

What is science?



What is science?

- A bunch of facts?
- A bunch of ideas?
- A class?

What is science?

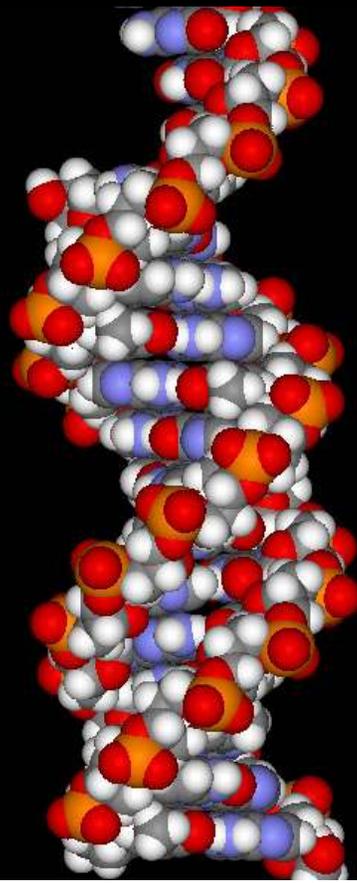
- Science is a quest
 - A process to gain understanding
- How do we gain understanding?
 - Asking questions
 - Designing ways to answer questions

What is science?

- Science builds on the discoveries of the past
 - Cumulative process
 - How?
 - One question leads to another
- Scientific discovery requires technology
 - Example?

The process of science

The Discovery of DNA



People in the past used to wonder...

- Why do children look so much like their parents?
- Why do animals and plants have traits similar to their parents?
- How do traits get passed from one generation to the next?

People in the past used to wonder...

- People began to suspect it was a physical molecule transferred from parent to offspring
- So people started looking for it.

When did people discover that DNA existed?

- 1869- Johann Freidrich Meischer
 - Found in the nucleus of a cell

- No one was really sure what DNA did

Early 1900's

- Other scientists discover the nucleotide components
 - Sugar, nucleotide, nitrogenous bases
- As scientists discovered more about DNA they thought its structure was too simple to carry the complex information of heredity.

Time for important scientists

- As you go through these next slides, you will be searching on the internet to learn about important scientists
 - Use the questions listed on your note sheet to guide your searches
 - Write down important information you find
 - Use the links provided but feel free to just search the web
 - Have fun!

Fredrick Griffith - 1928

- He worked with bacteria that caused pneumonia. What was he attempting to discover?
- Give a short summary of his experiment with mice and his results.
- He discovered the principle of transformation. What is that and how did he come to his conclusion?
 - [Scitable – Transforming Principle](#)
 - [Wikipedia – Griffith's Experiment](#)

Oswald Avery- 1944

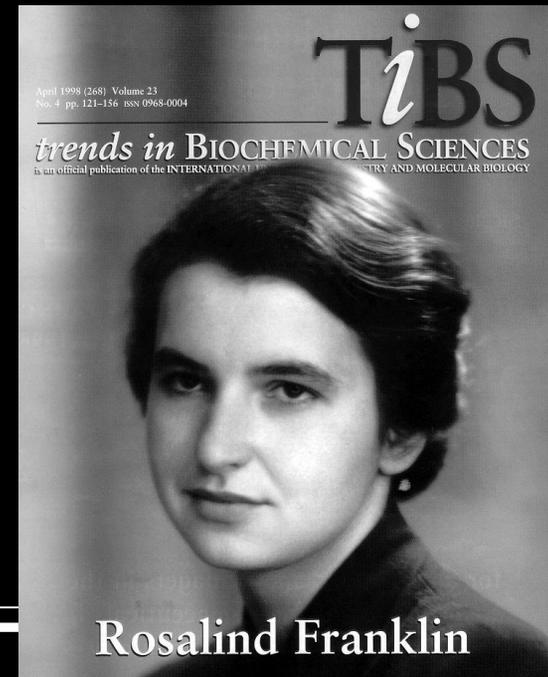
- He was initially skeptical of the results of Griffith's research. What did he do as a result?
- What were the results of his experiments?
 - [National Library of Medicine](#)
 - [Wikipedia – Avery](#)

Alfred Hershey and Martha Chase-1944

- Hershey and Chase performed a famous experiment. What was the purpose of their research?
- Give a short summary of their experiment with viruses and their results.
- What did they discover from their research?
 - [Scitable – Hershey and Chase](#)
 - [Wikipedia – Hershey and Chase Experiment](#)
 - [Animation – Experiment](#)

