Wizard
Test Maker

EARTH SCIENCE

QUESTION CATALOGUE

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The Physical Setting/
EARTH SCIENCE

Question Catalogue Contents

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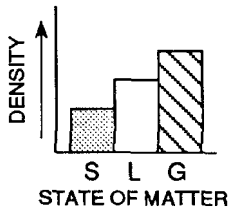
1053. Which graph best represents the relationship between the density of a substance and its state of matter (phase) for most earth materials, *excluding* water?

[Key: *S* = solid, *L* = liquid, *G* = gas]

(1)



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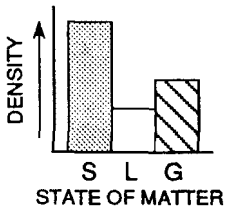

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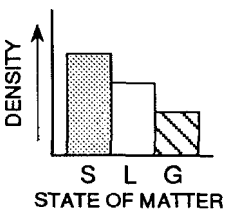

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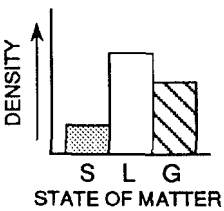


1410. Which material has the greatest density?

(1) ice at -20ºC
(2) a mixture of water and ice at 0ºC
(3) water vapor at 200ºC
(4) water at 4ºC

1844. Water has the greatest density at

(1) 100ºC in the gaseous phase
(2) 0ºC in the solid phase
(3) 4ºC in the solid phase
(4) 4ºC in the liquid phase

1891. A mineral sample is found to have a density of 3.0 grams per cubic centimeter. It is then broken into two pieces, with one piece twice as large as the other. The smaller of the two pieces will have a density of

(1) 1.0 g/cm^3
(3) 3.0 g/cm^3
(2) 1.5 g/cm^3
(4) 6.0 g/cm^3

2026. Water has its greatest density at a temperature of

(1) -6º C
(3) 32º C
(2) 10º C
(4) 4º C

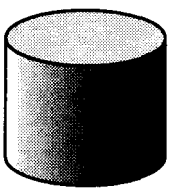
2090. Compared to the density of liquid water, the density of an ice cube is

(1) always less
(2) always greater
(3) always the same
(4) sometimes less and sometimes greater

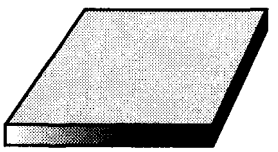
4646. As air on the surface of Earth warms, the density of the air

(1) decreases
(3) remains the same
(2) increases

2136. The diagrams below represent two solid objects, *A* and *B*, with different densities.



Object A
(Density = 0.8 g/cm^3)



Object B
(Density = 1.2 g/cm^3)

What will happen when the objects are placed in a container of water (water temperature = 4ºC)?

(1) Both objects will sink.
(2) Both objects will float.
(3) Object *A* will float, and object *B* will sink.
(4) Object *B* will float, and object *A* will sink.

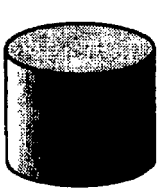
2196. Under the same conditions of temperature and pressure, three different samples of the same uniform substance will have the same

(1) shape
(3) mass
(2) density
(4) volume

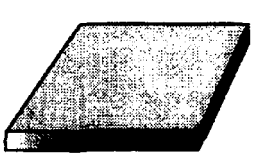
2263. A quantity of water is frozen solid and then heated from 0ºC to 10ºC. Which statement best describes the properties of the water during this time?

(1) Mass and volume change.
(2) Volume and density change.
(3) Mass changes but volume remains constant.
(4) Volume changes but density remains constant.

3331. The diagrams below represent two solid objects A and B. with different densities.



Object A
(Density = 0.8 g/cm^3)

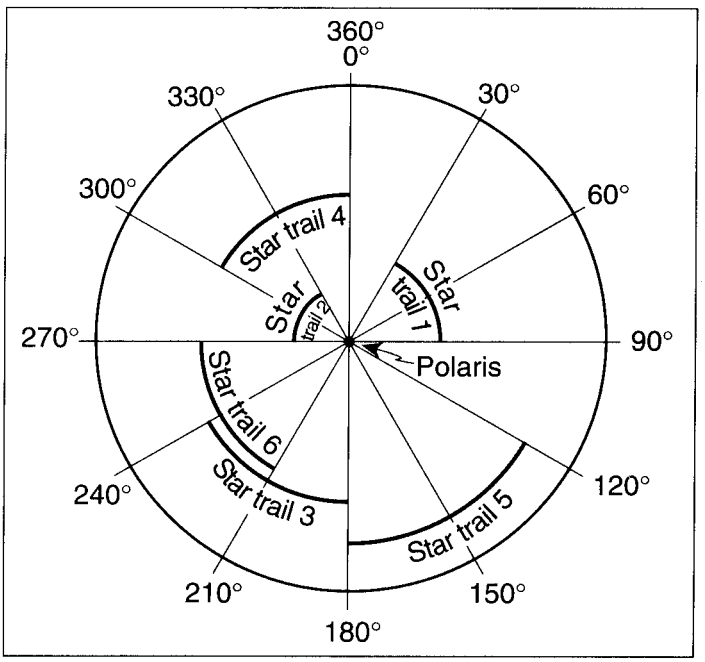


Object B
(Density = 1.2 g/cm^3)

What will happen when the objects are placed in a container of water (water temperature = 4°C)?

