STAR Test Sample Questions

Earth Science (End-of-course)

Table of Contents

More Questions

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STAR Test Sample Questions

Earth Science (End-of-course)

Investigation and Experimentation

Proficient Level Questions

- Question 1
- Question 2

Basic Level Questions

- Question 1
- Question 2
- Question 3

Standardized Testing and Reporting - STAR

Earth Science (End-of-course)

Biogeochemical Cycles (Performance Level: Proficient) – Question 01

From Earth's atmosphere, carbon dioxide is used by plants, algae, and cyanobacteria during the process of

A photosynthesis.
B respiration.
C decomposition.
D nitrogen fixation.

Earth Science (End-of-course)

Biogeochemical Cycles (Performance Level: Proficient) – Question 02

Analysis of Gases From a Hawaiian Volcano

Gas	Amount
H2O	(steam) 79%
CO2	12%
SO2	6.5%
N2	1.5%
H2, CO, Cl2, and Ar	trace

The table above lists the gases coming from a modern Hawaiian volcano. If ancient volcanoes gave off the same gases, which gas would have been most helpful in the development of early life-forms that could carry out photosynthesis?

A N2
B SO2
C CO2
D Cl2

Earth Science (End-of-course)

Biogeochemical Cycles (Performance Level: Proficient) – Question 03

Carbon in the atmosphere is *most* often found as which of the following compounds?

A stratospheric ozone
B fossil fuel
C carbon monoxide
D carbon dioxide

Earth Science (End-of-course)

Biogeochemical Cycles (Performance Level: Proficient) – Question 04

The primitive atmosphere of Earth was deficient in free oxygen. What process was primarily responsible for the development of the present percentage of free oxygen in the Earth's atmosphere?

A outgassing
B photosynthesis
C volcanic eruptions
D oxidation of iron-based minerals

Earth Science (End-of-course)

Biogeochemical Cycles (Performance Level: Proficient) – Question 05

Most of the molecular oxygen in the early atmosphere of Earth resulted from

A photosynthesis in primitive plants.
B decaying primitive plants and animals.
C volcanic eruptions.
D lightning striking Earth.

Earth Science (End-of-course)

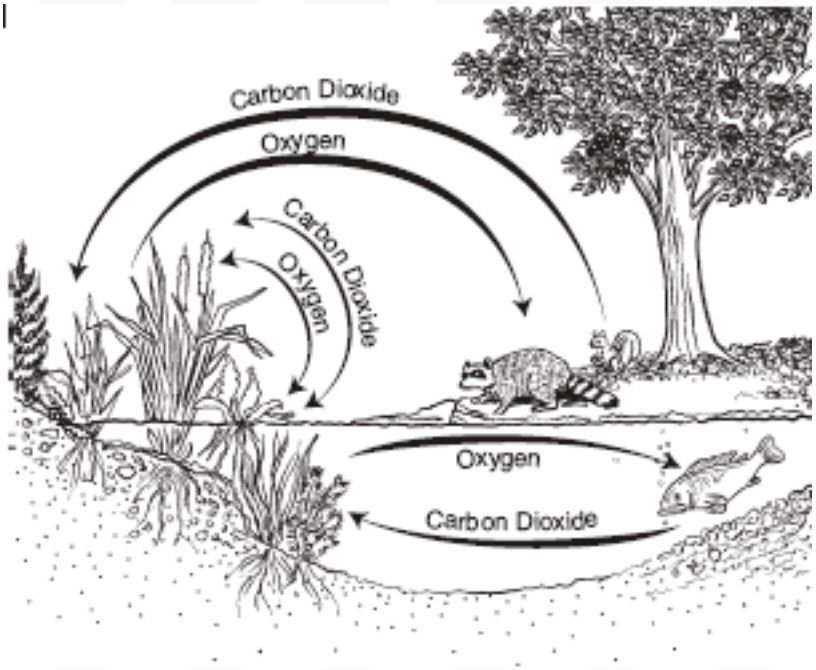
Biogeochemical Cycles (Performance Level: Proficient) – Question 06

Which of the following human activities reduces the level of ozone in the atmosphere?

A using artificial lighting in scientific polar stations
B using large banks of solar cells for energy production
C releasing chlorofluorocarbons from aerosol cans
D destroying large areas of the equatorial rain forests

Earth Science (End-of-course)

Biogeochemical Cycles (Performance Level: Below Basic) – Question 01



Which of these statements is *best* illustrated by this diagram?