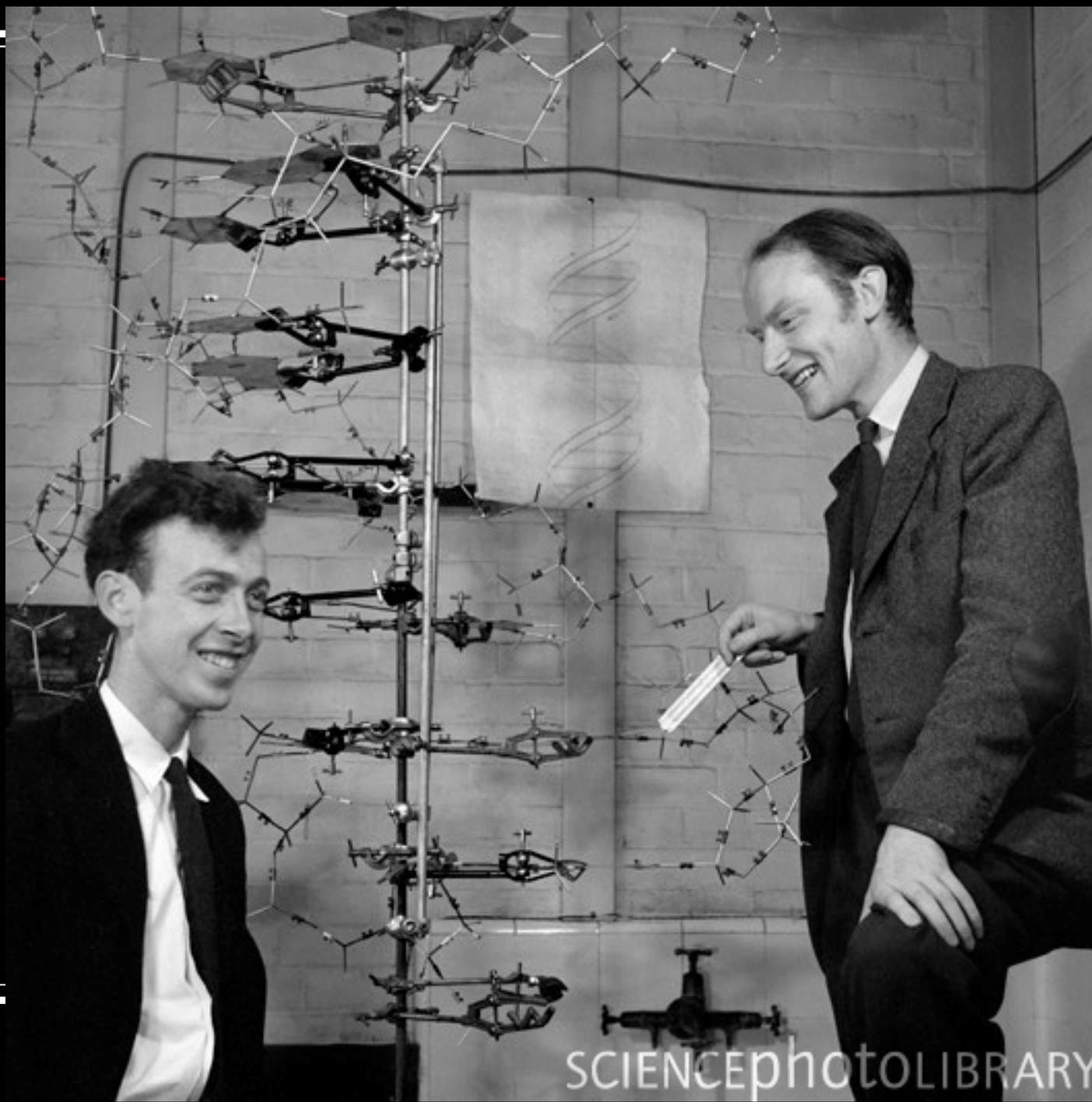
Maurice Wilkins and Rosalind Franklin - 1951

- Wilkins and Franklin were working together in the same lab. What were they working on?
- What were they producing as a result of their efforts?
 - [Wikipedia – Wilkins](#)
 - [PBS – Franklin](#)
 - [Wikipedia - Photo 51](#)
 - [McGraw-Hill Education Site](#)



James Watson and Francis Crick - 1953

- ~~Watson and Crick were working together in the same lab. What were they working on?~~
 - What did they receive from the Wilkins and Franklin Lab?
 - What did they do that no other person had accomplished?
 - Why has the discovery of DNA structure been so important? How has it changed science?
 - [PBS – Watson and Crick](#)
 - [Scitable – Watson and Crick](#)
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- [National Library of Medicine](#)



SCIENCEPHOTOLIBRARY

