

Earth Science Test: Human Impacts

_____ 1. Parks and green spaces help reduce

- a. nitrogen. b. runoff. c. landfills. d. mining.

_____ 2. Deforestation results in more

- a. nitrogen in the biosphere. b. carbon dioxide in the atmosphere.
c. oxygen in the atmosphere. d. water vapor in the geosphere.

_____ 3. Which is NOT a direct consequence of rising ocean temperatures?

- a. coral bleaching b. sea ice melting c. rising sea level d. shells dissolving

_____ 4. How do human activities promote the development of dead zones in lakes and oceans?

- a. Runoff from lawns and farms provide nutrients to algae.
b. Algae populations increase due to sedimentation from construction activities.
c. Ocean acidification due to excess carbon dioxide causes an increase in algae.
d. Large amounts of plastic waste that wash into the ocean provide a habitat for algae populations.

_____ 5. Which has a negative impact on land

- a. composting b. mining c. reclamation d. reforestation

_____ 6. Which has a positive impact on land?

- a. composting b. deforestation c. mining d. urbanization

_____ 7. What is the development of land for houses and other buildings near a city called?

- a. composting b. mining c. ruralization d. Urbanization

_____ 8. Which of the following is a primary benefit of a sanitary landfill compared to an open dump?

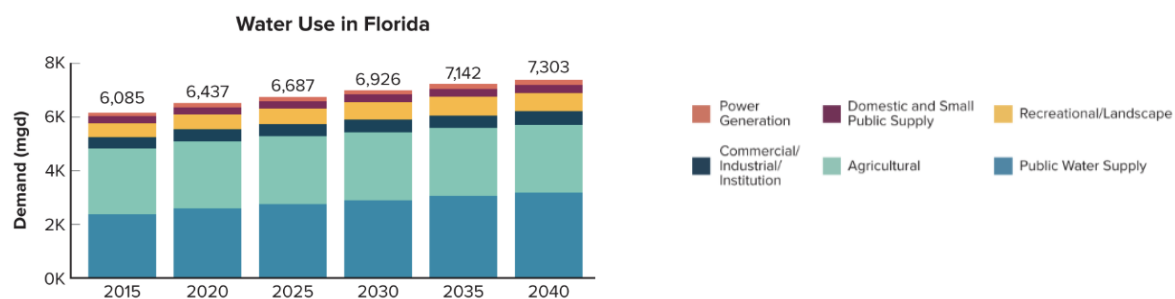
- a. Reduced risk of groundwater contamination due to liners and leachate collection systems.
b. Lower cost of waste disposal.
c. Easier access for scavenging animals.
d. Faster decomposition of organic waste.

_____ 9. Which of the following best describes a primary advantage of nuclear power compared to fossil fuels in terms of environmental impact?

- a. Nuclear fuel is readily available and inexpensive, making it a cost-effective energy source.
- b. Nuclear power plants produce significantly less greenhouse gas emissions during electricity generation.
- c. Nuclear waste disposal is a straightforward and environmentally safe process.
- d. Nuclear power plants have a minimal impact on local ecosystems.

_____ 10. The human activity of overdrawing groundwater can deplete aquifers, resulting in

- a. surface water pollution
- b. land subsidence
- c. sedimentation
- d. excess groundwater



_____ 11. The graph above shows how water use is projected to rise in Florida over the next two decades. Which route of consumption is projected to increase the most over this period?

