Greatness Grows Here!

Memphis-Shelby County Schools Interim Assessment 1
2026–2027

Science
Grade 5



INSTRUCTIONS:

This test has two parts. You may not use a calculator on either part. Read each question carefully. Study any tables, diagrams, and pictures that go with the question. For most questions, choose the one best answer. When a question tells you to choose TWO answers, choose exactly two. Mark each answer on your answer sheet. Make sure the number on your answer sheet matches the number of the question you are answering. Stop when you reach the end of Part 1.

Part 1

1. Four students (W–Z) shine identical flashlights at their teacher. Each flashlight gives off the same amount of light, and each student stands at a different distance from the teacher. The flashlights represent stars, and the teacher represents Earth. The table shows how bright each flashlight looks to the teacher. The more marks, the brighter the flashlight looks.

Student	Brightness
W	xx
X	xxxx
Y	x
Z	xxx

If the flashlights were stars, which one models the one that is the farthest from Earth?

A. Student W

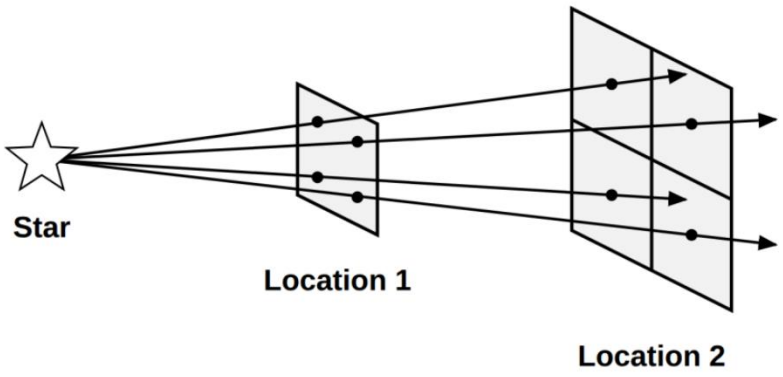
B. Student X

C. Student Y

D. Student Z

GO ON

2. The diagram shows light rays traveling in straight lines away from a star. Location 2 is twice as far from the star as Location 1.



An observer at Location 2 sees the star as dimmer than an observer at Location 1. Which statement explains why?

A. The same light is spread over a larger area at Location 2, so less of it reaches the observer's eye.

B. The light rays curve away from Location 2, so fewer rays reach the observer's eye.

C. The star gives off less light toward Location 2 because Location 2 is farther away.

D. The star looks smaller from Location 2, so it must be giving off less light.

GO ON

3. The table gives information about two stars.

Star	Distance from Earth (light-years)	Width compared to the Sun
Sun	0.000016	1
Rigel	860	78

Rigel looks like a small point of light in the night sky. The Sun looks like a large, bright disk. Which TWO statements are supported by the data? Choose TWO answers.

A. The Sun looks brighter than Rigel because the Sun is the larger of the two stars.

B. Rigel is much larger than the Sun, so its size cannot explain why it looks dimmer.

C. Rigel looks dimmer because it does not make its own light and only reflects light.

D. The Sun looks larger and brighter than Rigel because the Sun is much closer to Earth.

E. Rigel looks small because it is a smaller star than the Sun.

GO ON

4. The distance from Earth to a star is measured in light-years. Scientists study three stars. Each star gives off the same amount of light as the Sun. The table lists each star's distance from Earth and its size.

Star	Amount of Light It Gives Off	Distance from Earth (light-years)	Size compared to the Sun
Star J	Same as the Sun	40	2
Star K	Same as the Sun	12	0.8
Star L	Same as the Sun	85	1.5

Which choice lists the stars in order from the one that looks brightest from Earth to the one that looks dimmest?

A. Star L, Star J, Star K

B. Star J, Star L, Star K

C. The three stars look equally bright because they give off the same amount of light.

D. Star K, Star J, Star L

GO ON

5. The table describes the shapes of four galaxies.

Galaxy	Shape seen from above	Shape seen from the side
Andromeda	Arms that spiral out from a bright center	A flat disk with a bulge in the middle
Messier 87	A round ball of stars with no arms	A round ball of stars
Large Magellanic Cloud	No clear shape	No clear shape
Hoag's Object	A ring of stars around a round center	A thin ring around a round center

Which galaxy has a shape most like the Milky Way galaxy?

