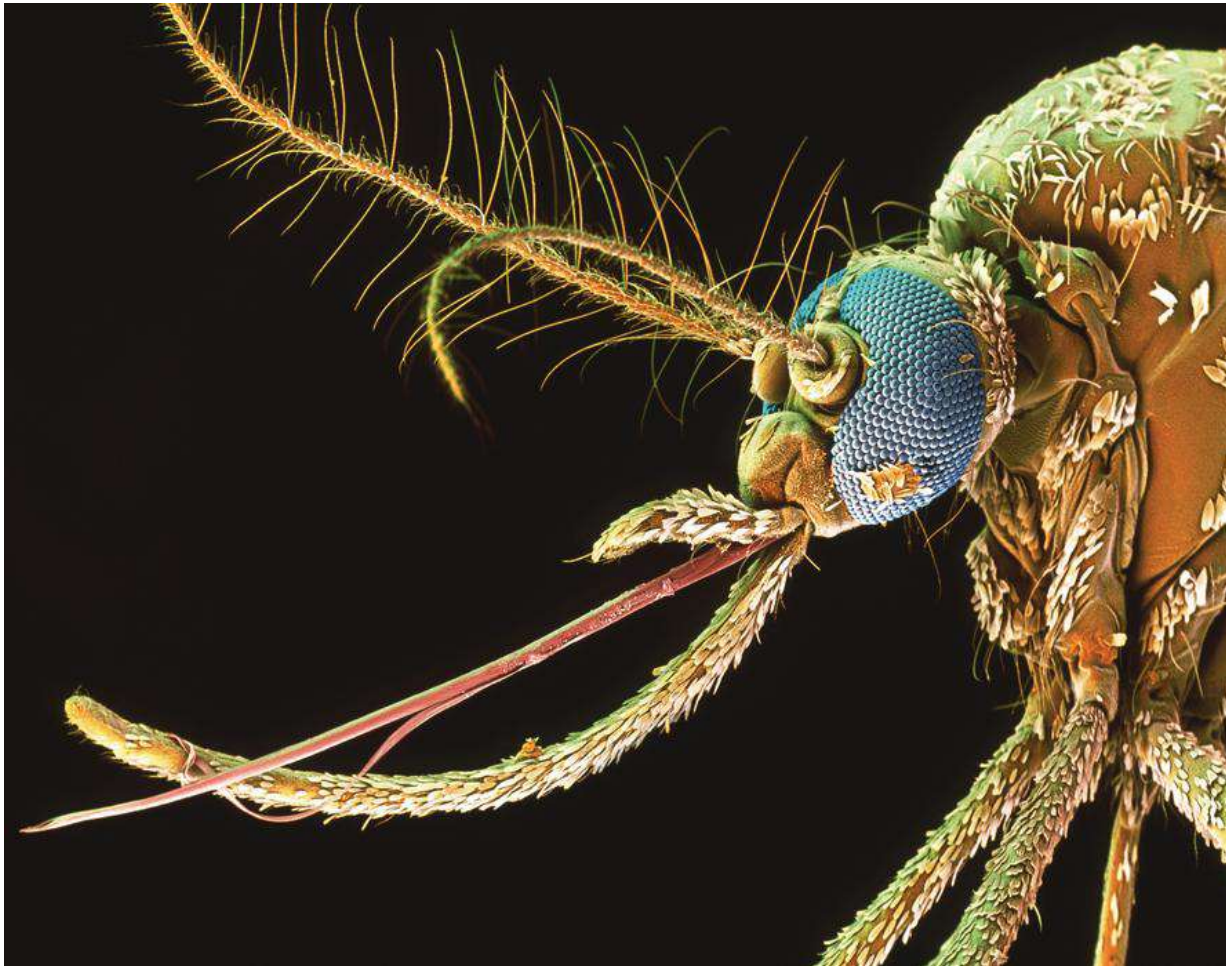


1.3 Scientific Thinking and Processes

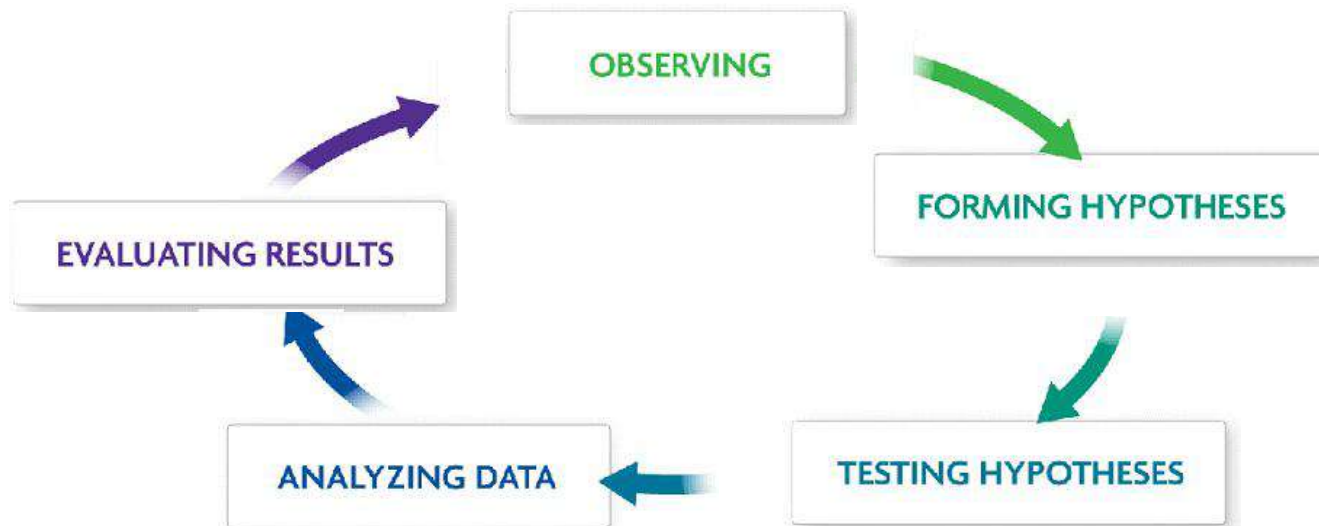
KEY CONCEPT

Science is a way of thinking, questioning, and gathering evidence.