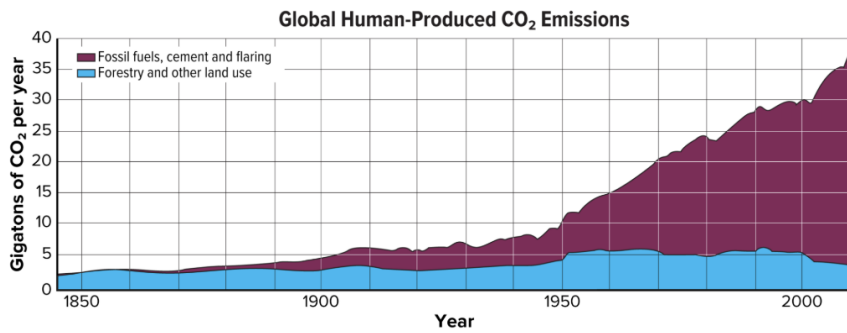
- a. Recreational/Landscape
- b. Power Generation
- c. Agricultural
- d. Public Water Supply

_____ 12. Which statement describes how human activities, including releasing greenhouses gases, deforestation, and urbanization, can influence climate?

- a. Releasing greenhouses gases, deforestation, and urbanization increase the amount of carbon dioxide in the atmosphere, causing global temperatures to decrease.
- b. Releasing greenhouses gases, deforestation, and urbanization increase the amount of carbon dioxide in the atmosphere, causing global temperatures to increase.
- c. Releasing greenhouses gases, deforestation, and urbanization decrease the amount of carbon dioxide in the atmosphere, causing global temperatures to increase.
- d. Releasing greenhouses gases, deforestation, and urbanization decrease the amount of carbon dioxide in the atmosphere, causing global temperatures to decrease.

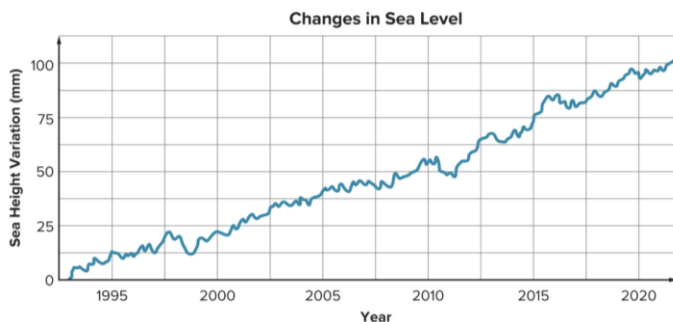
_____ 13. Which outcome is NOT a likely environmental problem related to urbanization?

- a. increase in waste production
- b. increased use of mass transportation
- c. Pollution of water supplies near the city
- d. Loss of forests or other natural habitats for wildlife



_____ 14. Examine the graph. What trend do you observe in the graph? How does this influence climate?

- a. CO₂ emissions from deforestation and other land uses has decreased dramatically since 1950. This causes the climate to become colder.
- b. CO₂ emissions from fossil fuels, cement, flaring, and deforestation and other land use has remained constant since 1850. This does not affect climate.
- c. CO₂ emissions from fossil fuels, cement, and flaring has increased dramatically since 1950. This causes the climate to become warmer.
- d. CO₂ emissions from fossil fuels, cement, and flaring has remained constant since 1850. This does not affect climate.



_____ 15. Based on the data from the graph above, what is the approximate change in sea level from 1995 to 2020?

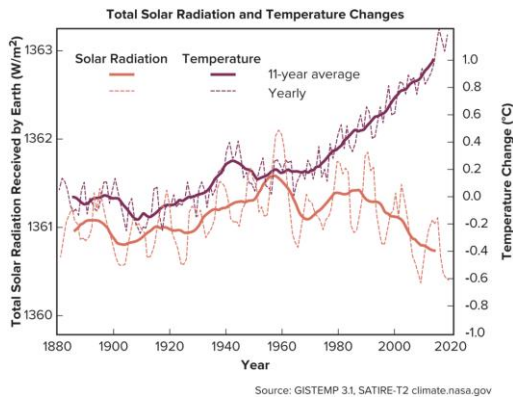
- a. 3 mm/year
- b. -6 mm/year
- c. -4 mm/year
- d. 8 mm/year

_____ 16. Compare the impact of greenhouse gas emissions released by humans burning fossil fuels and greenhouse gas emissions released by volcanoes on modern climate.

