

Notes      Biology      Chapter 1      Section 2 and 3

- I. Science is a process that allows us to study the world around. ∞.
- II. Limitations of Science
  - i. Scientific work must investigate a 'testable" problem.
  - ii. Science cannot solve opinion based problems.
- III. Scientists are constantly revising their ideas
  - i. Scientific discoveries and ideas are not static
  - ii. Explanations of scientific ideas must be revised as new information is obtained.
    - 1. More research leads to more testable questions
    - 2. More experiments lead to better explanations of scientific ideas
    - 3. Better technology aids scientists in their discoveries.
- IV. Investigations
  - iii. Scientists learn new information through investigations
    - 1. Simple observations
    - 2. Complex experiments
    - 3. Modeling
- V. Scientific Methods
  - iv. Although the scientific method has several distinct steps scientist often repeats steps within the process. (See Figure 14 on pg 17 of the text)
  - v. Any scientific investigation must be repeatable and verifiable

1. Peer Review

- VI. Collecting Data

- i. Qualitative

1. Color, shape, size, ect

- ii. Quantitative

1. Weight, height, distance, temperature

- VII. Analyzing Data and Drawing Conclusions

- i. Does the data support the original hypothesis?

1. Yes—complete additional trials to confirm similar results

2. No—complete additional trials, if necessary revise hypothesis and retest.