Developing States of Matter Models

**Predictions: Develop a virtual (on paper) model for each state of matter, assuming that Democritus’ ideas are correct.**

In your description include:

* the movement of the particles
* the heat/energy in the system

|  |  |  |
| --- | --- | --- |
| **State/Phase** | **Model Diagram** | **Model Description** |
| **Solid** |  |  |
| **Liquid** |  |  |
| **Gas** |  |  |

1. What happens to the temperature as it goes from solid to liquid to gas?
2. What happens to the particles as they go from solid to liquid to gas?
3. Can air freeze? Explain.
4. Can anything be a solid, liquid, or a gas?

Modifying your Model (Computer Simulation)

Download and open the computer states of matter model. Use it to modify your original model that you developed earlier, and describe each phase change.

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| --- | --- | --- |
| **State/Phase** | **Modified Model Diagram** | **Modified Model Description** |
| **Solid** |  |  |
| **Liquid** |  |  |
| **Gas** |  |  |

**Further Analysis**

1. Why do the water particles look different from the Neon particles?
2. You may have heard that when water freezes, it expands and can split rocks or pipes! Explain why water expands when it freezes using the computer model?
3. Do all of the other particles expand when they freeze? Why or why not?
4. What happens to the molecules when heat is added?
5. What do you think are in the bubbles of boiling water?