- a. Humans release much less greenhouse gases than volcanoes. Volcanoes impact climate more than humans.
- b. Humans and volcanoes release a similar amount of greenhouse gases and impact climate about the same.
- c. Volcanoes release less greenhouse gases and impact climate more than humans.
- d. Humans release more greenhouse gases and impact climate more than volcanoes.

_____ 17. Which of the following parts of the carbon cycle happens in short periods of time?

- a. photosynthesis
- b. formation of rocks
- c. formation of soil
- d. formation of fossil fuels

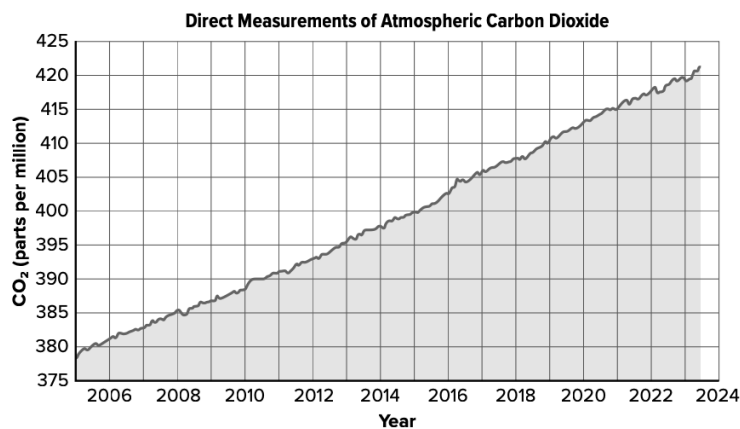


_____ 18. What conclusions about solar activity and temperature can you draw from the graph above?

- a. It is likely that the sun has caused the observed global temperature warming trend.
- b. It is likely that the sun has caused the observed global temperature cooling trend.
- c. It is unlikely that humans have caused the observed global temperature warming trend.
- d. It is unlikely that the sun has caused the observed global temperature warming trend.

_____ 19. Which is **one** reason that people rebuild degraded coastal marshes?

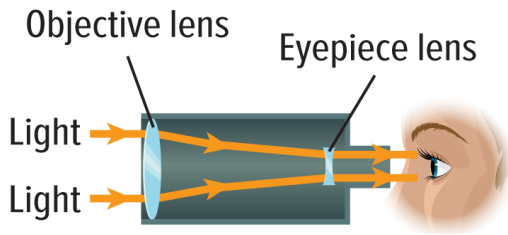
- a. to provide more land for development
- b. to increase water supplies for nearby cities
- c. to establish a better habitat for marine animals
- d. to reduce emissions of greenhouse gases



_____ 20. Which question would **best** identify evidence of the effect atmospheric CO₂ has on global warming?

- a. Why are atmospheric carbon dioxide levels increasing?
- b. What is happening to levels of other greenhouse gases?
- c. How do scientists gather data about levels of carbon dioxide?
- d. How did global temperatures change over the same period?

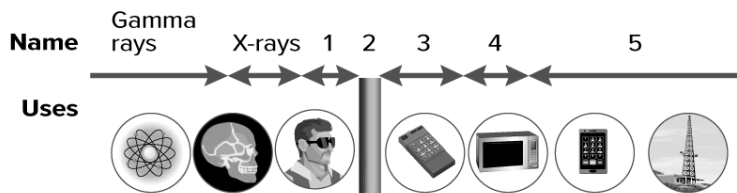
Earth Science Test: Space



_____ 1. The image below is of a

- a. refracting telescope b. reflecting telescope
- c. compound telescope d. radio telescope

_____ 2. Which number in the image indicates the part of electromagnetic spectrum used by a refracting telescope?



a. 1

b. 2

c. 3

d. 4

_____ 3. What technology does NOT leave Earth to collect data?

- a. a probe
- b. a rocket
- c. a satellite
- d. a radio telescope

_____ 4. Why might images of the same star look different?

- a. The star is moving.
- b. The star was observed using different types of electromagnetic waves.
- c. The star was viewed at different times of the day.
- d. The star was viewed at different times of the year.

