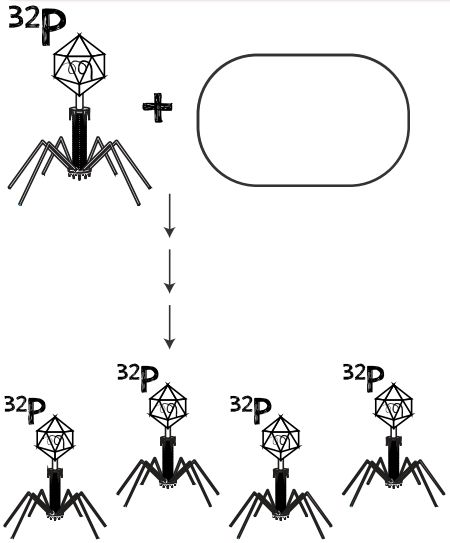




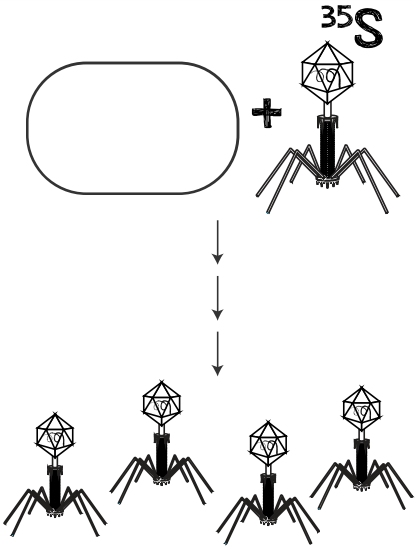
When a bacteriophage attaches to a bacterial cell, something from the bacteriophage enters the cell. Some sort of instructions tell the cell to build new bacteriophages.

- These new bacteriophages must carry some sort of information from the original phage.
- If you run the sample through a blender and centrifuge, you can separate the bacterial cells from the outer shell/coat of the phage in a centrifuge tube.

Alfred Hershey and Martha Chase, 1952



They grew some bacteriophages with radioactive phosphorus and radioactive sulfur. They infected separate samples of bacterials cells and then used a blender and centrifuge to separate the cells from the outer phage coats. Then the cells produced new bacteriophages.



The new bacteriophages in the sulfur sample did not have radioactive sulfur. It remained with the original phage's protein coats in the original solution and did not enter the cell and did not get used to make the new phages.

Protein could not be the genetic material with the instructions to build new phages!

Protein is NOT.