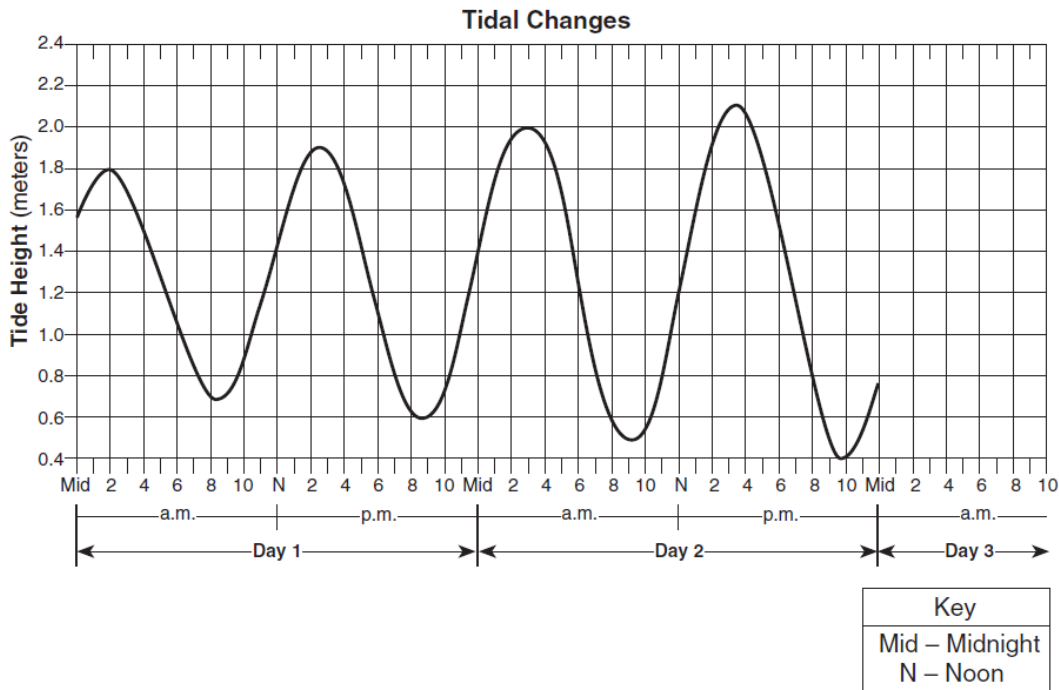# Topic 1 - Science Skills

1. Base your answer to the following question on "
the graph below, which shows two days of tidal data from a coastal location in the northeastern United States.

Tidal Changes

"

If the pattern shown continues, the most likely height and time for the first high tide on day 3 would be

A) 2.2 meters at 4 a.m.   B) 2.3 meters at 4 a.m.
C) 2.2 meters at 5 a.m.   D) 2.3 meters at 5 a.m.

2. Scientists can plan to photograph a solar eclipse because most astronomical events are

A) cyclic and predictable
B) cyclic and unpredictable
C) random and predictable
D) random and unpredictable

3. A student recorded the times of three successive high tides at one location as:
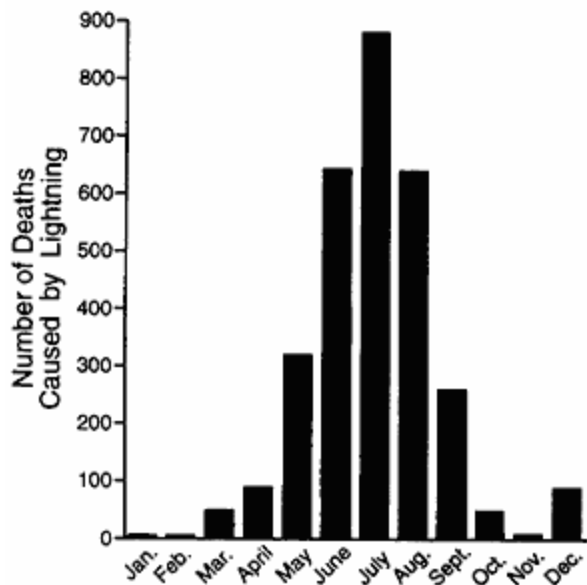
9:12 a.m.
9:38 p.m.
10:04 a.m.