A Animals under water eat plants.
B Land animals exhale oxygen into water.
C Water-dwelling animals breathe carbon dioxide.
D Plants can take in carbon dioxide from air or water.

Earth Science (End-of-course)

California Geology (Performance Level: Proficient) – Question 01

Geothermal energy is possible where there is

A wind.
B oil.
C coal.
D magma.

Earth Science (End-of-course)

California Geology (Performance Level: Proficient) – Question 02

The Long Valley Caldera in east-central California was formed by a massive volcanic eruption about 760,000 years ago. Since then, it has erupted several times. Of the following, which would be *least* likely to indicate that another eruption will soon occur?

A recurring earthquakes in the vicinity
B decreases in precipitation in the area
C changes in gas emissions from the caldera
D uplifting of the floor of the caldera

Earth Science (End-of-course)

California Geology (Performance Level: Proficient) – Question 03

The main purpose of the California aqueduct is to

A allow inexpensive water routes for transporting commercial products.
B transport fresh water to areas with dense populations.
C divert floodwater from populated regions to sparsely populated areas.
D provide abundant ocean water to drier regions of California.

Earth Science (End-of-course)

California Geology (Performance Level: Basic) – Question 01

What energy resource is made possible by the volcanic activity in California?

A hydroelectricity
B nuclear power
C geothermal energy
D solar energy

Earth Science (End-of-course)

California Geology (Performance Level: Basic) – Question 02

Earthquake activity in California is primarily caused by

A the lowering of aquifer levels.
B the interaction of tides with the coast.
C mining activity during the nineteenth century.
D plates grinding past each other along active faults.

Earth Science (End-of-course)

Dynamic Earth Processes (Performance Level: Advanced) – Question 01

It is generally true that igneous rocks

A contain primarily evaporites.
B can be scratched with a penny.
C normally contain fossils.
D are composed of silicate minerals.

Earth Science (End-of-course)

Dynamic Earth Processes (Performance Level: Proficient) – Question 01

The convergence of two continental plates would produce

A island arcs.
B rift valleys.
C folded mountains.
D trenches.

Earth Science (End-of-course)

Dynamic Earth Processes (Performance Level: Proficient) – Question 02

The Richter scale measures which of the following earthquake characteristics?

A intensity
B magnitude
C frequency
D probability

Earth Science (End-of-course)

Dynamic Earth Processes (Performance Level: Proficient) – Question 03

Which type of volcano would be the *least* explosive?

A cinder cone
B stratovolcano
C shield volcano
D composite cone

Earth Science (End-of-course)

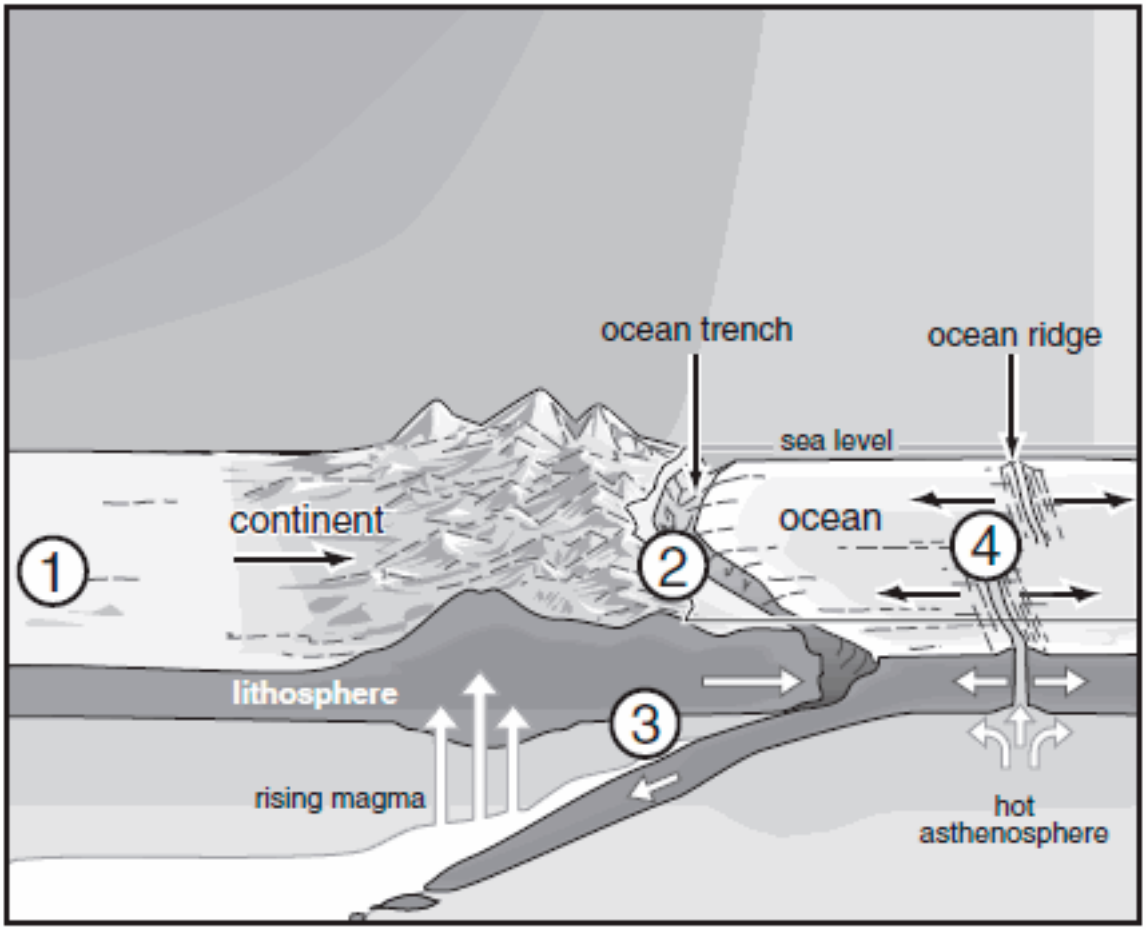
Dynamic Earth Processes (Performance Level: Basic) – Question 01