A. Andromeda

B. Messier 87

C. Large Magellanic Cloud

D. Hoag's Object

GO ON

6. The table describes six objects in space.

Object	Makes Its Own Light?	What It Travels Around	Other Properties
Object 1	No	The Sun	Large and round
Object 2	No	A planet	Round, smaller than the planet
Object 3	Yes	The center of the Milky Way galaxy	A huge ball of hot gas about 8.6 light-years from Earth, far outside our solar system
Object 4	No	The Sun, in a long, stretched path	Made of ice and dust; grows a glowing tail near the Sun
Object 5	No	The Sun, in a belt between Mars and Jupiter	Rocky and not round; up to hundreds of kilometers across
Object 6	No	The Sun	A small piece of rock or metal, much smaller than Object 5; makes a streak of light if it enters Earth's air

Which choice correctly sorts the objects?

A. Object 1 is a planet, Object 2 a moon, Object 4 an asteroid, Object 5 a comet, and Object 6 a meteoroid, all in our solar system; Object 3 is a star outside our solar system.

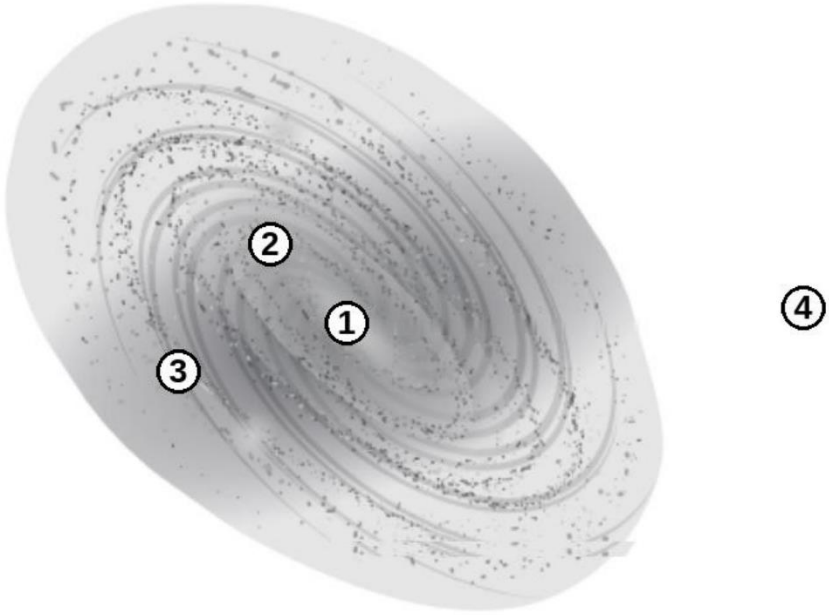
B. Object 1 is a planet, Object 2 a moon, Object 4 a comet, Object 5 an asteroid, and Object 6 a meteoroid, all in our solar system; Object 3 is a star outside our solar system.

C. Object 1 is a planet, Object 2 a moon, Object 5 an asteroid, and Object 6 a meteoroid, all in our solar system; Object 3 is a star and Object 4 a comet outside our solar system.

D. Object 1 is a planet, Object 2 a moon, Object 4 a comet, Object 5 a meteoroid, and Object 6 an asteroid, all in our solar system; Object 3 is a star outside our solar system.

GO ON

7. The image shows a model of the Milky Way galaxy as it would look from above. Four locations are marked.



From Earth, the Milky Way looks like a glowing band of stars stretching across the night sky. Which location best shows where our solar system is, and why?

A. Location 1, because the Sun is at the center of the galaxy and the other stars circle around it.

B. Location 4, because people see the whole galaxy as a band when they look at it from outside.

C. Location 2, because the bright part of the band is made of stars that are close to our solar system.

D. Location 3, because we are inside the galaxy's flat disk and see its stars stretched in a band around us.

GO ON

8. The table lists the distance across four galaxies.

Galaxy	Distance Across (light-years)
Milky Way	105,700
Cartwheel	130,000
Sombrero	50,000
Messier 63	98,000

Which TWO statements correctly compare the Milky Way with the other galaxies in the table? Choose TWO answers.

