New England Common Assessment Program

Released Items 2011

Grade 11 Science

Science

1 Oxygen (O) atoms combine to form diatomic molecules (O_2). Which statement explains the process through which these molecules are formed?

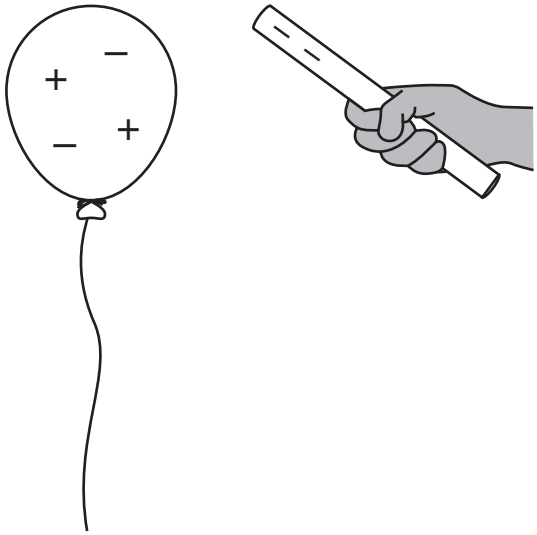
A. Two oxygen atoms share some of their protons with each other.

B. Two oxygen atoms share some of their electrons with each other.

C. Protons are transferred from one oxygen atom to the other oxygen atom.

D. Electrons are transferred from one oxygen atom to the other oxygen atom.

2 The diagram below shows the electrical charges on a balloon and a rod. The balloon has a balanced charge and the rod has a negative charge.



The rod is placed close to the balloon but does not touch the balloon. How does this affect the charge on the balloon?

A. Electrons are transferred to the balloon.

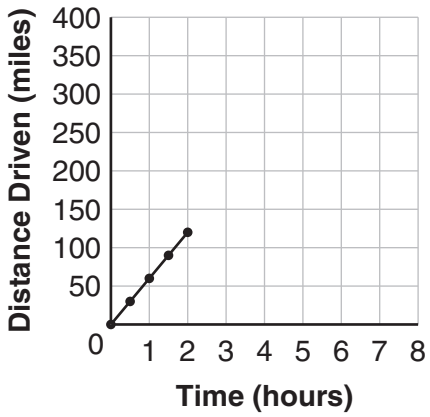
B. Electrons are transferred to the rod.

C. Electrons on the balloon move away from the rod.

D. Electrons on the balloon move toward positive charges.

❸ A student is driving 300 miles from Burlington, Vermont, to Newport, Rhode Island. She records the distance driven every half hour on the graph shown below.

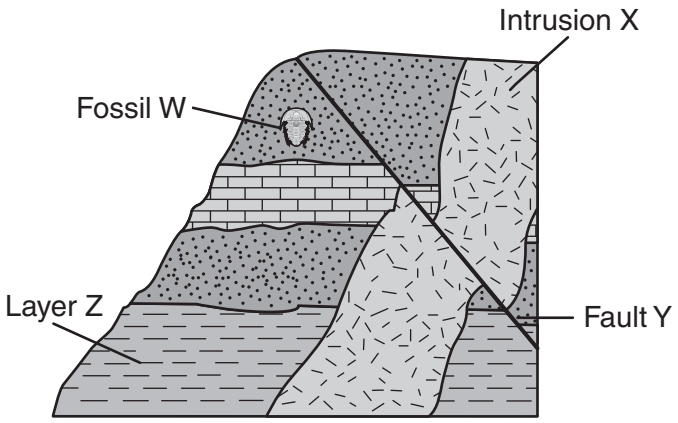
Trip from Burlington to Newport



If the student continues driving at the same speed, what will be her total driving time from Burlington to Newport?

A. 2 hours
B. 3 hours
C. 4 hours
D. 5 hours

❹ The diagram below shows the positions of Fossil W, Intrusion X, Fault Y, and Layer Z.



Which feature in the diagram is the youngest?

A. Fossil W
B. Intrusion X
C. Fault Y
D. Layer Z

5 The structure of the universe is described using data from technologies such as the Hubble Space Telescope, the Chandra X-ray Observatory, and the Spitzer Infrared Space Telescope.