Which of the following provides evidence for plate tectonics?

A sea-floor topography
B ocean currents
C Coriolis effect
D atmospheric temperatures

Earth Science (End-of-course)

Dynamic Earth Processes (Performance Level: Basic) – Question 02



At which location would earthquakes be *least* likely to occur?

A 1
B 2
C 3
D 4

Earth Science (End-of-course)

Earth's Place in the Universe (Performance Level: Proficient) – Question 01

Which of the following statements *best* describes how the planets of the solar system formed?

A They are condensed rings of matter thrown off by the young Sun.
B They are the remains of an exploded star once paired with the Sun.
C The Sun captured them from smaller, older nearby stars.
D They formed from a nebular cloud of dust and gas.

Earth Science (End-of-course)

Earth's Place in the Universe (Performance Level: Proficient) – Question 02

Which planet was formed from the light gases of the outer solar nebula?

A Mars
B Mercury
C Venus
D Uranus

Earth Science (End-of-course)

Earth's Place in the Universe (Performance Level: Proficient) – Question 03

Early telescopes showed stars as only points of light, while the planets appeared to be much larger, providing evidence that stars must

A be more plentiful in our solar system than planets.
B travel in elliptical orbits like planets.
C be much farther from Earth than planets.
D reflect much more light than planets.

Earth Science (End-of-course)

Earth's Place in the Universe (Performance Level: Proficient) – Question 04

Although many ancient civilizations designated certain patterns of stars as constellations, they never included planets in their constellations. What feature of planets, as opposed to stars, explains this?

A They look bigger than stars.
B They are more difficult to see than stars.
C There are not enough of them to form a constellation.
D They do not maintain fixed positions relative to other planets or stars.

Earth Science (End-of-course)

Earth's Place in the Universe (Performance Level: Proficient) – Question 05

Fusion is a form of nuclear reaction resulting in an enormous release of heat energy. The fusion of hydrogen to helium is a reaction that commonly occurs in

A the Sun and other typical stars.
B the ionosphere and thermosphere.
C Earth's outer core of molten iron.
D a comet's tail of ionized gases.

Earth Science (End-of-course)

Earth's Place in the Universe (Performance Level: Proficient) – Question 06

The Sun is an average yellow star in the Milky Way galaxy, which is described as

A a dwarf galaxy.
B a spiral galaxy.
C an elliptical galaxy.
D an irregular galaxy.

Earth Science (End-of-course)

Earth's Place in the Universe (Performance Level: Proficient) – Question 07

As part of the modern theory of the origins of the elements, it is hypothesized that before the formation of the stars, most of the matter in the universe consisted of what atoms?

A hydrogen and helium
B nitrogen and carbon
C silicon and lithium
D uranium and radium

Earth Science (End-of-course)

Earth's Place in the Universe (Performance Level: Proficient) – Question 08

Stars begin their life cycle in

A a black hole.
B a nova.
C a nebula.
D a supernova.