A. The Milky Way is wider than Messier 63.

B. The Milky Way is the widest galaxy in the universe.

C. The Cartwheel galaxy is wider than the Milky Way.

D. The Milky Way is narrower than the Sombrero galaxy.

E. The Milky Way is the narrowest of the four galaxies.

GO ON

9. Through a strong telescope, the glowing band of the Milky Way looks like many separate points of light. Without a telescope, the band looks like one smooth glow. Which statement explains why?

A. The band is a cloud of gas that reflects light from the Sun.

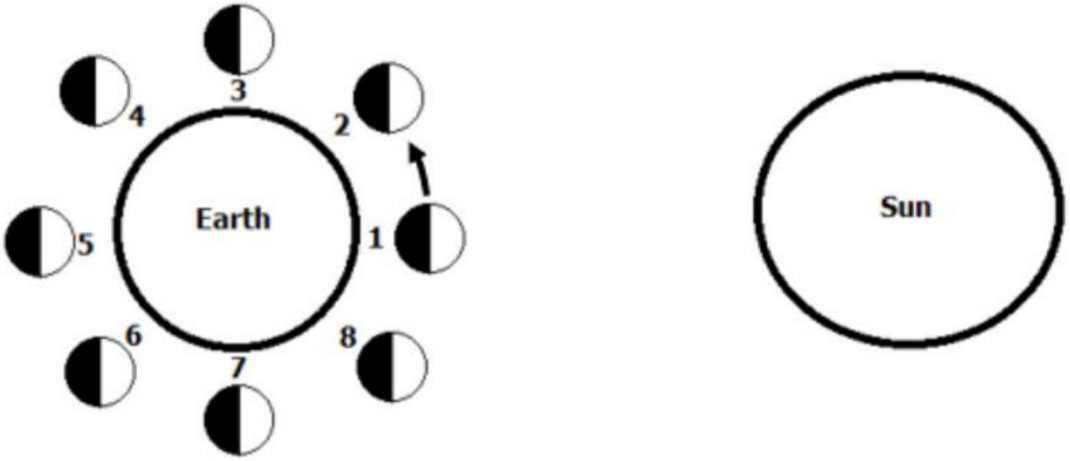
B. The band is sunlight that has been scattered by particles in Earth's air.

C. The band is made of many distant stars that look so close together that their light blends.

D. The band is made of stars that are smaller than the Sun, so each one gives off a dim glow.

GO ON

10. Study the diagram of the Moon's changing location. The Moon travels around Earth in the direction of the arrow. The half of the Moon that faces the Sun is always lit.



A student claims that the Moon's phases happen because Earth's shadow covers part of the Moon. Which evidence from the diagram best shows that the student's claim is wrong?

A. At Position 3, people on Earth see a half-lit Moon, but Earth is not between the Sun and the Moon.

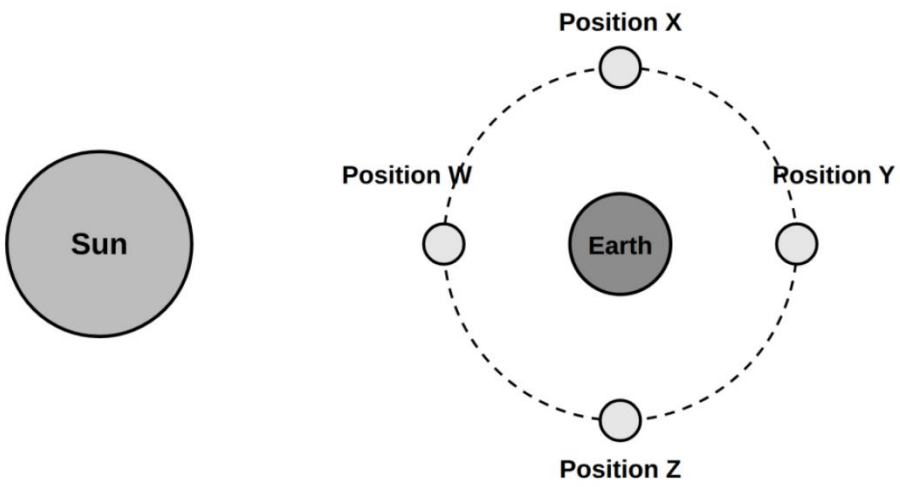
B. At Position 5, Earth is between the Sun and the Moon, so Earth's shadow makes the Moon look full.