(1) Both objects will sink.
(2) Both objects will float.
(3) Object A will float and object B will sink.
(4) Object B will float and object A will sink.

5166. A camera was placed outside at night and pointed directly at *Polaris* and several other stars. The lens was kept open and a time-exposure photograph was taken. The diagram below represents that photograph of *Polaris* and star trails, with an angular protractor to measure apparent motion.

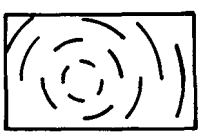
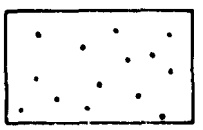
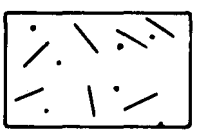


How many hours was the lens kept open to create the star trails in this photograph?
(1) 1 hour (2) 6 hours (3) 3 hours **(4) 4 hours**

393. Why do stars appear to move through the night sky at the rate of 15 degrees per hour?
(1) The Earth actually moves around the Sun at a rate of 15º per hour.
(2) The stars actually move around the center of the galaxy at a rate of 15º per hour.
(3) The Earth actually rotates at a rate of 15º per hour.
(4) The stars actually revolve around the Earth at a rate of 15º per hour.

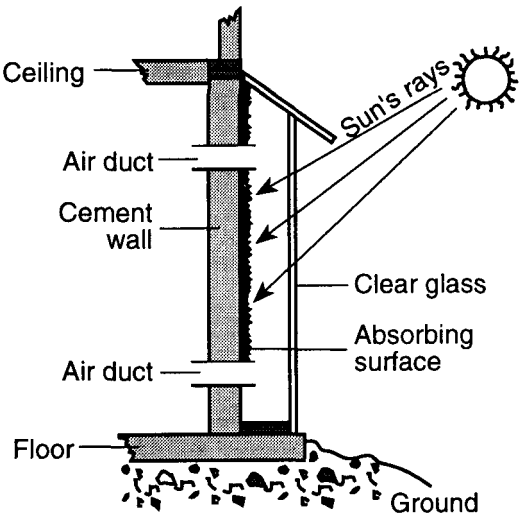
530. Based on observations made in the Northern Hemisphere, which statement is the best supporting evidence that the Earth rotates on its axis?
(1) The stars appear to follow daily circular paths around Polaris.
(2) The apparent solar diameter varies throughout the year.
(3) The length of the daylight period varies throughout the year.
(4) The seasons (spring, summer, fall, and winter) repeat in a cyclic pattern.

2097. To an observer in New York State, stars appear to rise in the
(1) north **(3) east**
(2) south (4) west

644. How would a three-hour time exposure photograph of stars in the northern sky appear if the Earth did *not* rotate?
(1) 
(3) 
(2) 
(4) 

998. How does the position of Polaris appear to change as an observer travels due north from the Equator?
(1) The angle of Polaris above the northern horizon decreases.
(2) The angle of Polaris above the northern horizon increases.
(3) Polaris appears to move westward.
(4) Polaris appears to move eastward.

Base your answers to questions **3283** through **3287** on the Earth Science Reference Tables and the diagram and table below. The diagram shows a cross section of a solar-energy collecting system constructed as a portion of a wall of a house. It consists of an energy-absorbing surface, a clear glass covering, and air ducts through the wall into the house. The table gives the house temperatures during a spring day. No other heat source is available for the house.



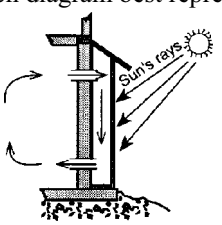
Time of Day	House Air Temperature (°C)
6 a.m.	12
8 a.m.	14
10 a.m.	16
noon	19
2 p.m.	22
4 p.m.	20

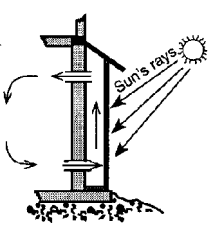
3283. For maximum absorption of solar radiation, the energy-absorbing surface should be
(1) smooth and light colored (2) smooth and dark colored (3) rough and light colored **(4) rough and dark colored**

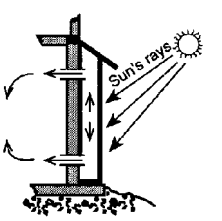
3284. What is the purpose of the clear glass covering of this solar collector?
(1) The glass radiates infrared energy.
(2) The glass radiates ultraviolet energy.
(3) The glass allows short-wave radiation to enter and traps long-wave reradiation.
(4) The glass allows long-wave radiation to enter and traps short-wave reradiation.

3285. In New York State, on which exterior wall should the solar collector be placed to receive the most insolation?
(1) a north-facing wall **(2) a south-facing wall** (3) an east-facing wall (4) a west-facing wall

3286. When did the maximum air temperature occur in the house?
(1) just before sunrise
(2) just before the time of the maximum angle of insolation for the day
(3) just after the time of the maximum angle of insolation for the day
(4) just after sunset

3287. Which diagram best represents the direction of air flow through the system under normal solar heating conditions?
(1) 

(2) 

(3) 

(4)