What is the approximate time of the next high tide?

A) 10:12 p.m.   **B) 10:30 p.m.**
C) 10:38 p.m.   D) 11:04 p.m.

4. The graph below shows the total number of deaths per month caused by lightning in the United States between 1959 and 1990.
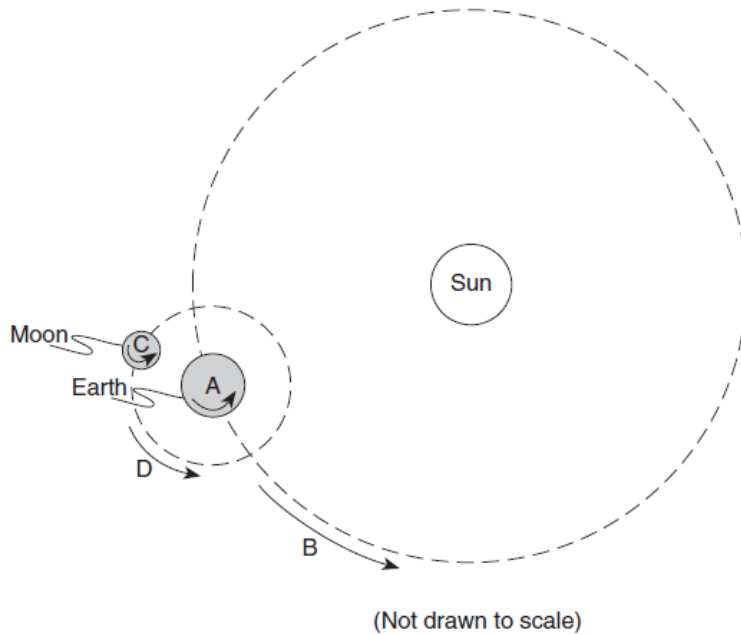
Total Deaths by Lightning (1959 – 1990)

Based on the information on the graph, which prediction about lightning deaths in the United States in the year 2000 would be most accurate?

A) Most deaths will occur along the eastern coastline.
B) The number of deaths will exceed 900.
C) The greatest number of deaths will occur during summer.
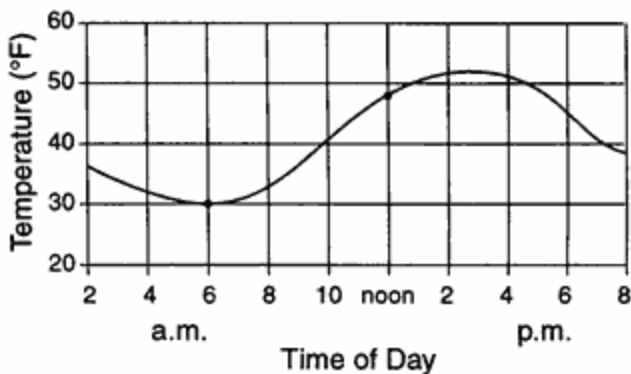D) Most deaths will be the result of hurricanes.

5. Base your answer to the following question on "the diagram below, which has lettered arrows showing the motions of Earth and the Moon.

Moon
Earth

Sun

(Not drawn to scale)

Key	
Arrow	**Motion**
A	Earth's rotation on its axis
B	Earth's revolution around the Sun
C	The Moon's rotation on its axis
D	The Moon's revolution around Earth

"

These lettered arrows represent motions that are

A) noncyclic and unpredictable
B) noncyclic and predictable
C) cyclic and unpredictable
D) cyclic and predictable

6. The graph below shows temperature readings for a day in April.

The average rate of temperature change, in Fahrenheit degrees per hour, between 6 a.m. and noon was