C. At Position 1, the Moon is closest to the Sun, so the Moon gives off the most light there.

D. At Position 7, the Moon is farther from Earth, so people see less of the Moon there.

GO ON

11. The diagram shows the Sun, Earth, and four positions of the Moon as it travels around Earth. The drawing is not to scale.



One day, people in Memphis saw a solar eclipse around noon. At the same moment, it was nighttime in Tokyo, Japan, and people there did not see the eclipse. Which explanation accounts for both observations?

A. The Moon was at Position Y, and Earth's shadow fell on the Moon, which only people in Memphis could see.

B. The Moon was at Position W and blocked sunlight from part of Earth's daytime side; Tokyo was on the nighttime side.

C. The Moon was at Position Y and blocked sunlight from part of Earth's daytime side; Tokyo was on the nighttime side.

D. The Moon was at Position X and blocked sunlight from Memphis; Tokyo was on the side of Earth facing the Moon.

GO ON

12. A student lives near the ocean. For four days, she records the time of the first high tide each morning and the time the Moon is highest in the sky each morning.

Day	Time of High Tide	Time the Moon Is Highest in the Sky
1	6:05 a.m.	6:00 a.m.
2	6:55 a.m.	6:50 a.m.
3	7:45 a.m.	7:40 a.m.
4	8:35 a.m.	8:30 a.m.

Which prediction for the first high tide on Day 5, and which reason, are best supported by the data?

A. About 8:35 a.m., because the Sun's gravity causes high tide at the same time each morning.

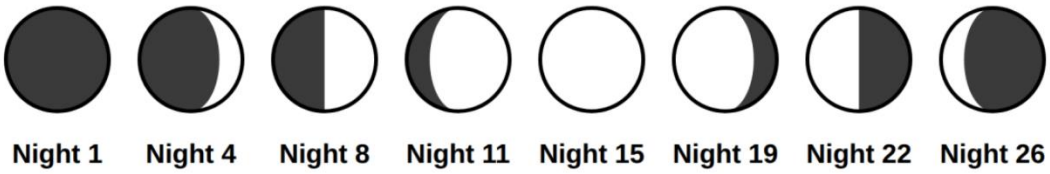
B. About 9:25 a.m., because Earth spins more slowly each day, so high tide comes later.

C. About 10:15 a.m., because the Moon is highest about 100 minutes later each day and pulls the ocean water.

D. About 9:25 a.m., because the Moon is highest about 50 minutes later each day and pulls the ocean water.

GO ON

13. A student observes the Moon every few nights for one month and draws its shape each time.



Which TWO conclusions are supported by the drawings? Choose TWO answers.

A. The Moon was closer to Earth on Night 15 than on Night 1, so more of it could be seen.

B. By Night 22, the Moon had traveled about three-fourths of the way around Earth from where it was on Night 1.

C. On Night 8 and Night 22, the same half of the Moon was lit as seen from Earth.

D. The Moon made more of its own light on Night 15 than on Night 1.

E. On Night 30, the Moon will look about the same as it did on Night 1.



You have reached the end of Part 1.

Part 2

Directions: You may not use a calculator. Read each question carefully. For most questions, choose the one best answer. When a question tells you to choose TWO answers, choose exactly two.

14. Students shine the same flashlight at a sheet of graph paper two times, from the same distance. First, they point the flashlight straight down at the paper. Then, they tilt the flashlight so the light strikes the paper at a slant. They count how many squares are lit each time.

