

Chapter 1: Biology in the 21st Century

*Hypothesis or Theory?

1. A hypothesis is a specific, testable prediction for a limited set of conditions.

a. a possible answer to a question that can be tested

2. A theory is a general explanation for a broad range of data

a. includes hypotheses that have been tested

b. used to generate new hypotheses

3. Why did the chicken cross the road?



1 The Study of Life

A. Diversity of Life

- 1. Biosphere: includes ALL living things AND ALL the places where they live
 - a. all connected, includes land and water environments
- 2. Biodiversity: all of the different life that lives in an area
 - a. species: a population of living things that can reproduce

B. Characteristics of Living Things

- 1. Living things are made up of one or more cells:
 - a. a cell is the smallest unit considered fully alive
 - b. cells do all of the things that living things do
- 2. Living things are based on a universal Genetic Code
 - a. all organisms store complex info they need to live, grow and reproduce in their genetic code.
 - b. the genetic code is written in a molecule called DNA
 - c. this info is copied and passed from parent to offspring

3. Living things obtain and use materials and energy
 - a. all organisms need to take in materials which allow them to grow, develop, live and reproduce
 - b. Metabolism: all of the chemical reactions that break down and build substances and structures in the body
4. Living things grow and develop
 - a. living things use nutrients to grow in size by adding new cells
 - b. living things develop or change throughout their life
5. Living things reproduce
 - a. Reproduce: make new organisms of the same species
 - b. sexual reproduction: two cells, sperm and egg, unite to form the new organism
 - c. asexual reproduction: a single organism produces offspring identical to itself