_____ 5. Why does NASA plan to send humans into space within the next 20 years?

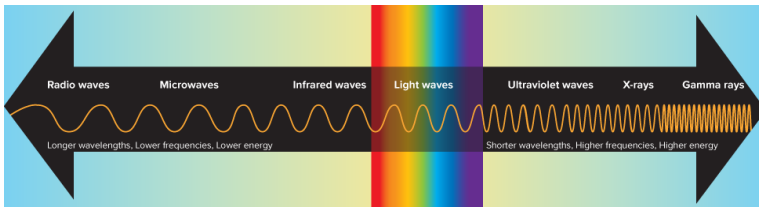
- a. to explore Mars
- b. to find liquid water on Europa
- c. to orbit the sun
- d. to explore a planet discovered by *Kepler*

_____ 6. Which mission sent people to the Moon?

- a. Explorer
- b. Galileo
- c. Skylab
- d. Apollo

_____ 7. Which NASA location in Florida launches rockets for space exploration?

- a. Johnson Space Center
- b. Kennedy Space Center
- c. NASA headquarters
- d. Jet Propulsion Laboratory



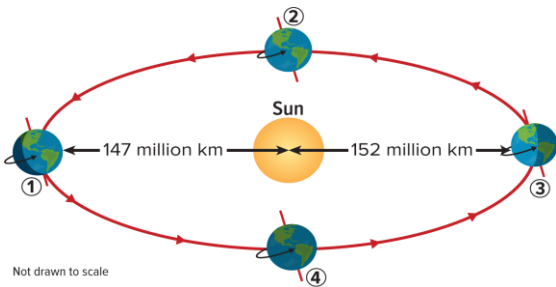
_____ 8. In which wavelength would you expect the hottest stars to emit most of their energy?

a. Gamma rays b. Microwave c. Radio waves d. Visible light

_____ 9. Which statement best describes infrared (IR) waves?

a. IR waves are brighter than visible light waves. b. IR waves are longer than visible light waves.

c. IR waves have more energy than visible light waves. d. IR waves move more quickly than visible light waves.



_____ 10. At which point is North America experience summer according to the model of Earth orbiting the sun?

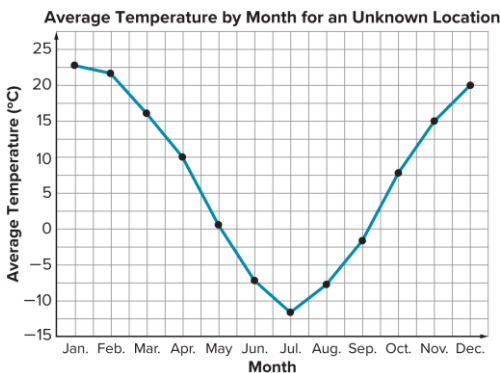
a. 1 b. 2 c. 3 d. 4

_____ 11. Describe your reasoning for the answer above.

a. because North America is closer to the Sun b. because North America is farther from the Sun.

c. because North America is tilted toward the Sun. d. because North America is tilted along Earth's orbit.

_____ 12. The temperature of a location on Earth changes as Earth revolves around the Sun. The graph shows the temperature throughout the year for an unknown location. In which hemisphere is this unknown location?



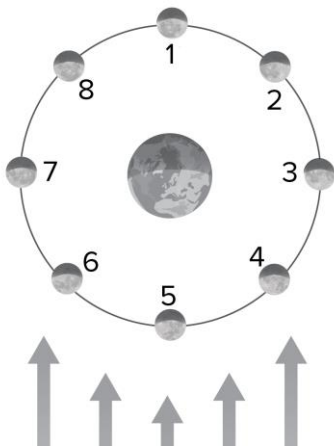
- a. Northern Hemisphere because January has the highest temperature
- b. Southern Hemisphere because January has the highest temperature
- c. Southern Hemisphere because July has the highest temperature
- d. Northern Hemisphere because July has the highest temperature

_____ 13. During which lunar phase might a solar eclipse occur?

- a. first quarter moon b. full moon c. new moon d. third quarter moon

_____ 14. The moon is visible because it

- a. generates light from the Sun. b. reflects light from the Earth.
c. generates light from the Sun. d. reflects light from the Sun.