Flashlight Position	Squares Lit	How Bright the Lit Area Looks
Straight down	20	Bright
At a slant	45	Dim

Which TWO conclusions about Earth are supported by the investigation and by the tilt and shape of Earth? Choose TWO answers.

A. In June, sunlight strikes Memphis more directly than in December, so each part of the ground in Memphis gets more energy in June.

B. The flashlight gives off less light when it is tilted, just as the Sun gives off less light in winter.

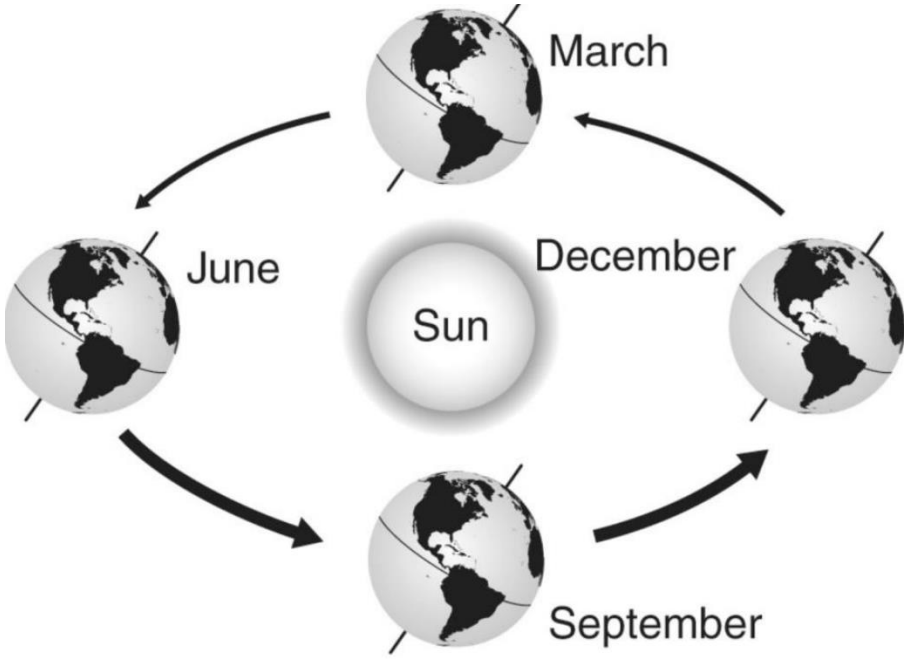
C. Places where sunlight strikes at a slant are warmer, because the same light covers a larger area.

D. Near the equator, sunlight strikes more directly than near the poles, so each part of the ground gets more energy.

E. Places near the poles are colder than places near the equator because the poles are farther from the Sun.

GO ON

15. The diagram shows Earth's revolution around the Sun.



Memphis, Tennessee, is in the Northern Hemisphere. Buenos Aires, Argentina, is in the Southern Hemisphere. Which statement correctly compares the day length in the two cities in December and explains the difference?

A. Memphis has longer days, because the Northern Hemisphere is tilted toward the Sun in December.

B. Buenos Aires has longer days, because its hemisphere is tilted toward the Sun, so it stays in sunlight longer during each spin.

C. Both cities have the same day length, because Earth spins once about every 24 hours in every place.

D. Buenos Aires has longer days, because the Southern Hemisphere is closer to the Sun in December.

GO ON

16. The table shows about how many hours of daylight three cities have on four days of the year.

City	Distance from the Equator	March 21	June 21	September 21	December 21
Quito, Ecuador	On the equator	12	12	12	12
Memphis, Tennessee	35 degrees north	12	14.5	12	10
Anchorage, Alaska	61 degrees north	12	19.5	12	5.5

Which TWO conclusions are supported by the data? Choose TWO answers.

