

Content Practice A

LESSON 1

Earth's Motion

Directions: Complete the chart by writing each statement in the correct space.

- Earth spins on its rotation axis in a counterclockwise direction.
- One Earth day equals 24 hours.
- It takes approximately one year to orbit the Sun.
- If the gravity between Earth and the Sun somehow stopped, Earth would fly off into space in a straight line.
- Each day the Sun appears to move from east to west across the sky.
- Changes in the seasons are caused by changes in the amount of sunlight striking Earth.
- Summer and winter are opposite seasons in the northern and southern hemispheres.
- Earth moves around the Sun.
- Earth moves in a counterclockwise motion.

Earth's Rotation	Earth's Revolution	Tilt of Earth on Its Axis
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Math Skills **LESSON 1****Convert Units**

Distance is measured in customary units such as inches, feet, and miles, or in metric units such as centimeters, meters, and kilometers. To convert between units in different systems, multiply by an approximate conversion factor.

Since **1** mile is approximately equal to **1.609** kilometers and **1** kilometer is approximately equal to **0.621** miles, you can use these conversion factors.

To convert miles to kilometers,
multiply by $\frac{1.61 \text{ km}}{1 \text{ mi}}$.

Example:

$$3 \text{ miles} = \frac{3 \times 1.61}{1} = 4.83 \text{ km}$$

To convert kilometers to miles,
multiply by $\frac{0.62 \text{ mi}}{1 \text{ km}}$.

Example:

$$3 \text{ km} = \frac{3 \times 0.62}{1} = 1.86 \text{ mi}$$

Pearl agreed to run a **5**-km race with her friend. How many miles will they run?

Step 1 Identify the conversion factor.

You need to convert from kilometers to miles.

The conversion factor is $\frac{0.62}{1}$.

Step 2 Write the equation to calculate the conversion.

$$\frac{5 \times 0.62}{1} = x$$

Step 3 Multiply.

$$\frac{5 \times 0.62}{1} = 3.1$$

Pearl and her friend will run **3.1** miles.

Practice

1. New York and Los Angeles are separated by about 4,300 km. What is the distance between the cities in miles?
2. An airplane is cruising at a height of 5.7 mi. How high is the airplane in kilometers?
3. The Moon is about 384,000 km from Earth's surface. How many miles away is the Moon?
4. The *International Space Station* orbits about 220 mi above Earth. How high is the station in kilometers?

Key Concept Builder **LESSON 1**

Earth's Motion

Key Concept How does Earth move?

Directions: *On each line, write the term or phrase that correctly completes each sentence.*

1. Earth spins on its _____.
2. It takes about _____ for Earth to rotate one time.
3. A term that is used to describe Earth's orbit around the Sun is Earth's _____.
4. The _____ of Earth's rotation axis stays the same as it orbits the Sun.
5. For one half of the year, the north end of Earth's rotation leans toward _____.
6. The Sun appears to move from _____ to _____ across the sky.
7. _____ makes the Sun appear to move across the sky.
8. Earth spins in a(n) _____ direction.
9. The Moon and stars seem to move from _____ to _____ across the night sky.
10. As Earth moves around the Sun, the _____ change.
11. The shape of Earth's orbit is nearly _____.
12. Earth moves around the Sun because the Sun's _____ pulls on Earth.
13. When it is daytime on the half of Earth facing the Sun, it is _____ on the other half of Earth.
14. Earth would fly off into space in a straight line if the _____ between Earth and the Sun ended.
15. Earth's _____ is an imaginary line on which it rotates.
16. Earth's rotation axis is _____.

Key Concept Builder 

LESSON 1

Earth's Motion

Key Concept Why is Earth warmer at the equator and colder at the poles?

Directions: On the line before each effect, write the letter of the cause that correctly completes each sentence. Some causes might be used more than once.

Effect	Cause
_____ 1. The light energy absorbed by a surface depends on	A. the surface tilts away from it.
_____ 2. A beam of light becomes more spread out as	B. carries energy.
_____ 3. Energy is carried to Earth in	C. the beam of light reaches Earth.
_____ 4. Some energy is absorbed by Earth's surface when	D. the tilt of the surface.
_____ 5. Energy is less concentrated near	E. the beam of light is spread out more.
_____ 6. Less energy reaches the poles because	F. energy is concentrated there.
_____ 7. Earth is warmest at the equator because	G. Earth's poles.
_____ 8. Earth is coldest at the poles because	H. tilt is the greatest there.
_____ 9. Surface temperature depends on the amount of	I. energy absorbed by the surface.
_____ 10. The surface of Earth	J. a beam of sunlight.
_____ 11. Less energy is received in regions where	K. is curved.
_____ 12. A beam of light	
_____ 13. Earth is warm at the equator and cold at	

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Key Concept Builder 

LESSON 1

Earth's Motion

Key Concept Why do the seasons change as Earth moves around the Sun?

Directions: Answer each question on the lines provided. Use complete sentences.

1. What is a solstice?

2. How do the lengths of day contrast for the summer solstice and winter solstice?

3. What is an equinox?

4. How do the lengths of daylight hours and nighttime hours everywhere on Earth compare on an equinox?

5. How does the tilt of Earth on its rotation axis relate to the change of seasons?

Key Concept Builder 

LESSON 1

Earth's Motion

Key Concept Why do the seasons change as Earth moves around the Sun?

Directions: Answer each question in the space provided.

December Solstice	March Equinox	June Solstice	September Equinox
<p>1. Where does the north end of Earth's axis lean at this time of the year?</p>	<p>2. What is true about the number of daylight hours at this time of the year?</p>	<p>3. Where does the north end of Earth's axis lean at this time of the year?</p>	<p>4. What is true about the number of daylight hours at this time of the year?</p>
<p>5. Which season does this day mark in the northern hemisphere?</p> <p>In the southern hemisphere?</p>	<p>6. Which season does this day mark in the northern hemisphere?</p> <p>In the southern hemisphere?</p>	<p>7. Which season does this day mark in the northern hemisphere?</p> <p>In the southern hemisphere?</p>	<p>8. Which season does this day mark in the northern hemisphere?</p> <p>In the southern hemisphere?</p>
<p>9. Why are temperatures cooler in the northern hemisphere at this time?</p>	<p>10. What can be said about the distribution of sunlight at this time?</p>	<p>11. Why are temperatures warmer in the northern hemisphere at this time?</p>	<p>12. What can be said about the distribution of sunlight at this time?</p>

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