

## Third Grade “Astronomy” Assessment

- 1a. The Big Bang theory explains
- how the universe came into existence
  - what happens when two stars collide
- 1b. The Big Bang theory explains
- how the universe came into existence
  - what happens when two stars collide
  - Copernicus’ belief that the Sun is the center of the solar system
  - what happens during a solar eclipse

1c. Explain what the Big Bang theory is:

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2a. Which is bigger: the universe or the solar system? \_\_\_\_\_

2b. Put these items in order from smallest to largest:  
solar system, Sun, universe, Earth

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2c. Compare the universe to the solar system:

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3a. Milky Way and Andromeda are: \_\_\_\_\_.

3b. The two galaxies are:  
\_\_\_\_\_ and \_\_\_\_\_.

3c. Describe how Andromeda and the Milky Way are the same:

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4a. Our Sun gives us heat and \_\_\_\_\_.

- sound
- light

4b. Our Sun is a star that gives off \_\_\_\_\_ and \_\_\_\_\_.

4c. What is the relationship (connection or link) between the Earth and Sun and what would happen to the Earth if there was no Sun?

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5a. Fill in the blanks to complete the order of the planets:

Mercury, \_\_\_\_\_, \_\_\_\_\_, Mars, \_\_\_\_\_, Saturn, \_\_\_\_\_, Neptune, \_\_\_\_\_

5b. Name the nine planets in our solar system in order from the sun, using “My Very Excellent Mother Just Served Us Nine Pizzas”:

Closest to the Sun:

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5c. Name the nine planets in our solar system in order from the sun:

Closest to the Sun:

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6a. The planets \_\_\_\_\_ around the Sun and the planets also \_\_\_\_\_ on their axis.

- a. orbit; rotate
- b. rotate; orbit

6b. \_\_\_\_\_ means the movement of the planets around the Sun and \_\_\_\_\_ means a planet spinning on its axis.

- a. Eclipse; gravity
- b. Rotate; orbit
- c. Orbit; rotate
- d. Gravity; eclipse

6c. Describe orbit and rotation:

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7a. Day and night on Earth are caused by Earth's \_\_\_\_\_.  
a. orbit  
b. rotation

7b. Day and night on Earth are caused by \_\_\_\_\_  
a. rotation of the Earth  
b. solar eclipse  
c. lunar eclipse  
d. orbit of the Earth

7c. Day and night on Earth are caused by:

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8a. The Sun rises in the \_\_\_\_\_ and sets in the \_\_\_\_\_.  
a. east; west  
b. north; south

8b. The Sun rises in the \_\_\_\_\_ and sets in the \_\_\_\_\_.  
a. east; west  
b. north; south  
c. south; north  
d. west; east

8c. The Sun rises in the \_\_\_\_\_ and sets in the \_\_\_\_\_.

9a. The tilt of the Earth on its axis results in  
a. day and night  
b. seasonal change

9b. The tilt of the Earth on its axis results in \_\_\_\_\_.

9c. Seasonal change is caused by:

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10a. The force that pulls objects in the universe together is called \_\_\_\_\_.  
a. friction  
b. gravity

- 10b. The force that pulls objects in the universe together is called \_\_\_\_\_.
- a. friction
  - b. rotation
  - c. galaxy
  - d. gravity

10c. Why do you weigh less on the Moon?

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- 11a. What causes tides?
- a. rotation of the Earth
  - b. gravitational pull of the Moon and Sun

- 11b. Which of the following is true?
- a. Tides are caused by the rotation of the Earth.
  - b. The tilt of the Earth on its axis causes tides.
  - c. Tides are caused by the gravitational pull of the Moon and Sun.
  - d. Tides are caused by the change of the seasons.

11c. Tides are caused by:

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- 12a. Extreme gravitational pull causes \_\_\_\_\_.
- a. tidal waves
  - b. black holes

- 12b. Black holes result from:
- a. extreme gravitational pull
  - b. lack of light
  - c. solar eclipse
  - d. shooting stars

12c. What causes black holes?

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- 13a. Which of the following is true?
- a. Meteors are chunks of rock and metal that orbit the Sun.
  - b. Asteroids are chunks of rock and metal that orbit the Sun.

- 13b. Thousands of chunks of rock and metal that orbit the Sun are called \_\_\_\_\_.
- a. meteors
  - b. asteroids
  - c. sunspots
  - d. rings

13c. What is the difference between a meteor and an asteroid?