A. Quito has its summer in June and its winter in December.

B. The number of daylight hours changes because Earth is closer to the Sun in June.

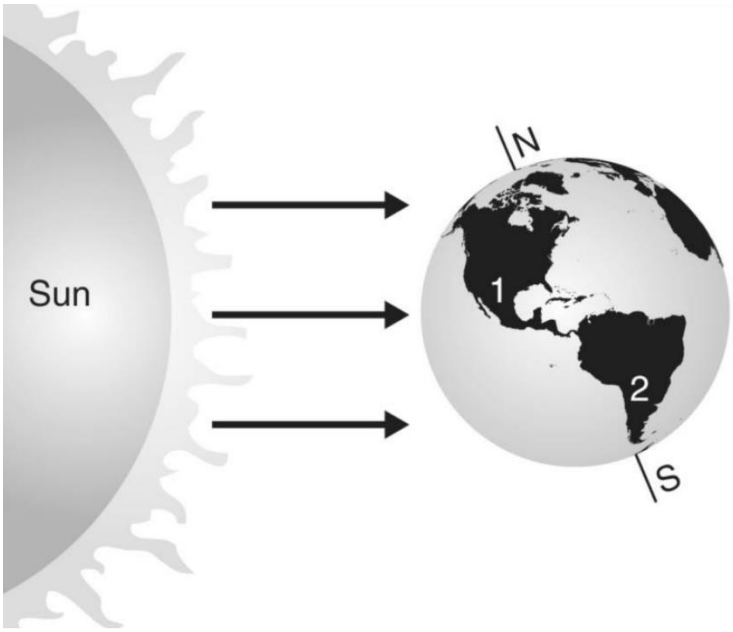
C. A city 45 degrees north would have between 14.5 and 19.5 hours of daylight on June 21.

D. Quito has more hours of daylight than Anchorage on every day in the table.

E. For cities north of the equator, the farther a city is from the equator, the longer its days are in June and the shorter its days are in December.

GO ON

17. The diagram shows the position of Earth at one time of the year.



Which TWO statements are true? Choose TWO answers.

A. Point 2 has colder temperatures than Point 1 because Point 2 is farther from the Sun.

B. Point 2 receives less direct sunlight and fewer hours of daylight than Point 1, so it is winter at Point 2.

C. Six months from now, Point 2 will receive more direct sunlight than Point 1.

D. Average temperatures are warmer at Point 2 than at Point 1.

E. Three months from now, Point 2 will be tilted toward the Sun and Point 1 will be tilted away.

GO ON

18. A constellation can be seen from Memphis on every clear night of the year. Where in the sky is this constellation most likely found, and why?

A. Near the southern horizon, because stars near the horizon appear to move the least.

B. Near the eastern horizon, because stars rise in the eastern sky every night.

C. Near the North Star, because stars close to it appear to circle it and never set.

D. In the same place all night, because constellations do not appear to move during the night.

GO ON

19. A student uses a star chart and a compass to record where the constellation Orion is at 9:00 p.m. on the first night of each month.

Date	Where Orion Is at 9:00 p.m.
December 1	Low in the eastern sky
January 1	Higher in the southeastern sky
February 1	High in the southern sky
March 1	Lower in the southwestern sky

Where will the student most likely find Orion at 9:00 p.m. on April 1?