_____ 15. Which number(s) indicate waning phases of the moon?

- a. 1, 5 b. 2, 3, 4 c. 3, 7 d. 6, 7, 8

_____ 16. Which image represents a new moon?

- a. 1 b. 3 c. 5 d. 7

_____ 17. Which image represents the third week of the lunar cycle?

- a. 1 b. 3 c. 5 d. 7

_____ 18. Which of these objects will **most likely** be observed using a radio telescope?

- a. gas clouds between stars in a galaxy b. large, hot stars
c. the core of a distant galaxy d. high energy pulsars

_____ 19. Examine the diagram. How will the tide at Point 4 change in the next 12 hours?



- a. The tide will change from high tide to low tide.
b. The tide will change from low tide to high tide.
c. The tide will change from high tide to low tide and back to high tide.
d. The tide will change from low tide to high tide and back to low tide.

_____ 20. How would daily high tides be different if the moon was closer to the Earth?

- a. High tide would be lower because the gravitational pull of the moon would be stronger.
b. High tide would be higher because the gravitational pull of the moon would be weaker.
c. High tide would be lower because the gravitational pull of the moon would be weaker.
d. High tide would be higher because the gravitational pull of the moon would be stronger.

_____ 21. A student observes that many seashells are exposed on the beach because the ocean level is very low. They know this occurred due to the gravitational forces of the Sun, Earth, and the Moon. Which of the following correctly predicts the positions of the Sun, Earth, the Moon, and the beach?

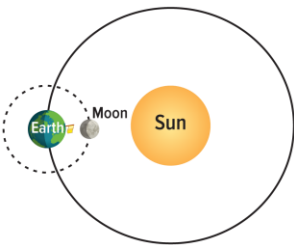
- The Sun, Earth, and the Moon form a straight line with the beach located inside a tidal bulge.
- The Sun, Earth, and the Moon form a straight line with the beach located outside a tidal bulge.
- The Sun, Earth, and the Moon form a right angle with the beach located inside a tidal bulge.
- The Sun, Earth, and the Moon form a right angle with the beach located outside a tidal bulge.

_____ 22. The following model shows the location of two vacation spots. Which type of activity would you recommend for each location at its point in Earth's revolution around the sun?

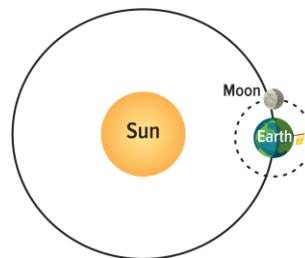


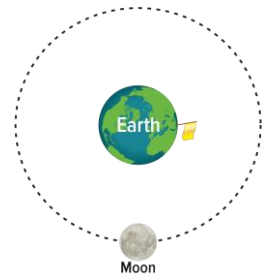
- Winter activities for Location 1 and summer activities for Location 2.
- Summer activities for Location 1 and winter activities for Location 2.
- Winter activities for both Location 1 and Location 2.
- Summer activities for both Location 1 and Location 2.

23-24. A student developed four models to represent daily and monthly tides caused by the gravitational forces of Earth, the Sun, and the Moon. They placed a flag on Earth's surface as a reference point. Examine the images. Identify the correct tide that each model represents in the space below the model.









_____ 25. Which of the following tides will have the lowest water level?

- ordinary low tide
- Low tide during a spring tide
- Low tide during a neap tide

Bonus: Would the phases of the moon be affected if the moon did not make one rotation for each revolution?