

Science Project, Wk. 13 -- Splitter (#124)

Name: _____

Purpose: To determine how ice can split rocks.

Materials: small plastic bowl with a tight-fitting lid, cold tap water

Procedure:

- Overfill the plastic bowl with water
- Top with lid
- Place the closed container in the freezer
- Wait 24 hours, then remove the bowl

"From the breath of God ice is made, And the
expanse of the waters is frozen." Job 37:10(NASB)



National Geographic

Hypothesis (CIRCLE): The water will _____ when it freezes.

shrink:



expand:



remain the same:



Result (CIRCLE): The water _____ when it froze.

shrank:



expanded:



remained the same:

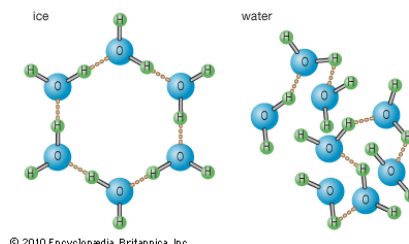


Conclusion:

Most substances shrink in size as they cool. Falling temperatures force the molecules to move more and more slowly, which allows them to pack more and more tightly together. The result: a more dense object. Denser objects sink in less dense fluids. If this were true of ice and water, ice would be denser than water and would sink rather than float!

As we discovered, water takes up more space when it is in a frozen state rather than a liquid. This is because ice crystals have a very open distribution of molecules. In fact, because their strict structure is even more open than that of liquid water molecules, ice crystal molecules take up more room than liquid water molecules. As a result, solid ice takes up more room than liquid water. Ice floats because it is less dense than water.

Interestingly, it is the expansion of ice which is also responsible for much of the erosion that makes our soil. During the winter, water that has found its way into cracks in rocks freezes. As the water freezes, it expands, and the cracks are forced open and enlarged by the ice. This turns big rocks into little rocks and makes mountains into molehills. In a more painful vein, frostbite occurs when skin cells freeze, expand, and rupture.



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