A. High in the southern sky

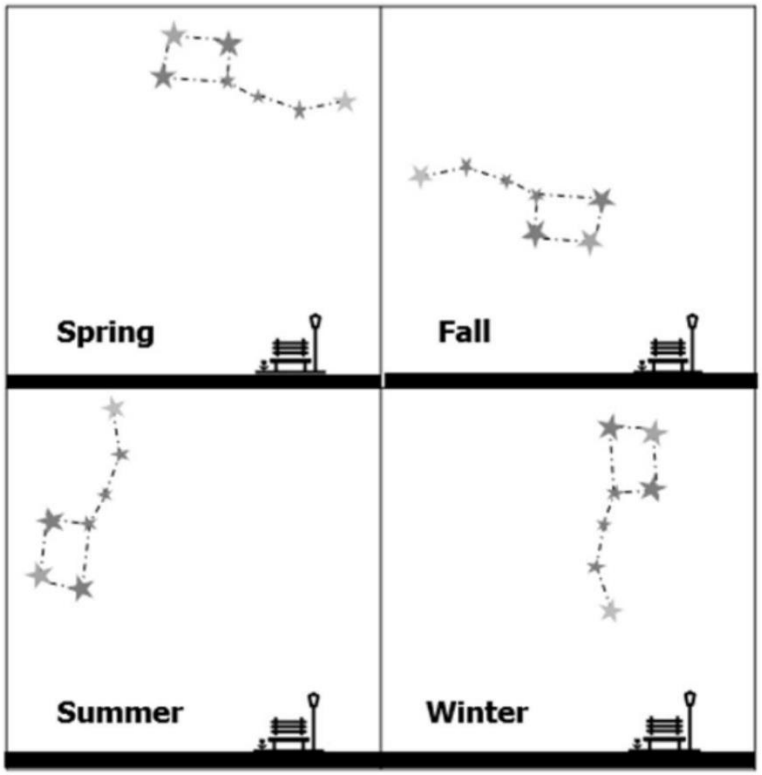
B. Low in the western sky

C. In the same place as on March 1

D. Low in the eastern sky

GO ON

20. The illustration shows how the Big Dipper, part of the Ursa Major constellation, looks at the same time each night during each season.



What causes the Big Dipper to look different during each season?

A. The view of the Big Dipper from Earth changes as Earth revolves around the Sun.

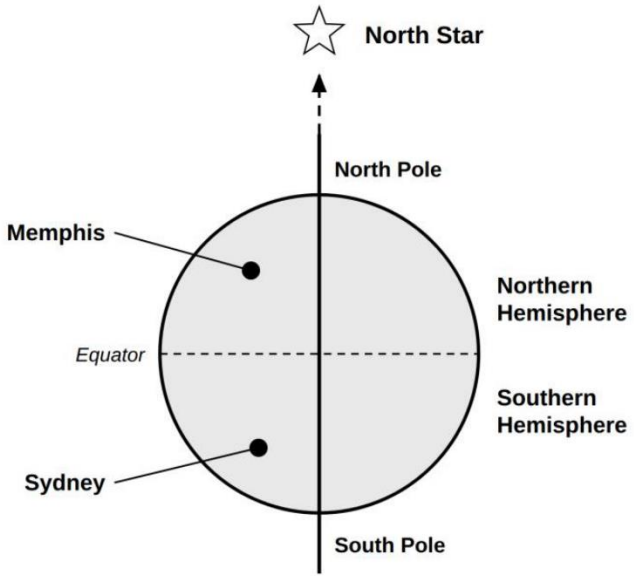
B. The stars in the Big Dipper change locations in outer space during the year.

C. Earth changes locations in outer space when it rotates on its axis.

D. Stars change locations throughout the year as they revolve around the Sun.

GO ON

21. Students in Memphis, Tennessee, and students in Sydney, Australia, look at the night sky on the same night.



Which TWO statements are true? Choose TWO answers.

A. Some constellations the Memphis students see cannot be seen from Sydney.

B. Both groups of students see exactly the same constellations.

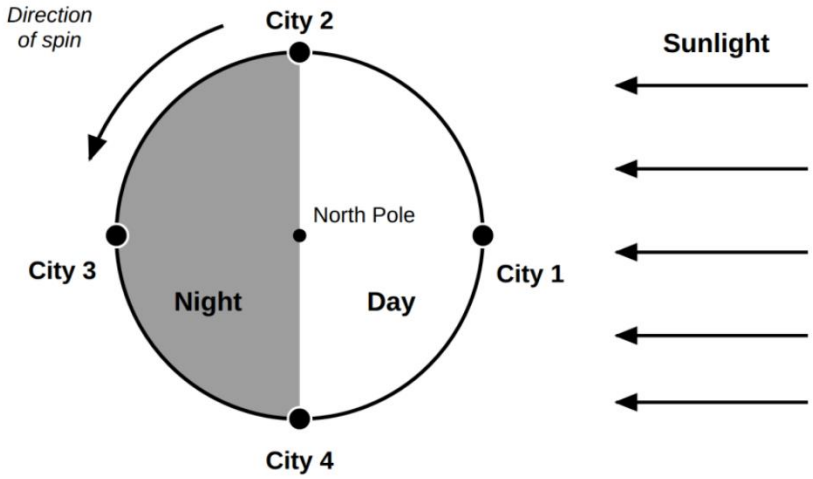
C. The North Star appears to move across the sky for the Memphis students during the night.