Earth Science (End-of-course)

Earth's Place in the Universe (Performance Level: Basic) – Question 01

Which of the following is the best evidence that Earth's continents were once in vastly different positions than they are today?

A Penguins are found only in the Southern Hemisphere.
B Fossils of tropical plants are found in Antarctica.
C Volcanoes encircle the Pacific Ocean.
D Major rivers form deltas from continental erosion.

Earth Science (End-of-course)

Earth's Place in the Universe (Performance Level: Basic) – Question 02

The surfaces of planet Mercury and our moon contain some very large craters that are *most* likely the result of

A giant lava flows.
B asteroid impacts.
C nuclear explosions.
D large collapsed caves.

Earth Science (End-of-course)

Energy in the Earth System (Performance Level: Advanced) – Question 01

When a layer of cool air at the surface of Earth is found under a layer of warmer air above it, the result is known as

A the Coriolis effect.
B the greenhouse effect.
C a temperature inversion.
D an upwelling.

Earth Science (End-of-course)

Energy in the Earth System (Performance Level: Advanced) – Question 02

The Gulf Stream in the Northern Hemisphere and the Brazilian Current in the Southern Hemisphere move poleward. Compared to inland areas at the same latitude, the coastal areas bordering these currents will

A be warmer.
B be more arid.
C have more advection fogs.
D have shorter growing seasons.

Earth Science (End-of-course)

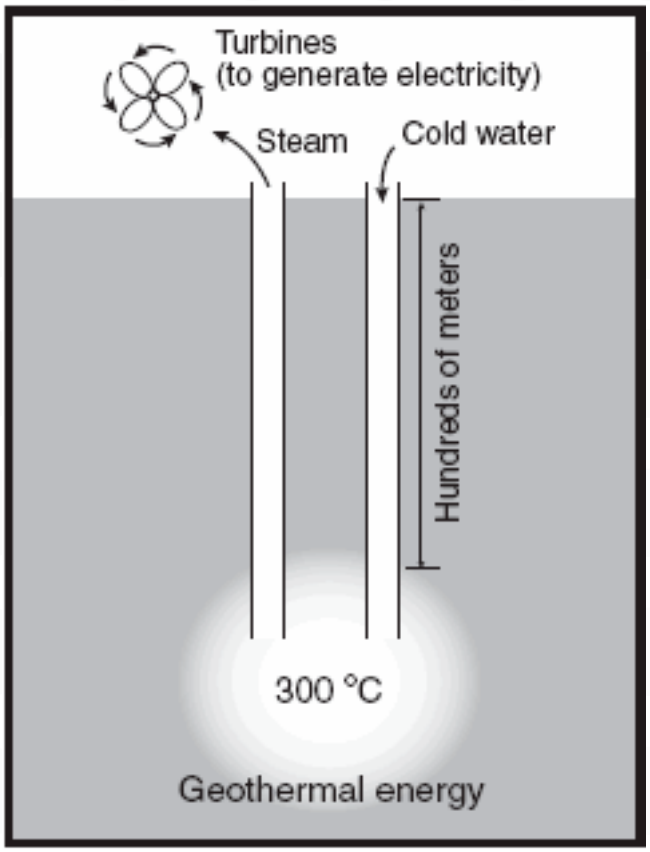
Energy in the Earth System (Performance Level: Proficient) – Question 01

Only about 50% of the solar energy directed toward Earth penetrates directly to the surface. What happens to the rest of the radiation?

A It is absorbed or reflected by the atmosphere.
B It loses energy traveling through space.
C It is reflected off the Moon and back into space.
D It loses energy overcoming the Sun's gravity.

Earth Science (End-of-course)

Energy in the Earth System (Performance Level: Proficient) – Question 02



Geothermal energy, a possible energy resource, is based on which phenomenon?

A There are concentrations of heat in some places of Earth's crust.
B Earth's internal energy heats its surface more than the Sun does.
C Heat energy from the Sun penetrates deep into Earth.
D Human activity is the largest source of heat energy on Earth.

Earth Science (End-of-course)

Energy in the Earth System (Performance Level: Proficient) – Question 03

Venus is warmed by solar radiation, but its thick cloud cover increases the temperature because the clouds

A prevent the escape of heat into space.
B convert solar radiation into heat.
C absorb short light wavelengths, leaving heat.
D produce heat as they are pushed by strong winds.