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- 14a. There is a belt of \_\_\_\_\_ between Mars and Jupiter.
- a. stars
  - b. asteroids

14b. There is a belt of \_\_\_\_\_ between Mars and Jupiter.

14c. List two facts that you know about the Asteroid Belt.

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- 15a. Meteors entering Earth's atmosphere are sometimes called \_\_\_\_\_.
- a. comets
  - b. shooting stars

- 15b. Meteors entering Earth's atmosphere are sometimes called \_\_\_\_\_.
- a. comets
  - b. shooting stars
  - c. constellations
  - d. sunspots

15c. Why are meteors sometimes called shooting stars?

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16a. \_\_\_\_\_ are also known as dirty snowballs.

16b. What are comets made of? \_\_\_\_\_

- 16c. Which of the following facts about comets is NOT true?
- a. Comets are made up of ice, rock, and dust
  - b. Comets' tails are caused when the comet passes close to the Sun and the Sun's rays melt some of the ice
  - c. Comets orbit the Moon
  - d. Comets orbit the Sun

17a. \_\_\_\_\_ is a famous comet that passes near the Earth every 76 years.

- a. Halley's Comet
- b. Galileo's Comet

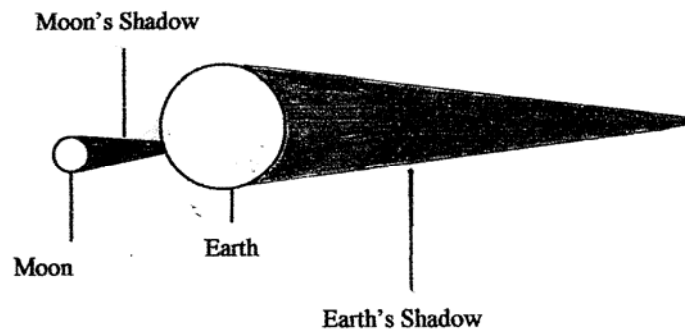
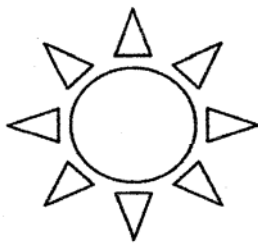
17b. \_\_\_\_\_ is a famous comet that passes near the Earth every 76 years.

17c. List two facts about Halley's Comet:

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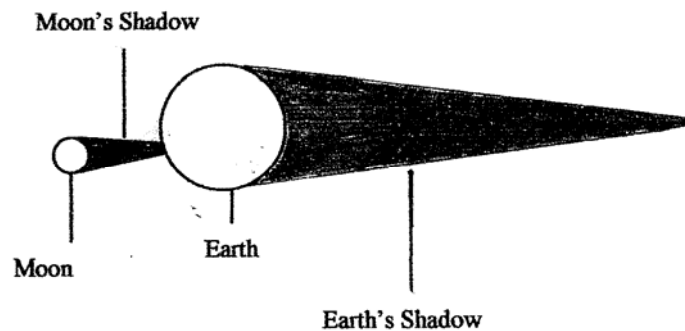
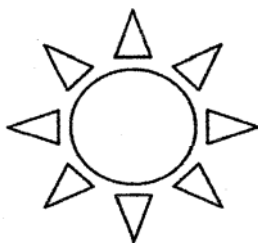
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18a. This picture shows which of the following:



- a. Lunar eclipse
- b. Solar eclipse

18b. This picture shows which of the following:



- a. Lunar eclipse
- b. Seasonal change
- c. Solar eclipse
- d. Black hole

18c. Describe what occurs during a solar eclipse:

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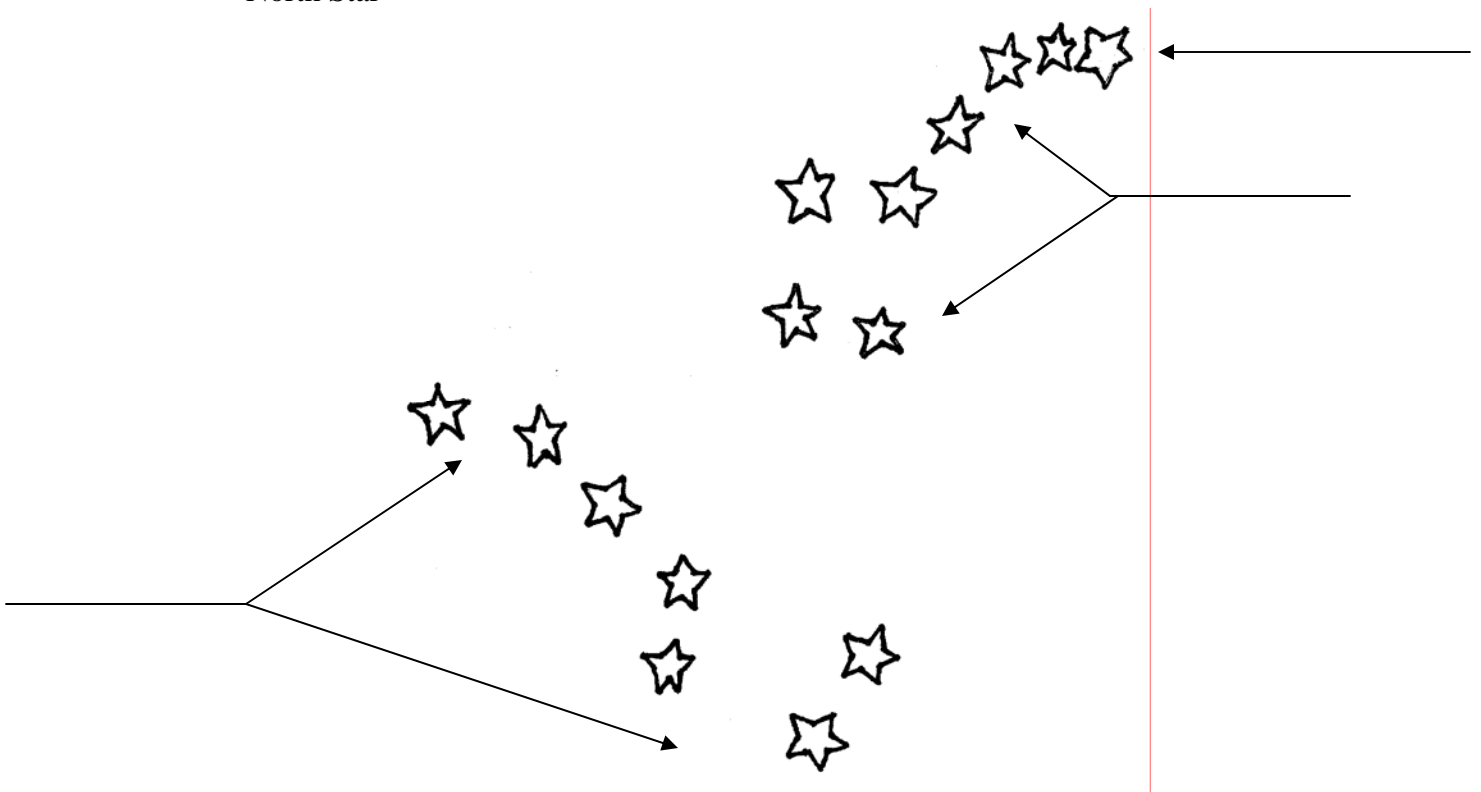
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19a. A group of stars that make a picture is called \_\_\_\_\_.  
a. constellation  
b. meteor shower