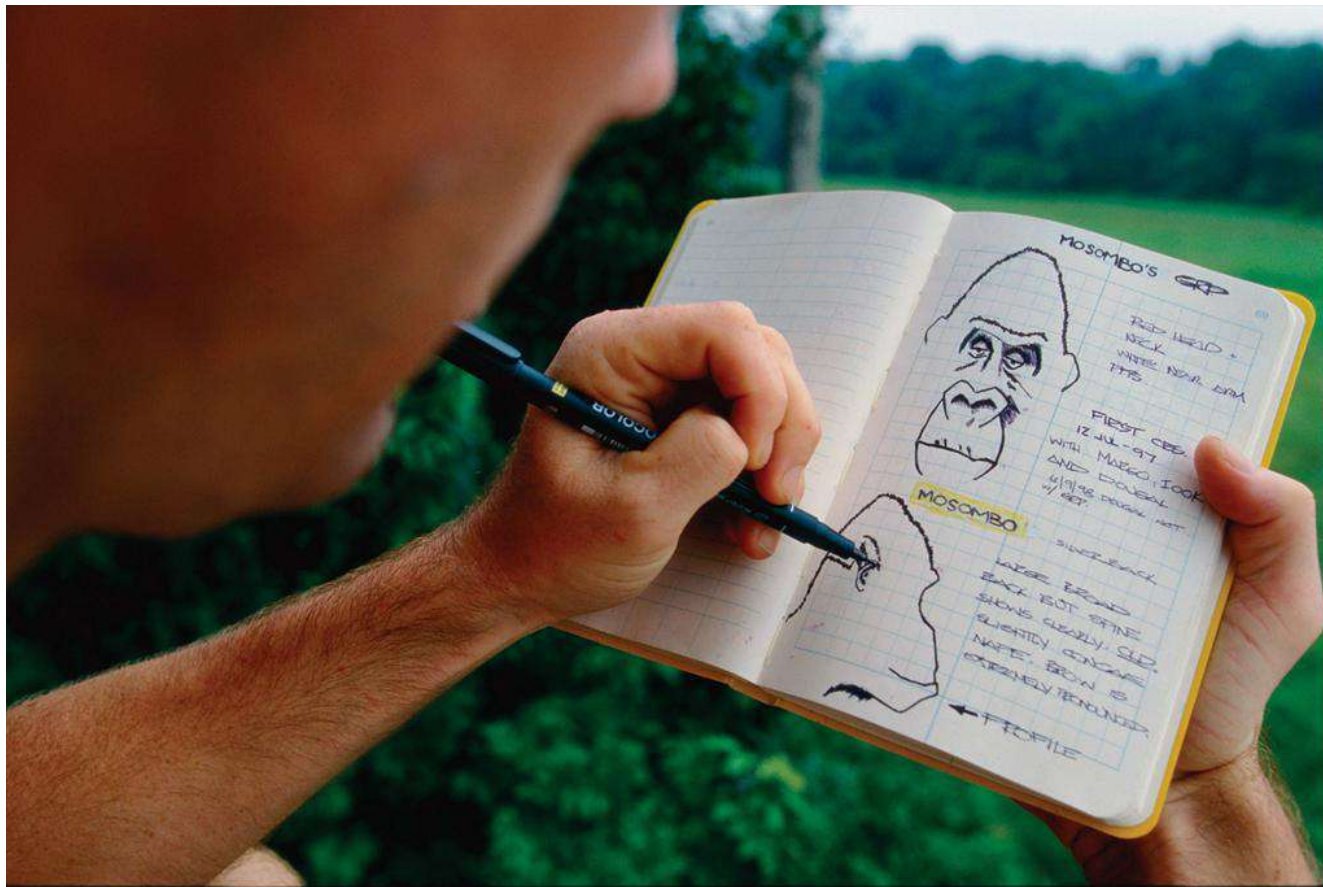
1.3 Scientific Thinking and Processes

- ▶ Like all science, biology is a process of inquiry.
 - Scientists make careful and systematic observations.
 - Scientists record observations as data.
 - Scientists form a hypothesis as a possible answer to a question.
 - Scientists test their hypotheses and analyze their data.



1.3 Scientific Thinking and Processes

- ▶ **Biologists use experiments to test hypotheses.**
 - Observational studies allow scientists to describe a phenomenon.



1.3 Scientific Thinking and Processes

- Experimentals allow scientists to determine what causes a phenomenon.



1.3 Scientific Thinking and Processes

- Experimental studies allow scientists to determine what causes a phenomenon.
 - Independent variables are manipulated.
 - Dependent variables are observed and measured.

independent variable



dependent variable

- Constants are conditions that are kept the same.

1.3 Scientific Thinking and Processes

- ▶ **A theory explains a wide range of observations.**
 - Theories explain a wide range of observations and experimental results.
 - A theory is supported by a wide range of scientific evidence.
 - Theories can change based on new evidence.

