



- 5** On the periodic table, the atomic number of an element determines its location. The atomic number is the measure of —
- A** the number of electrons in the nucleus
  - B** the number of protons in the nucleus
  - C** the number of neutrons in the nucleus
  - D** the atomic mass

## Analysis

- A** *Choice A is incorrect.* The atomic number is the number of protons in the nucleus. While the number of electrons and protons is the same in a neutral atom, the electrons are not located in the nucleus.
- B** *Choice B is correct.* The atomic number is equal to the number of protons in the nucleus.
- C** *Choice C is incorrect.* The number of neutrons in the nucleus is equal to the atomic mass minus the atomic number (number of protons).
- D** *Choice D is incorrect.* The atomic mass is equal to the number of protons plus the number of neutrons in the nucleus.



- 12** All objects have features or physical characteristics that you can detect with your senses, such as color, shape, smell, texture, and density. Which of the following are required to calculate an object's density?
- F** Weight and height
  - G** Volume and acceleration
  - H** Mass and volume
  - J** Mass and weight

## Tip!

*Density* is a physical property of matter that can be found by dividing the mass of a material by its volume.

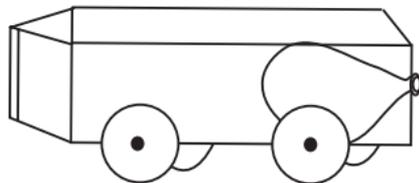
## Analysis

- F** *Choice F is incorrect.* The density of an object is the object's mass divided by its volume.
- G** *Choice G is incorrect.* The density of an object is the object's mass divided by its volume.
- H** *Choice H is correct.* The density of an object is the object's mass divided by its volume.
- J** *Choice J is incorrect.* The density of an object is the object's mass divided by its volume.



- 25** If you push the balloon-propelled car towards the finish line shown below instead of just releasing it, what most likely would happen?

finish



- A** The car would not have enough speed to cross the finish line.
- B** The car would have too much speed to cross the finish line.
- C** The car would have enough speed to cross the finish line.
- D** The car would stay at rest.

## Analysis

- A** *Choice A is incorrect.* Adding force by pushing the car would not keep the car from having enough speed to cross the finish line.
- B** *Choice B is incorrect.* It would not be possible for the car to have too much speed to cross the finish line.
- C** *Choice C is correct.* The car would have enough speed to cross the finish line.
- D** *Choice D is incorrect.* The car would not stay at rest. An unbalanced force on an object will cause a change in its motion.



- 49** Our sun is a yellow star. Stars can also be blue, blue-white, yellow-white, orange, or red. What does the star's color tell you about the star?
- A** Exact size
  - B** Distance from Earth
  - C** Age in years
  - D** Temperature

## Analysis

- A** *Choice A is incorrect.* The color of a star lets you know how hot the star is burning, and how hot the star burns depends on its mass (i.e. the greater the star's mass, the hotter and faster it burns). However, color is not an indicator for the star's exact size.
- B** *Choice B is incorrect.* Distance from Earth is not reflected in the star's color.
- C** *Choice C is incorrect.* It is difficult to tell the exact age of a single star. Generally speaking, the color lets one know whether the star is early in its life cycle or near the end of its life, but the star's color is not an indicator of its age in years.
- D** *Choice D is correct.* The color of a star reflects its internal temperature.



- 83** Which body system allows your body to transport nutrients to all of your cells?
- A** Respiratory system
  - B** Digestive system
  - C** Circulatory system
  - D** Endocrine system

## Analysis

- A** *Choice A is incorrect.* The respiratory system deals with bringing in oxygen and getting rid of carbon dioxide, not transporting nutrients to all of your cells.
- B** *Choice B is incorrect.* The digestive system involves the breakdown and absorption of nutrients, not their transport.
- C** *Choice C is correct.* The circulatory system is the system of the heart and blood vessels. The blood carries nutrients to all of your cells.
- D** *Choice D is incorrect.* The endocrine system deals with the production and release of hormones in the body, not transporting nutrients to all of your cells.