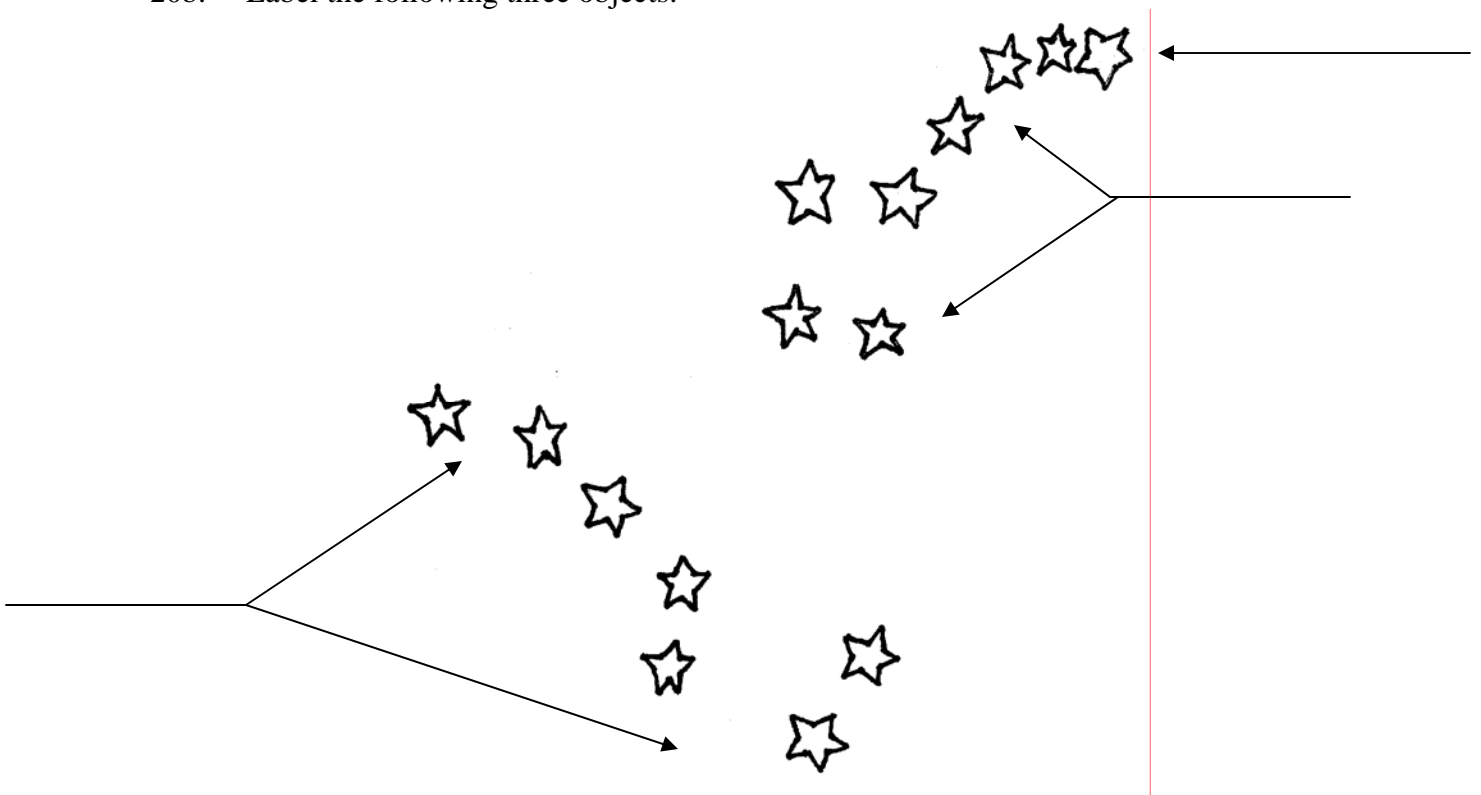
19b. A group of stars that make a picture is called \_\_\_\_\_.  
a. constellation  
b. meteor shower  
c. rocket  
d. satellite

19c. Draw a picture of a constellation and describe what makes your picture a constellation.

20a. Identify and label the following:  
Big Dipper  
Little Dipper  
North Star



20b. Label the following three objects:



20c. What is the relationship between the North Star, Big Dipper, and Little Dipper and how have travelers used the North Star?

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21a. \_\_\_\_\_ is an instrument used to view the stars and planets.

- a. Microscope
- b. Telescope

21b. \_\_\_\_\_ is an instrument used to view the stars and planets.

- a. Microscope
- b. Telescope
- c. Stethoscope
- d. Ruler

21c. Tell how a microscope and a telescope are alike or different and describe why a telescope is useful to astronomers.

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22a. A \_\_\_\_\_ travels into space just once and a \_\_\_\_\_ can make many trips.  
a. rocket; shuttle  
b. shuttle; rocket

22b. A \_\_\_\_\_ travels into space just once and a \_\_\_\_\_ can make many trips.  
a. airplane; satellite  
b. shuttle; rocket  
c. rocket; shuttle  
d. helicopter; blimp

22c. What are two differences between a rocket and a shuttle?

