

ACTIVITY: Solids, Liquids, and Gases WEBQUEST!

WEBPAGE 1: http://www.harcourtschool.com/activity/states_of_matter/

- Click on Solid, Liquid & Gas (lower left corner of interactive). **Diagram** and **explain** how the particles are **moving**, how they are **spaced**, and what happens to the **temperature** as you view **each phase**.

Solid	Liquid	Gas

WEBPAGE 2: <http://www.pbs.org/wgbh/nova/space/lift-drag.html>

- Click "Launch Interactive"
- Click, "Lift and Drag Explained"
- Click "Begin", read about Bernoulli Effect (first six slides)

1. Diagram and Explain how lift works.	2. Clearly explain how pressure differences result in flight of an airplane.
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WEBPAGE 3: <http://www.pbs.org/wgbh/nova/physics/states-of-matter.html>

- Click "Launch Interactive"
- Click Water, then set pressure to 1 atm pressure (that's the pressure in this room), and set the temperature to be viewed in Celsius.

1. Next, at what temperature is the water a solid, liquid, and gas in this interactive?

Solid = _____

Liquid = _____

Gas = _____

2. Explain WHY temperature affects the phase of water.

WEBPAGE 4: <http://www.pbs.org/wgbh/nova/physics/sense-of-scale-absolute-zero.html>

- Click “Launch Interactive”
- Move the sliding scale up and down to find the various temps.
- **Answer in all three temperatures (Kelvin, Celsius, and Fahrenheit).**

1. What is the average temperature on Pluto? _____

2. What is the **coldest** temp on Earth ever recorded? _____

a. Where was it recorded? _____

3. What is the **hottest** temperature ever recorded on Earth? _____

a. Where was it recorded? _____

4. How hot is the skin of spacecraft as it re-enters our atmosphere? _____

5. How hot is Earth’s Core? _____

6. How hot is a lightning Bolt? _____

WEBPAGE 5: <http://www.pbs.org/wgbh/nova/space/edwards-elevator-in.html>

- Click “Launch Interactive”

1. Summarize what it would be like to ride an elevator to outer space. _____

WEBPAGE 6: <http://phet.colorado.edu/en/simulation/gas-properties>

- Click “Run Now” (or Download and Run)
- Experiment with the interactive

1. What are the three things you can change that will affect the pressure?

a. _____

b. _____

c. _____

2. **Diagram** and **Explain** three specific ways you can increase the pressure of the container containing a gas.

Method 1:	Method 2:	Method 3:
Explanation	Explanation	Explanation

WEBPAGE 7: <http://phet.colorado.edu/en/simulation/fluid-pressure-and-flow>

- Click “Run Now” (or Download and Run)
- Click on the “Flow” Tab at the top.

1. Manipulate the piping size so that water goes super slow, then super fast, then medium speed. Use the red dots to help you see this. **Diagram** the image you create that accomplishes this all in one picture (in the space below). Label the super fast, medium, and slow speeds in your picture.

WEBPAGE 8: <http://phet.colorado.edu/en/simulation/under-pressure>

- Click “Run Now” (or Download and Run)
- In the lower left corner, click on the third picture, then experiment with the various masses by placing them on the liquid.
- Also experiment with the various densities of the liquid. Go from Gasoline all the way to Honey.
- Finally, experiment with Gravity and see how it affects the volume.

1. Diagram the difference between 1000 kg on Honey and on Gasoline. You will need to draw two pictures. Label the type of liquid, the pressure, and the different levels of fluid and weights in each picture. (space provided on next page)

Gasoline	Honey
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2. What is the density of each liquid?

a. Gasoline: _____

b. Honey: _____

3. Explain why the honey is able to push up the weights higher than the gasoline?

WEBPAGE 9: <http://phet.colorado.edu/en/simulation/states-of-matter-basics>

● Click “Run Now” (or Download and Run)

1. After clicking water (in top right box), then liquid (lower right box), why do some water molecules escape and fly away? What does this represent?

2. Cool it down, explain what happens to the motion and density of the substance.

3. Heat it up entirely, explain what happens to the density and motion of the substance.