A) 6°/hr
B) 8°/hr
C) 3°/hr
D) 18°/hr

7. A 25-gram sample of halite was placed in a jar with five other mineral samples and water. The jar was shaken vigorously for 5 minutes. The halite sample was then found to have a mass of 15 grams. What was the rate of weathering of the halite sample?
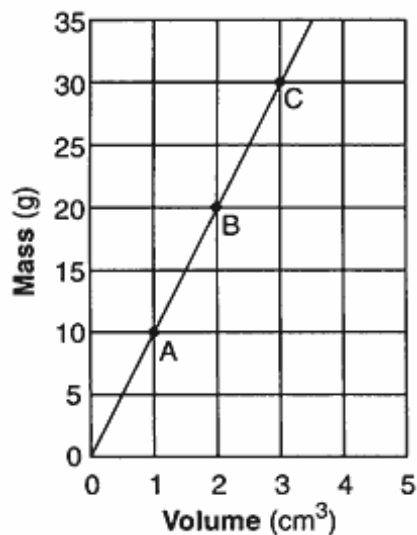
A) 0.50 g/min
B) 2.0 g/min
C) 3.0 g/min
D) 10. g/min

8. The data table below shows the density of four different mineral samples.

Data Table

Mineral	Density (g/cm³)
corundum	4.0
galena	7.6
hematite	5.3
quartz	2.7

A student accurately measured the mass of a sample of one of the four minerals to be 294.4 grams and its volume to be 73.6 cm³. Which mineral sample did the student measure?

A) **corundum**　　　B) galena
C) hematite　　　D) quartz

9. The graph below shows the relationship between mass and volume for three samples, A, B, and C, of a given material.

What is the density of this material?

A) 1.0 g/cm³　　　B) 5.0 g/cm³
C) **10.0 g/cm³**　　　D) 20.0 g/cm³

10. A pebble has a mass of 35 grams and a volume of 14 cubic centimeters. What is its density?

A) 0.4 g/cm³　　　B) **2.5 g/cm³**
C) 490 g/cm³　　　D) 4.0 g/cm³

11. As air on the surface of Earth warms, the density of the air

A) **decreases**　　　B) increases
C) remains the same
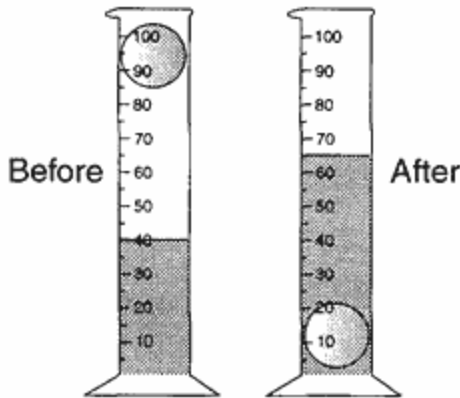
12. The cartoon below presents a humorous look at science.

CALVIN & HOBBES

The correct explanation of why ice floats is that, compared to liquid water, solid ice

A) has less mass   B) has more mass   **C) is less dense**   D) is more dense

---

13. A scientist who is studying a stream would have the most difficulty determining the stream's

   A) age in years
   B) velocity
   C) temperature
   D) transported sediment size

14. The sphere was dropped into water in a graduated cylinder as shown below.

What is the volume of the sphere?

   A) 15 mL   **B) 25 mL**
   C) 40 mL   D) 65 mL

15. A group of students observed and measured various characteristics of a stream for one day. Which statement about the stream is most likely an inference?

   A) The stream water is dark brown.
   B) The water level of the stream will rise after the next rainfall.
   C) The velocity of the stream is greatest near the outside of a meander.
   D) The stream's depth is different at various distances from the streambank.

16. Which statement about a major hurricane is an inference?

   A) The windspeed is measured at 200 km/hr.
   B) The central air pressure is recorded at 946.0 mb.
   C) A rain gauge records three inches of rain in less than one hour.
   D) Damage from the storm is expected to be extensive.

17. Which action can be performed most accurately using only the human senses?

   A) tearing a sheet of paper into squares whose sides measure 1 centimeter
   B) adding 10 grams of salt to a cup of water
   C) measuring the air pressure of a room
   D) counting 28 shells from a beach

18. Using a ruler to measure the length of a stick is an example of

  A) extending the sense of sight by using an instrument
  B) calculating the percent of error by using a proportion
  C) measuring the rate of change of the stick by making inferences
  D) predicting the length of the stick by guessing

Answer Key
Topic 1 Science Skills

1.   **A**
2.   **A**
3.   **B**
4.   **C**
5.   **D**
6.   **C**
7.   **B**
8.   **A**
9.   **C**
10.   **B**
11.   **A**
12.   **C**
13.   **A**
14.   **B**
15.   **B**
16.   **D**
17.   **D**
18.   **A**