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23a. “One small step for man, one giant leap for mankind,” was said when what event occurred?  
a. Neil Armstrong walked on the Moon  
b. John Glenn orbited the Earth

23b. “One small step for man, one giant leap for mankind,” was said when what event occurred?  
a. Alan Shepard made the first space flight  
b. John Glenn orbited the Earth  
c. Neil Armstrong walked on the Moon  
d. The Russians first went into space

23c. What do you think Neil Armstrong meant when he said that man walking on the Moon for the first time was a “giant leap for mankind”?

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24a. Which of these events did not occur?  
a. Alan Shepard took the first space flight  
b. Neil Armstrong was the first man to walk on the Moon  
c. John Glenn orbited the Moon  
d. The space shuttle landed on Mars

24b. Put these space exploration events in sequence from past to present:  
Alan Shepard and the first space flight; unmanned flights; John Glenn orbited the Earth;  
Neil Armstrong was the first man on the Moon; space shuttle; Russians went into space  
\_\_\_\_\_, \_\_\_\_\_,  
Alan Shepard and the first space flight, \_\_\_\_\_,  
Neil Armstrong was the first man on the Moon, \_\_\_\_\_

24c. Put these space exploration events in sequence from past to present:  
Alan Shepard and the first space flight; unmanned flights; John Glenn orbited the Earth;  
Neil Armstrong was the first man on the Moon; space shuttle; Russians went into space

\_\_\_\_\_, \_\_\_\_\_,  
\_\_\_\_\_, \_\_\_\_\_,  
\_\_\_\_\_, \_\_\_\_\_

25a. What was the discovery that Copernicus made?  
a. Gravity holds the moon in orbit around the Earth  
b. The Sun was at the center of the solar system and that the planets revolve around the Sun

25b. What was the discovery that Copernicus made?  
a. Gravity holds the moon in orbit around the Earth  
b. That telescopes could be used to view objects in space  
c. The Sun was at the center of the solar system and that the planets revolve around the Sun  
d. That there was an asteroid belt between Mars and Jupiter

25c. What was Copernicus' theory and how did the people of his time respond to his theory?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

26a. Who was the first African American female astronaut?  
a. Christa McAuliffe  
b. Mae Jemison

26b. \_\_\_\_\_ was the first African American astronaut and she flew her first shuttle mission in \_\_\_\_\_.  
a. Sally Ride; 1983  
b. Christa McAuliffe; 1985  
c. Mae Jemison; 1992  
d. Valentina Tereshkova; 1964

26c. Who was the first African American female astronaut and what was her job on her first mission?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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The following Colorado Model Content Standards are covered in this assessment by the questions indicated:

Question 4c: Standard K-4.2.2.a recognizing that energy (*for example, light, heat, motion, sound, mechanical*) can affect common objects and is involved in common events

Questions 4a, 4b, 4c: Standard K-4.4.2.a recognizing that the Sun us a principal source of Earth’s heat and light

Questions 8a, 8b, 8c, 15a, 15b, 15c, 18a, 18b, 18c, 19a, 19b, 19c, 20a, 20b, 20c: Standard K-4.4.4.a describing what can be readily observed by the unaided eye in the daytime and nighttime sky (*for example, the Sun, Moon, planets, stars, constellations*)

Questions 6a, 6b, 6c, 7a, 7b, 7c, 8a, 8b, 8c: Standard K-4.4.4.b describing the motion of Earth in relation to the Sun, including the concepts of day, night, and year

Questions 9a, 9b, 9c: Standard K-4.4.4.c recognizing the characteristics of seasons

Questions 2a, 2b, 2c, 5a, 5b, 5c: Standard K-4.4.4.d identifying basic components of the solar system (*for example, Sun, planets, moons*)

Questions 23a, 23b, 23c, 24a, 24b, 24c: Standard K-4.4.4.e describing a space exploration event such as a manned or unmanned space mission