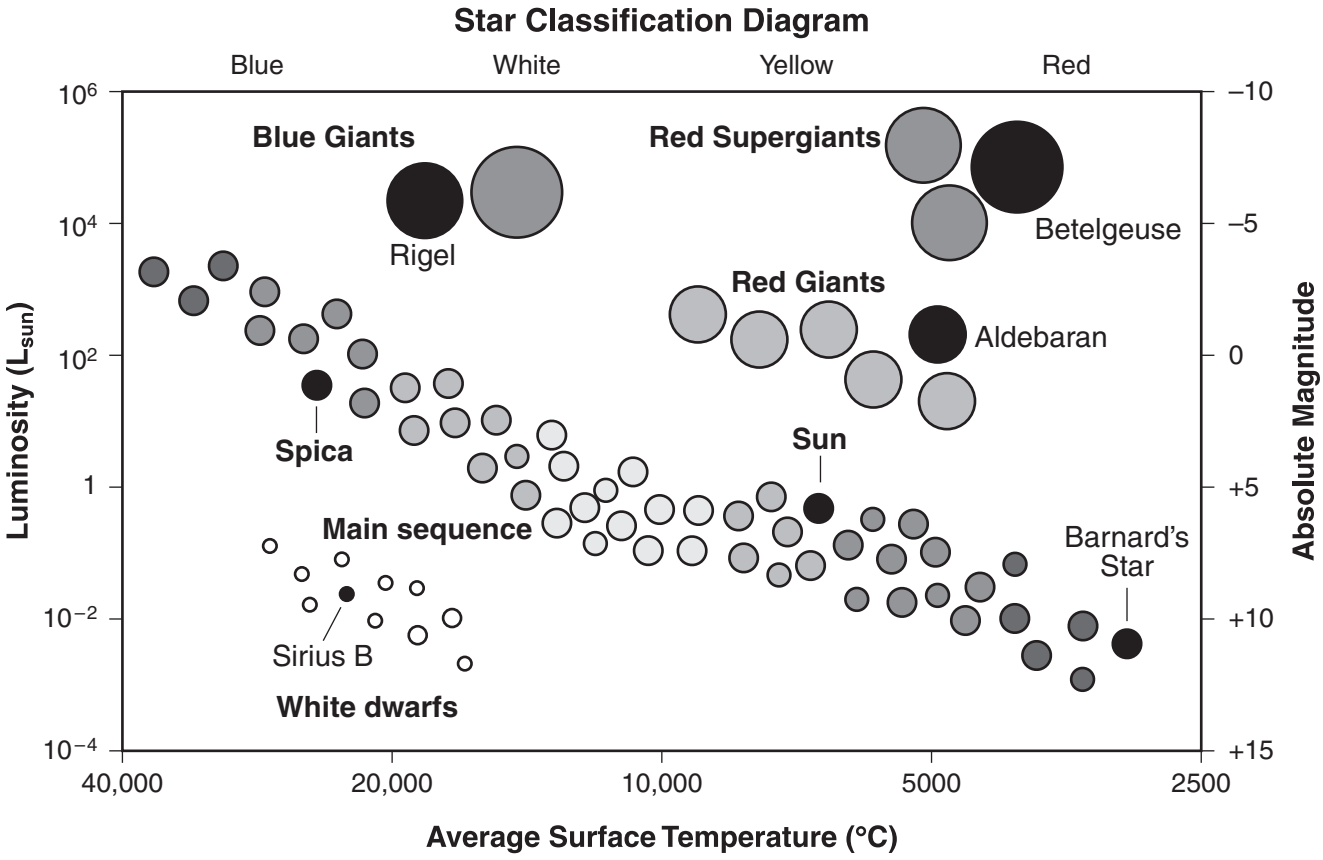
Why are these technologies located in space?

A. to be close to celestial objects
B. to keep track of satellites orbiting Earth
C. to obtain samples of celestial objects
D. to avoid atmospheric disturbance

6 Which information about a star is provided by its spectra?

A. composition
B. galaxy
C. mass
D. shape

7 A star classification diagram is shown below.

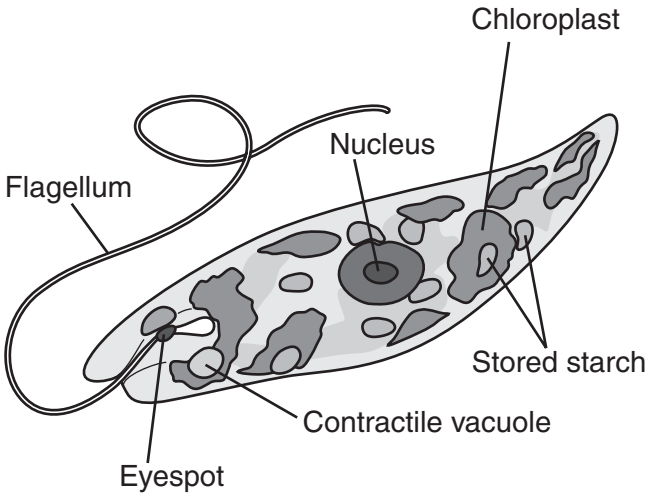


a. Use specific information from the diagram to compare the surface temperatures, absolute brightnesses, and colors of the Sun and Betelgeuse.