Earth Science (End-of-course)

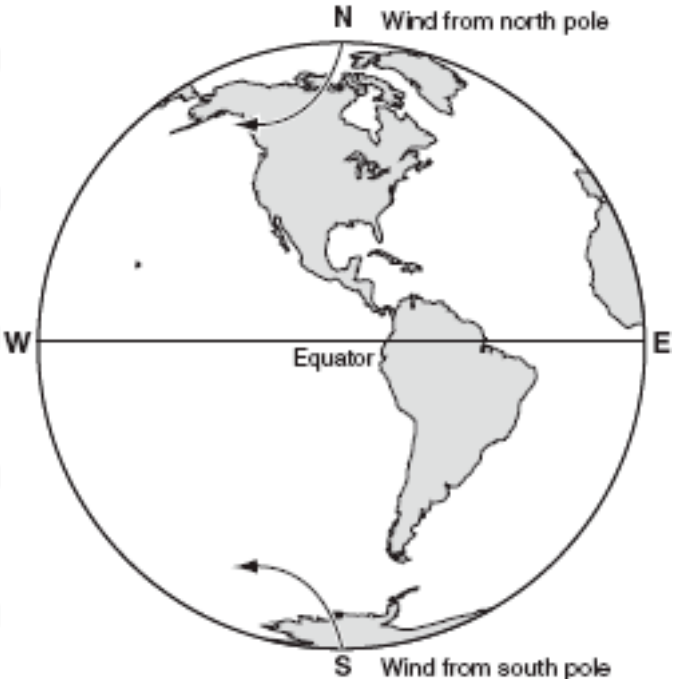
Energy in the Earth System (Performance Level: Proficient) – Question 04

Which of these could increase average global temperatures?

A increased use of fossil fuels
B increased ocean algal blooms
C decreased carbon dioxide emissions
D increased numbers of animal species

Earth Science (End-of-course)

Energy in the Earth System (Performance Level: Proficient) – Question 05



What causes the wind deflection from the north and south poles?

A rotation of Earth on its axis
B the oblate shape of Earth
C the tilt of Earth's axis relative to its orbital plane
D the difference in total land mass of the two hemispheres

Earth Science (End-of-course)

Energy in the Earth System (Performance Level: Proficient) – Question 06

Air moving from the poles toward the equator turns west. The primary cause of this global deflection is

A the shape and size of land masses.
B larger cities surrounded by farmlands.
C changes in the magnetic field.
D the rotation of the planet.

Earth Science (End-of-course)

Energy in the Earth System (Performance Level: Proficient) – Question 07

Snow on the ground prevents polar climates from gaining heat by what mechanism?

A heating by greenhouse gases
B heat spread from the equator
C reflection of solar radiation
D release of heat from Earth's core

Earth Science (End-of-course)

Energy in the Earth System (Performance Level: Proficient) – Question 08

Shifts in Earth's continents *most* likely caused a change in Earth's

A climatic regions
B mass
C orbital velocity
D atmospheric temperature

Earth Science (End-of-course)

Energy in the Earth System (Performance Level: Basic) – Question 01

The Moon is very hot on the side facing the Sun and very cold on the dark side. This extreme temperature difference is primarily due to the Moon's

A mineral composition.
B thin atmosphere.
C reflective rocks.
D lack of volcanic activity.

Earth Science (End-of-course)

Energy in the Earth System (Performance Level: Basic) – Question 02

The clouds that surround Venus are so thick that the planet actually absorbs less sunlight than the Earth. Nevertheless, Venus has a surface temperature of more than 400 °C. Which of these *best* explains this high surface temperature?

A The bright surfaces of the clouds reflect sunlight back on the planet.
B The strong winds in the atmosphere produce friction.
C The thick clouds in the atmosphere prevent heat from escaping.
D The sulfuric acid in the clouds releases heat energy.

Earth Science (End-of-course)