## Answer Key

- 1a. a. how the universe came into existence  
1b. a. how the universe came into existence  
1c. Acceptable answers could include:  
-a theory which says that the universe began billions of years ago in a single event, similar to an explosion  
-it is accepted by most scientists today
- 2a. universe  
2b. Earth, Sun, solar system, universe  
2c. Acceptable answers could include:  
-the universe is bigger than the solar system  
-the universe is limitless, but we know what the solar system includes  
-both include planets and stars  
-the universe includes galaxies, but the solar system is part of a galaxy
- 3a. galaxies  
3b. Milky Way and Andromeda  
3c. Acceptable answers could include:  
-both are galaxies  
-both contain stars  
-both are spiral-shaped
- 4a. b. light  
4b. heat; light  
4c. Acceptable answers could include:  
-the Sun provides heat and light to the Earth and without those, plant and animal life would not exist
- 5a. Venus; Earth; Jupiter; Uranus; Pluto  
5b. Mercury; Venus; Earth; Mars; Jupiter; Saturn; Uranus; Neptune; Pluto  
5c. Mercury; Venus; Earth; Mars; Jupiter; Saturn; Uranus; Neptune; Pluto
- 6a. a. orbit; rotate  
6b. c. Rotate; orbit  
6c. Acceptable answers could include:  
-Orbit is the movement of an object (planet) around a central object (sun)  
-Rotation is the spinning of an object (planet) on its axis
- 7a. b. rotation  
7b. a. rotation of the Earth  
7c. Acceptable answers could include:  
-rotation of the Earth on its axis during a 24 hour period

- 8a. a. east; west  
 8b. a. east; west  
 8c. east; west
- 9a. b. seasonal change  
 9b. seasonal change  
 9c. Acceptable answers could include:  
 -the tilt of the Earth on its axis as the earth orbits around the Sun
- 10a. b. gravity  
 10b. d. gravity  
 10c. Acceptable answers could include:  
 -the gravitational pull on the Moon is weaker than the gravitational pull on the Earth, which results in the appearance of weighing less on the Moon
- 11a. b. gravitational pull of the Moon and Sun  
 11b. c. Tides are caused by the gravitational pull of the Moon and Sun.  
 11c. Acceptable answers could include:  
 -the gravitational pull of the Moon, and to a lesser degree, the Sun  
 -high tide is when there is more gravitational pull and low tide is when there is less pull
- 12a. b. black holes  
 12b. a. extreme gravitational pull  
 12c. Acceptable answers could include:  
 -Black holes are caused by extreme gravitational pull in some places in the universe where nothing can escape, not even light, which is why they are called black holes.
- 13a. b. Asteroids are chunks of rock and metal that orbit the Sun.  
 13b. b. asteroids  
 13c. Acceptable answers could include:  
 -asteroids rotate around the sun, meteors fly through space freely  
 -asteroids are typically large and meteors are typically smaller
- 14a. b. asteroids  
 14b. asteroids  
 14c. Acceptable answers could include:  
 -It is between Mars and Jupiter.  
 -It revolves around the Sun.  
 -The asteroids range in size.
- 15a. b. shooting stars  
 15b. b. shooting stars  
 15c. Acceptable answers could include:  
 -because when a meteor falls through Earth's atmosphere at a super-fast speed, it gets so hot that it burns up and makes the fiery streak you see in the sky

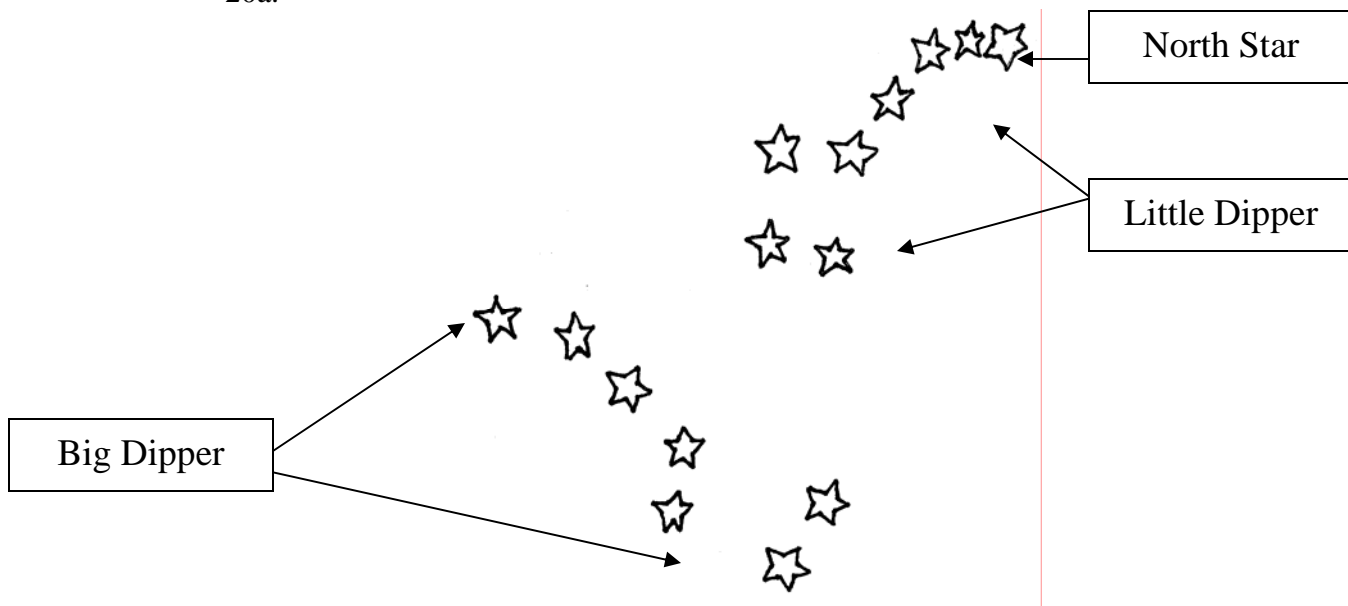
- 16a. Comets
- 16b. ice, rock, and dust
- 16c. c. Comets orbit the Moon

