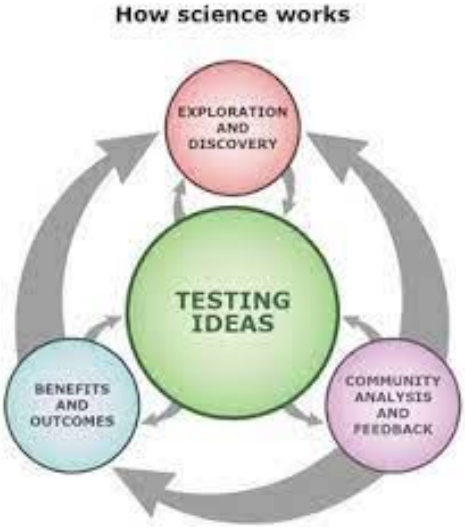
Chapter One: The Science of Biology
Lesson 1.2: Science in Context

The testing of ideas is the heart of science and engineering.

The process of science typically consists of the following components.



Exploration and Discovery:

- Begins with observations and questions
- Studies can spark <u>curiosity</u> and lead to new questions
- Question existing ideas and be <u>skeptic</u> about explanations without evidence
- Be <u>open-minded</u> to new ideas that don't agree with your hypothesis
- Being <u>creative</u> are essential for asking questions
- New technologies open new ways of asking questions

Community Analysis and Feedback

- Scientists share research with other scientists through
    - Feedback and peer review – ensures accuracy
        - Scientific journals and meets certain standards
    - Replication – ensures accuracy
    - Discussion with colleagues
    - Publication – sharing research with the general public

    - Coming up with new questions/ideas

Benefits and Outcomes

- Science interacts constantly with society, economy, and moral principles
    - Different drugs and treatments
- Science cannot tell you whether you should or should not do something
- Science explains how life operates but not the meaning of life
- Bias: personal, rather than scientific, point of view for, or against, something
    - Example would be vaccines

Science and engineering

- Use and develop models
- Use mathematical calculations – using variables
- Construct explanations and design solutions
    - Describing how variables relate to one another
- Engaging in arguments used to persuade others that an idea is right or wrong