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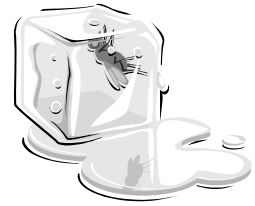
## 2:4 Thermal Energy and States of Matter

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### Background Information:

You look outside your window to see snowflakes falling from the sky. Soon, some of those frozen snowflakes land on your windowpane and suddenly start to melt. The next day, you notice that all of the water droplets that formed the night before have disappeared. What you may not realize is that thermal energy regulates this series of events. In this investigation, you will explain how thermal energy causes matter to change from one form to another.



### THINK ABOUT IT

1. Use resources provided by your teacher to identify and list the three states of matter.
2. Predict how the changes in thermal energy might affect the arrangement of the particles in matter. Use prior knowledge of thermal energy and particle arrangement to help write your prediction.

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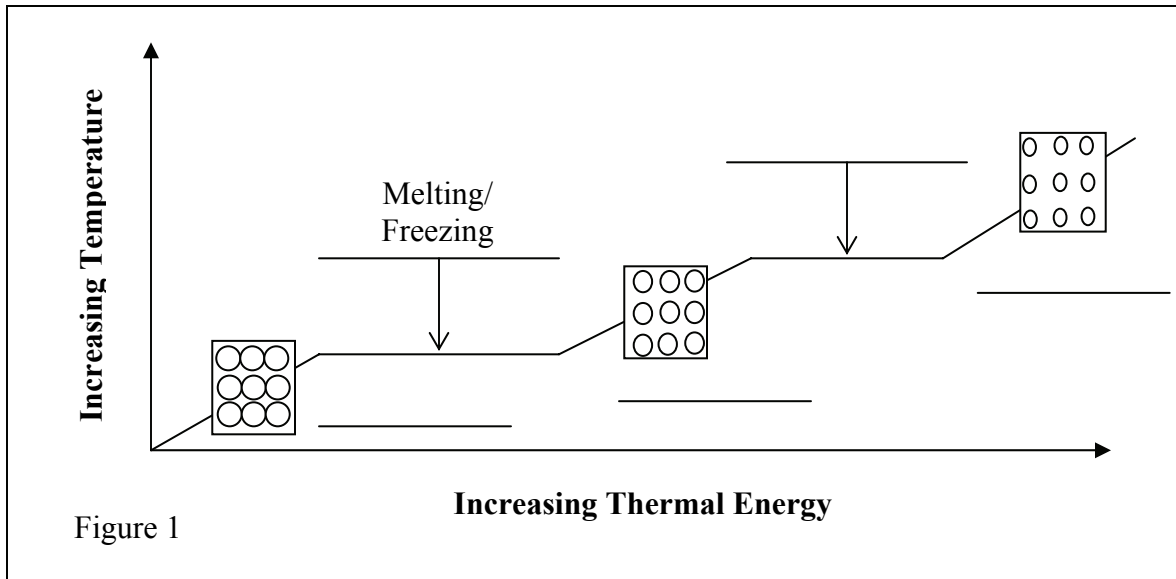
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### TIME TO EXPLORE



1. Read, "Matter and Energy." Highlight important information about thermal energy and phase changes of matter.
2. Complete the diagram in Figure 1 to show the phase changes of matter in relation to temperature and thermal energy.

2:4 Thermal Energy and Phases of Matter



PUTTING IT ALL TOGETHER

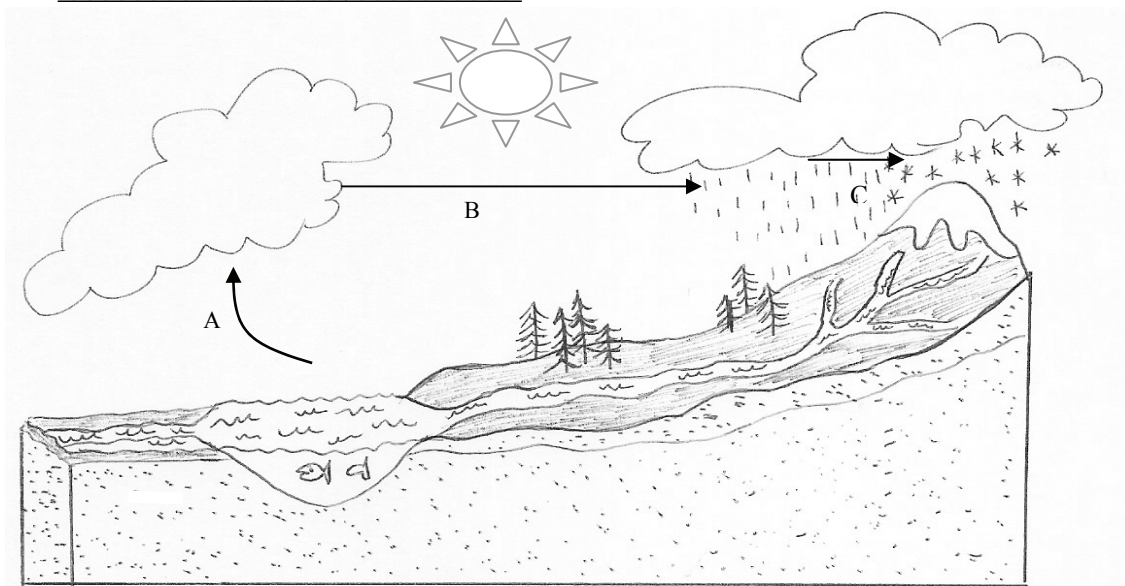


1. Study the diagram of the water cycle in Figure 2. Indicate the phase changes that are illustrated in the diagram.

A. \_\_\_\_\_

B. \_\_\_\_\_

C. \_\_\_\_\_



*2:4 Thermal Energy and Phases of Matter*

2. Identify the energy source that drives the processes of the water cycle.

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3. Explain how thermal energy causes water in the pond to evaporate into water vapor.

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4. Describe what needs to occur in order for rain to form into snow.

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