A star's position in the diagram shows its classification and where it is in its life cycle.

b. Compare the life cycles of the Sun and Betelgeuse. Identify a difference between the Sun and Betelgeuse that causes these two stars to have different life cycles.

8 The diagram below shows a Euglena.



Which two characteristics of a Euglena also apply to an oak tree?

A. unicellular and contractile vacuole

B. eyespot and heterotrophic

C. eukaryotic and autotrophic

D. forms cysts and moves with a flagellum

9 A gardener cross-pollinates pure red rose plants with pure white rose plants. None of the offspring have red or white flowers. All of the offspring have pink flowers.

Which statement **best** explains the gardener's observations?

A. Only the red parent plant's genes were passed on to the offspring.

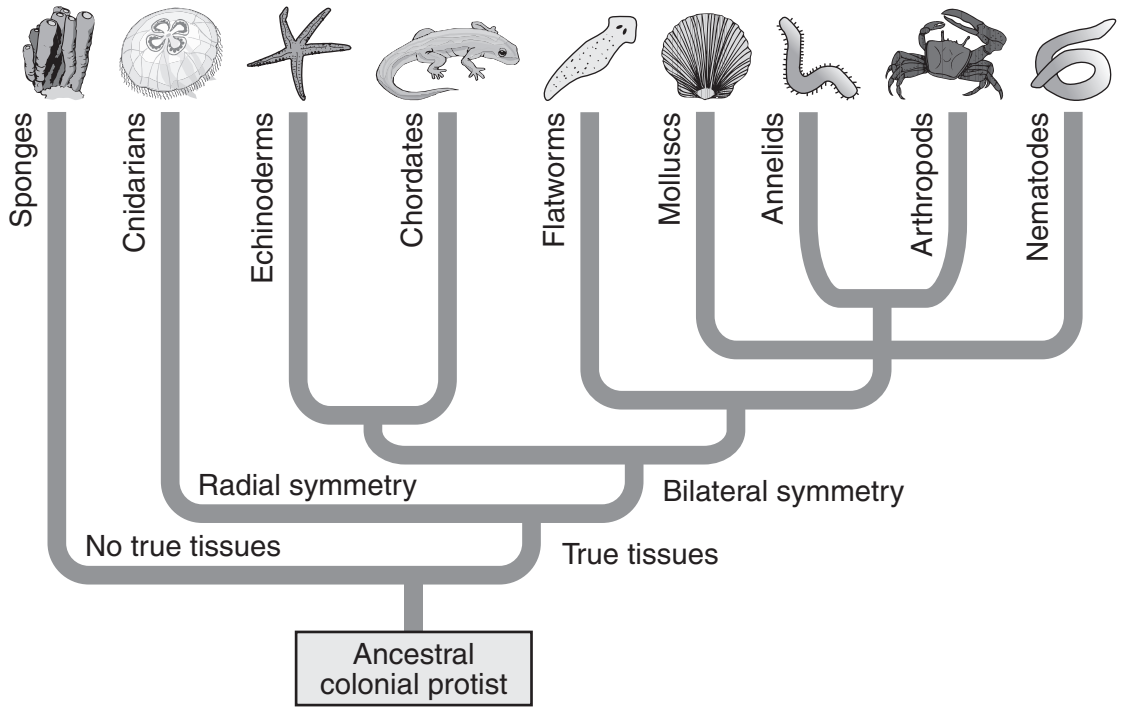
B. Only the white parent plant's genes were passed on to the offspring.

C. The offspring received red and white alleles from the parent plants.

D. The offspring received no color alleles from either parent plant.

10 The diagram below shows the evolutionary relationships among animal phyla.

Evolutionary Relationships



Which two phyla have the **most** in common?

A. sponges and cnidarians
B. echinoderms and chordates
C. chordates and annelids
D. flatworms and annelids