

Earth Science Chapter 19: Earth in Space

*Answer the following questions in complete sentences. Answers that cannot be read will be counted as incorrect.*

1. What is the Earth's axis? \_\_\_\_\_

\_\_\_\_\_

2. What are the two major ways that Earth moves through space? \_\_\_\_\_

\_\_\_\_\_

3. Which part of the earth gets the most direct sunlight? The least direct sunlight? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. Describe what the conditions are like in the **Northern Hemisphere** at each date.

A. June 21

B. September 22

C. January 2

## Earth Science Chapter 19: Gravity and Motion

*Answer each question by circling the correct answer. Answers that cannot be read will be counted as incorrect.*

1. What attracts all objects toward each other?
  - a. mass
  - b. weight
  - c. gravity
  - d. inertia
  
2. What is the difference between mass and weight?
  - a. mass is always 10 pounds heavier than weight
  - b. an object's mass stays the same but its weight changes depending on its location
  - c. mass is always in motion but weight is always stationary
  - d. weight is always 10 pounds heavier than mass
  
3. What happens to the force of gravity as distance increases?
  - a. gravity decreases
  - b. gravity increases
  - c. gravity stays the same
  - d. there is not such thing as gravity
  
4. What is inertia?
  - a. the spinning of the globe on its axis resulting in day and night
  - b. the tilting of the earth creating the seasons
  - c. the time when the earth is closest to the sun and feels the strongest pull of gravity
  - d. the tendency of an object to resist a change in motion
  
5. What does Newton's first law of motion state?
  - a. an object at rest is try to continue to move until held in place
  - b. an object at rest will stay in rest and an object in motion will stay in motion with a constant speed and direction unless acted on by a force
  - c. an object in motion often gets tired and will try to rest
  - d. the earth is held in the sun's orbit by invisible fishing lines

## Earth Science Chapter 19: Phases, Eclipses, and Tides

*Match the vocabulary term with the correct definition. Answers that cannot be read will be counted as incorrect.*

- a. phases
- b. eclipse
- c. solar eclipse
- d. umbra
- e. penumbra
- f. lunar eclipse
- g. tide
- h. spring tide
- i. neap tide

- \_\_\_\_\_ 1. the blocking or partial blocking of one object by another in space; when an object in space comes in between the sun and a third object, casting a shadow
- \_\_\_\_\_ 2. occurs at a full moon when Earth is directly between the moon and the sun
- \_\_\_\_\_ 3. the very darkest part of the moon's shadow
- \_\_\_\_\_ 4. the different shapes of the moon you see from Earth
- \_\_\_\_\_ 5. a tide with the least difference between consecutive low and high tides
- \_\_\_\_\_ 6. the larger part of the shadow that is less dark is created when the moon casts a shadow
- \_\_\_\_\_ 7. occurs when a new moon blocks your view of the sun
- \_\_\_\_\_ 8. the rise and fall of ocean water that occurs every 12.5 hours or so
- \_\_\_\_\_ 9. a tide with the greatest difference between consecutive low and high tides

Earth Science Chapter 19: Earth's Moon

*Fill in the table below and then answer the question. Answers that cannot be read will be counted as incorrect.*

| Surface Features | Description                                   |
|------------------|---|
|                  | Mountains<br>Cover much of the moon's surface |
| Maria            |   |
| Crater           |   |

How did the moon form? Be detailed.

Earth Science Chapter 19: Traveling into Space

Find the vocabulary word in the word search below. Then write them next to the correct definition. Answers that cannot be read will be counted as incorrect.

W E P D M X C X T O W U M G O  
W T L V Q L D H X E C I A R R  
S A S T P F R A B E D D B U P  
W Y Q P T U L O S B F I A A N  
H V K Y S U R W Z W T Q F E O  
U P E T J P H S F A A X T N I  
I T X L E A K S L R E V O R T  
Y T I C O L E V E P A C S E A  
P P A U S C E Y X C C O Q R T  
R P O W L L I B D E A T M O S  
S Y A W O R W T S K K P E C E  
R C X C I N V Z Y F T A S K C  
G K I N S A T E L L I T E E A  
W T L Y U J E G Q E A Z S T P  
Y Z N W H Z T Y D O Z R Y K S

- \_\_\_\_\_ a device that expels gas in one direction to move in the opposite direction
- \_\_\_\_\_ the reaction force that propels a rocket forward
- \_\_\_\_\_ speed in a given direction
- \_\_\_\_\_ the velocity a rocket must achieve to establish an orbit around the earth
- \_\_\_\_\_ the velocity a rocket must reach to fly beyond a planet's gravitational pull
- \_\_\_\_\_ an object that revolves around another object in space
- \_\_\_\_\_ a spacecraft that can carry a crew into space, return to Earth and then be reused for the same purpose
- \_\_\_\_\_ a large artificial satellite on which people can live and work for long periods
- \_\_\_\_\_ a spacecraft that carries scientific instruments that can collect data but has no human crew
- \_\_\_\_\_ robots that move around on the surface

## Earth Science Chapter 19: Study Guide

### Section 1

- Vocabulary

Astronomy

Revolution

Equinox

Axis

Orbit

Rotation

Solstice

- Know which objects move around each other
- Know in which direction the sun rises and sets
- Know the two major ways that the earth moves through space
- Know how the earth experiences seasons including which parts of the globe have direct and indirect sunlight
- Know the season and weather conditions in the northern and summer hemisphere during June and December
- Know the significance of June 21, December 21, March 21 and September 22

### Section 2

- Vocabulary

Force

Mass

Inertia

Gravity

Weight

Law of universal gravitation

Newton's first law of motion

- Know who Isaac Newton was and what he realized about forces
- Know what gravity is, what effects it has and what the law of universal gravitation states
- Know the units of measurement for gravity
- Know what the strength of the force of gravity depends on
- Know how mass differs from weight
- Know what is keeping the planets from crashing into each other
- Know what inertia is, and what Newton's first law of motion states
- Know what Newton concluded kept the moon and the earth in their perspective orbits

### Section 3

- Vocabulary

Phases

Umbra

Tide

Eclipse

Penumbra

Spring tide

Solar eclipse

Lunar eclipse

Neap tide

- Know how the moon moves through space and why we only see the "near side"
- Know why there are sometimes bright moons
- Know what the phases of the moon are, how often they occur and what they are caused by
- Know Figure 11 on pages 672 – 673
- Know what an eclipse is and how it occurs
- Know the different types of eclipses and how they occur
- Know what the tides are, what causes them and how often each one occurs
- Know what spring and neap tides are and how they occur

#### **Section 4**

- Vocabulary

Telescope

Craters

Maria

Meteoroids

- Know who Galileo Galilei was and what he discovered including the instrument used
- Know the surface features of the moon including how they were formed (if applicable)
- Know the characteristics of the moon
- Know how scientists think the moon was formed

#### **Section 5**

- Vocabulary

Rocket

Escape velocity

Space probe

Thrust

Satellite

Rover

Velocity

Space shuttle

Orbital velocity

Space station

- Know what rockets are and their basic history
- Know how rockets work including action and reaction forces, and orbital and escape velocity
- Know what a multistage rocket is, who proposed it and what its advantages are
- Know what the “space race” was, who it was between and the chain of events
- Know what John F. Kennedy set in motion in his 1961 speech and what that program was called
- Know the chain of events that led to the first man landing on the moon
- Know how space is explored today
- Know what NASA and what the International Space Station are
- Know how scientists collect data about moons and planets in space