

# 6th Grade Science Quiz

Fifteen questions about cells, energy, weather, and Earth's systems. Can you pass 6th grade science?

Name / Team: .....

Score: .....

**1** What is the basic unit of life?

- A. Atom
- B. Molecule
- C. Cell
- D. Organ

**2** What organelle is called the 'powerhouse of the cell'?

- A. Nucleus
- B. Ribosome
- C. Mitochondria
- D. Golgi body

**3** What type of energy does a moving object have?

- A. Potential energy
- B. Kinetic energy
- C. Thermal energy
- D. Chemical energy

**4** What layer of the atmosphere do we live in?

- A. Stratosphere
- B. Mesosphere
- C. Troposphere
- D. Thermosphere

**5** What is the water cycle?

- A. The process of filtering water
- B. The continuous movement of water through eva...
- C. The process of water freezing and thawing
- D. The path water takes through pipes

**6** What is the difference between a plant cell and an animal cell?

- A. Plant cells are bigger
- B. Animal cells have a nucleus and plant cells don't
- C. Plant cells have a cell wall and chloroplasts; anim...
- D. There is no difference

**7** What causes Earth's seasons?

- A. Earth's distance from the sun
- B. The tilt of Earth's axis
- C. The speed of Earth's rotation
- D. The moon's gravity

**8** What type of rock is formed from layers of sediment compressed over time?

- A. Igneous
- B. Metamorphic
- C. Sedimentary
- D. Volcanic

**9** In a food web, what are organisms that make their own food called?

- A. Consumers
- B. Decomposers
- C. Producers
- D. Predators

**10** What happens to energy as it moves up a food chain?

- A. It increases
- B. It stays the same
- C. It decreases (about 90% is lost at each level)
- D. It doubles

**11** What causes wind?

- A. The rotation of the Earth
- B. Differences in air pressure caused by uneven hea...
- C. The moon's gravity
- D. Ocean currents

**12** What are the three types of heat transfer?

- A. Heating, cooling, and freezing
- B. Conduction, convection, and radiation
- C. Melting, boiling, and evaporation
- D. Fast, medium, and slow

## 6th Grade Science Quiz

(continued)

**13** What is the pH scale used to measure?

- A. Temperature
- B. Weight
- C. How acidic or basic a substance is
- D. Density

**14** What process do plants use to convert carbon dioxide and water into glucose and oxygen?

- A. Respiration
- B. Fermentation
- C. Photosynthesis
- D. Decomposition

**15** What causes tides in the ocean?

- A. Wind
- B. Underwater earthquakes
- C. The gravitational pull of the moon (and sun)
- D. Earth's rotation alone

## 6th Grade Science Quiz — Answer Key

### 1. C Cell

The cell is the smallest unit that can carry out all the functions of life. All living things are made of one or more cells.

### 2. C Mitochondria

Mitochondria convert food molecules into usable energy (ATP) for the cell. They are found in both plant and animal cells.

### 3. B Kinetic energy

Kinetic energy is the energy of motion. The faster an object moves and the more mass it has, the more kinetic energy it possesses.

### 4. C Troposphere

The troposphere extends from the surface to about 12 km up. All weather occurs in this layer. Temperature decreases with altitude.

### 5. B The continuous movement of water thro...

The water cycle moves water from oceans (evaporation) to clouds (condensation) to rain/snow (precipitation) and back to oceans through rivers and groundwater.

### 6. C Plant cells have a cell wall and chlo...

Plant cells have a rigid cell wall for structure and chloroplasts for photosynthesis. Animal cells have neither of these but do have centrioles that plant cells lack.

### 7. B The tilt of Earth's axis

Earth's axis is tilted 23.5 degrees. When the Northern Hemisphere tilts toward the sun, it gets more direct sunlight and experiences summer. Six months later, it tilts away and experiences winter.

### 8. C Sedimentary

Sedimentary rocks form when layers of sand, mud, and organic material are compressed over millions of years. Examples include sandstone, limestone, and shale.

### 9. C Producers

Producers (mostly plants and algae) make their own food through photosynthesis. They form the base of every food web.

### 10. C It decreases (about 90% is lost at each level)

About 90% of energy is lost as heat at each level of a food chain. This is why there are fewer top predators than producers in any ecosystem.

### 11. B Differences in air pressure caused by...

The sun heats Earth's surface unevenly. Warm air rises (low pressure), cool air sinks (high pressure). Wind flows from high pressure to low pressure areas.

### 12. B Conduction, convection, and radiation

Conduction transfers heat through direct contact. Convection transfers heat through moving fluids. Radiation transfers heat through electromagnetic waves (like sunlight).

### 13. C How acidic or basic a substance is

The pH scale runs from 0 (very acidic) to 14 (very basic/alkaline). Water is neutral at pH 7. Lemon juice is acidic (pH ~2) and bleach is basic (pH ~13).

### 14. C Photosynthesis

Photosynthesis uses sunlight to convert CO<sub>2</sub> and water into glucose (sugar) and oxygen. The equation:  $6\text{CO}_2 + 6\text{H}_2\text{O} + \text{sunlight} = \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$ .

### 15. C The gravitational pull of the moon (and sun)

The moon's gravity pulls on Earth's water, creating bulges on the side nearest the moon and the opposite side. As Earth rotates, these bulges create high and low tides.