D. Stars near the North Star appear to move more than stars near the horizon.

E. The Sydney students cannot see the North Star.

GO ON

22. The diagram shows Earth as seen from above the North Pole.



It is sunset at City 2. Which city will have its sunset about 6 hours from now, and why?

A. City 4, because Earth's spin will carry it to the top of the diagram in about 6 hours.

B. City 3, because places on the night side are the next places to have sunset.

C. City 1, because a quarter turn of Earth carries it from facing the Sun to the line between day and night.

D. City 1, because the Sun will travel a quarter of the way around Earth toward City 1.

GO ON

23. Students use a lamp and a globe to model the Sun and Earth. A sticker on the globe marks Memphis. In Trial 1, they spin the globe in place. In Trial 2, they carry the globe in a slow circle around the lamp without spinning it.

Which TWO conclusions are supported by the two trials? Choose TWO answers.

A. Trial 2 shows that Earth's trip around the Sun causes day and night.

B. In Trial 1, the sticker stays in the light the whole time because the lamp does not move.

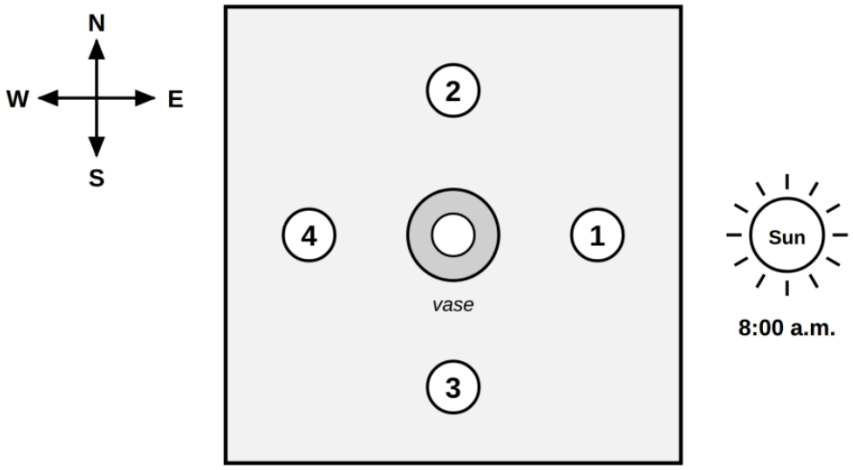
C. Both trials match what people observe equally well, because the sticker moves into darkness in both.

D. In Trial 2, the sticker is in the light for about half of the trip and in darkness for the other half.

E. Only Trial 1 matches the pattern of one day and one night in Memphis about every 24 hours.

GO ON

24. A vase of flowers is on a table outside in Memphis. The diagram shows the table from above. At 8:00 in the morning, the Sun is low in the eastern sky, and the vase's shadow falls on Location 4.



In what order will the vase's shadow fall on the locations from 8:00 in the morning to 5:00 in the afternoon?

A. Location 4 all day

B. Location 1, then Location 3, then Location 4

C. Location 4, then Location 3, then Location 1

D. Location 4, then Location 2, then Location 1

GO ON

25. On the same morning, students record when the Sun rises in three cities. All three cities are about the same distance north of the equator. All times are read from the same clock.

City	Time of Sunrise
City Q	5:50 a.m.
City R	6:50 a.m.
City S	7:50 a.m.

Which TWO conclusions are supported by the data and by a model of Earth's spin? Choose TWO answers.

A. City Q is the farthest east, because Earth's spin carries places in the east into sunlight first.

B. At 6:50 a.m., the Sun is already up in City Q, but it is still dark in City S.

C. City S is the farthest east, because the latest sunrise happens at the eastern edge.

D. The cities have different sunrise times because they are different distances from the Sun.

E. A city farther west than City S would have its sunrise before 7:50 a.m.



You have reached the end of this test.