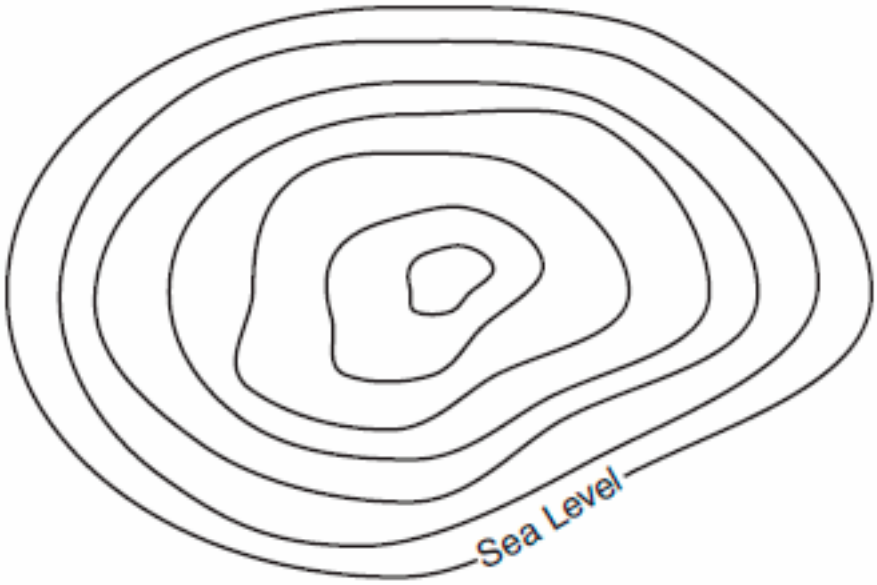
Energy in the Earth System (Performance Level: Basic) – Question 03

Scientists have found fossils of tropical plants in Antarctica. How could tropical plants have grown in Antarctica?

A At one time, Earth's entire surface was a tropical rain forest.
B At one time, Antarctica was located closer to the equator.
C The rotation of Earth has increased, causing cooling of the atmosphere.
D Catastrophic volcanic eruptions melted the ice and exposed the soil to sunlight.

Earth Science (End-of-course)

Investigation and Experimentation (Performance Level: Proficient) – Question 01



Contour Interval - 5 meters

The highest elevation on this topographic map can be no more than about

A 25 meters.

B 34 meters.

C 45 meters.

D 49 meters.

Earth Science (End-of-course)

Investigation and Experimentation (Performance Level: Proficient) – Question 02

In an area where a river has cut deep into Earth, there are several layers of very different rock exposed. The oldest rock layer is *most* likely to be the layer that is

A below the other layers.
B the thickest layer.
C the most rich in fossils.
D igneous intrusive rock.

Earth Science (End-of-course)

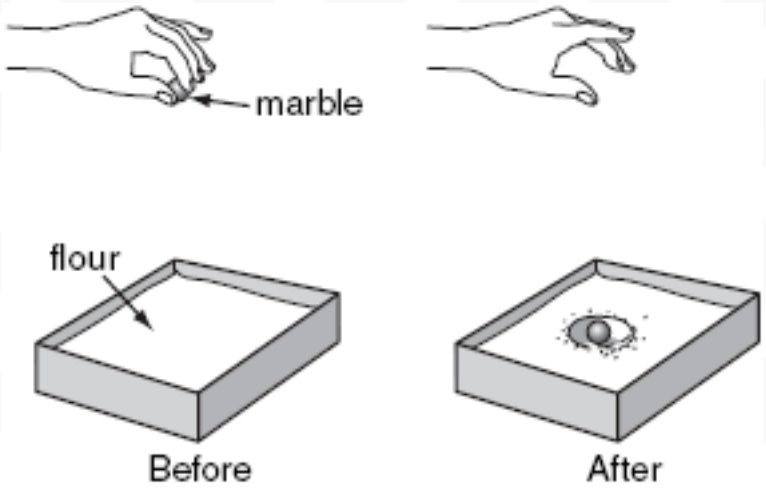
Investigation and Experimentation (Performance Level: Basic) – Question 01

A day on Saturn takes about 10 Earth hours. Which fact would *best* explain this short day?

A Saturn is less dense than Earth.
B Saturn is much farther from the Sun than Earth.
C Saturn rotates more rapidly than Earth.
D Saturn's orbit has greater eccentricity than Earth's.

Earth Science (End-of-course)

Investigation and Experimentation (Performance Level: Basic) – Question 02



A student models an impact crater on the Moon by dropping a marble from a known height onto a pan of smooth flour. Before reaching any conclusions about the results of this simple experiment, the student repeats the activity several times so that

A differences produced by standard variability in conditions become clear.
B she can produce as large a crater as possible before measuring a diameter.
C her ability to simulate a meteor impact becomes more realistic with practice.
D she can illustrate a perfectly circular crater

Earth Science (End-of-course)

Investigation and Experimentation (Performance Level: Basic) – Question 03

The existence of extraterrestrial life may never be proven, but this idea will become more scientifically acceptable over time if

A no one disputes this idea in a scientific forum.
B hypotheses are made related to the idea.
C alternative hypotheses are proposed and confirmed.
D increasing scientific evidence supports the idea.