

Concept Review

Section: The Nature of Science

1. **Name** four branches of biological science.

2. **Define** the following terms:

a. science

b. technology

c. scientific model

3. **Describe** the difference between a scientific law and a scientific theory.

4. **Explain** why it is important for scientists to be objective in their observations.

5. **Explain** why each of the following steps is important to scientific study.

a. planning experiments

b. testing results

Concept Review

Section: The Way Science Works

1. Name three tools used by scientists, and describe how they are used.

2. Explain why an experiment should test only one variable at a time.

3. Convert the following measurements as indicated:

- _____ a. 95 cm to meters
- _____ b. 1.1 L to milliliters
- _____ c. 17 000 m to kilometers
- _____ d. 500 kg to grams
- _____ e. 2.55 mmol to moles

4. Explain why it is important that a hypothesis be stated so that it can be modified.

5. Describe why prefixes are useful with SI units.

6. Explain why scientists use SI units instead of units such as inches and gallons.

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Section: Organizing Data

1. Convert the following measurements from scientific notation to long form:

_____ a. 2.54×10^{-3} cm

_____ b. 9.5×10^4 km

_____ c. 3.3×10^{-1} L

_____ d. 7.445×10^2 g

2. Convert the following measurements to scientific notation:

_____ a. 325 kg

_____ b. 0.000 46 m

_____ c. 7104 km

_____ d. 0.0028 L

3. Find the number of significant digits in each of the following:

_____ a. 0.003 26

_____ b. 39 010

_____ c. 77 900.1

_____ d. 1.5300

4. Identify the type of graph best suited to display the following:

a. the amount of iron ore in four different countries

b. the major gases found in Earth's atmosphere

c. the price of crude oil since 1990

5. Explain how results can be precise but not accurate.