- 17a. a. Halley's Comet
- 17b. Halley's Comet
- 17c. Acceptable answers could include:
  - It is a famous comet named after Edmund Halley
  - It passes close to Earth every 76 years.
  - It was visible last in 1986.

- 18a. b. Solar eclipse
- 18b. c. Solar eclipse
- 18c. Acceptable answers could include:
  - During a solar eclipse, the Moon passes between the Earth and the Sun and blocks our view of the Sun and casts a shadow on Earth. The Moon appears to be as big as the Sun because it is closer to the Earth. A solar eclipse lasts only a few minutes.

- 19a. a. constellation
- 19b. a. constellation
- 19c. Acceptable answers could include:
  - For the picture, students should draw a picture with distinct points that are the stars and the stars create a shape of some sort, ideally of an animal, character from mythology, or any common object.
  - For the description, students should discuss that the stars are close together and form a picture.

20a.



20b. see 20a.

- 20c. Acceptable answers could include:  
 -The North Star is located at the end of the handle in the Little Dipper; the two stars on the far end of the bowl of the Big Dipper point towards the North Star.  
 -Since the North Star remains fixed directly above the North Pole and does not appear to move in the sky, travelers can use the star to help them find what direction they are moving in.
- 21a. b. Telescope  
 21b. b. Telescope  
 21c. Acceptable answers could include:  
 -Microscopes have concave lenses and telescopes have convex lenses; microscopes are used to view very small items and make them look bigger and telescopes are used to make very big items look smaller.  
 -A telescope is useful to an astronomer because they study heavenly bodies in the sky and a telescope helps them to see these items better.
- 22a. a. rocket; shuttle  
 22b. c. rocket; shuttle  
 22c. Acceptable answers could include:  
 -Rockets only travel into space one time; shuttles can travel many times.  
 -Rockets cannot be piloted and shuttles can be piloted.
- 23a. a. Neil Armstrong walked on the Moon  
 23b. c. Neil Armstrong walked on the Moon  
 23c. Acceptable answers could include:  
 -It was the first time that any human had stepped on another planetary object.  
 -The success of being able to land on the moon meant that space exploration was possible and went to a higher level.  
 -This event impacted and changed the whole scope of culture in the United States and in the world.
- 24a. d. The space shuttle landed on Mars  
 24b. unmanned flights; Russians went into space; John Glenn orbited the Earth; space shuttle  
 24c. unmanned flights; Russians went into space; Alan Shepard and the first space flight; John Glenn orbited the Earth; Neil Armstrong was the first man on the Moon; space shuttle
- 25a. b. The Sun was at the center of the solar system and that the planets revolve around the Sun  
 25b. c. The Sun was at the center of the solar system and that the planets revolve around the Sun  
 25c. Acceptable answers could include:  
 -Copernicus discovered that the Sun was at the center of the solar system and that the planets revolve around the Sun, rather than the sun revolving around the planets.
- 26a. b. Mae Jemison

26b. c. Mae Jemison; 1992

26c. Acceptable answers could include:

-Mae Jemison was the first African American female astronaut

-She was a physician and a scientist and she helped to conduct experiments in space on her first shuttle mission.