Name _

Block ___

Physical Science Blizzard Bag # 8

States of Matter

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Learning Goal:

Students will be able to demonstrate their knowledge of the states of matter through illustrations and descriptions. These illustrations and descriptions should include:

- How the molecules in a solid, liquid and gas compare to each other.
- How temperature relates to the kinetic energy of molecules.

Procedure:

- Open the internet browser and enter the address: <u>http://phet.colorado.edu</u>
- Click on "Play with Sims" and select "Chemistry" from the menu on the left.
- Open the "States of Matter" Simulation and select "Run Now"

Investigation:

1. Predict what the molecules of a solid, liquid and gas look like. Illustrate your prediction with a drawing.

Solid	Liquid	Gas

2. Complete the table below by exploring the "Solid, Liquid, Gas" tab in the simulation. <u>Test</u> your predictions and record your observations by recording the temperature and illustrations of each substance in the three states of matter.

Substances	Observations		
	Solid	Liquid	Gas
	Temperature:	Temperature:	Temperature:
Neon	Illustration:	Illustration:	Illustration:
	Temperature:	Temperature:	Temperature:
Argon	Illustration:	Illustration:	Illustration:
	Temperature:	Temperature:	Temperature:
Oxygen	Illustration:	Illustration:	Illustration:

	Temperature:	Temperature:	Temperature:
Water	Illustration:	Illustration:	Illustration:

- 3. Sketch a graph of Kinetic Energy vs. Temperature. Use this graph to describe the relationship between the two concepts.
- 4. Write a summary paragraph, which includes drawings, to demonstrate you have mastered the learning goal. Be sure to incorporate both concepts of the learning goal:
 - How the molecules in a solid, liquid and gas compare to each other.
 - How temperature relates to the kinetic energy of molecules.

Extension: In your small groups, answer questions 5-6.

- 5. Explain how a change in temperature affects the pressure inside a container.
- 6. Explain this phase diagram by relating what you know about temperature, and states of matter.

