States of Matter (Basic) PhET Exploration Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Hour \_\_\_\_\_\_

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

**Checking My Understanding- Comparing Solids, Liquids, and Gases**

Once at the site, hit the Run Now button. Complete the following matrix using the States of Matter (Basic) Simulation. Focus on similarities and differences.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Items to be compared** | | |
| **State of Matter-NEON** | **Solid** | **Liquid** | **Gas** |
| **Shape** | **BOX/SQUARE** | **BLOB AT BOTTOM** | **NONE** |
| **Space between atoms** | **VERY SMALL** | **SMALL** | **LARGE** |
| **Attraction between the atoms** | **STRONG** | **STRONG BUT LESS THAN SOLID** | **ALMOST NONE OR NONE** |
| **Describe the motion of the atoms** | **VIBRATE/SHAKE** | **SHAKE AND SPREADS A LITTLE** | **MOVES VERY FAST AND IN ALL DIRECTIONS** |
| **Kinetic Energy of the atoms** | **LOW KE** | **MED KE** | **HIGH KE** |
| **Draw a picture** |  |  |  |

Adapted from Marzano *A Handbook for Classroom Instruction that Works*.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Items to be compared** | | |
| **State of Matter-OXYGEN** | **Solid** | **Liquid** | **Gas** |
| **Shape** | **BOX/SQUARE** | **BLOB AT BOTTOM** | **NONE** |
| **Space between atoms** | **VERY SMALL** | **SMALL** | **LARGE** |
| **Attraction between the atoms** | **STRONG** | **STRONG BUT LESS THAN SOLID** | **ALMOST NONE OR NONE** |
| **Describe the motion of the atoms** | **VIBRATE/SHAKE** | **SHAKE AND SPREADS A LITTLE** | **MOVES VERY FAST AND IN ALL DIRECTIONS** |
| **Kinetic Energy of the atoms** | **LOW KE** | **MED KE** | **HIGH KE** |
| **Draw a picture** |  |  |  |

Compare the Neon matrix with the Oxygen matrix and answer the following.

1. What knowledge did you need to complete this task?

* NEED TO HAVE AN UNDERSTANDING OF KINETIC ENERGY, ATTRACTION, AND HOW TO DESCRIBE MOTION

1. What insights did you gain (what did you learn) about the process of identifying similarities and differences while using these comparison matrixes.

* SOLIDS AND LIQUIDS ARE A LOT ALIKE
* WHAT S, L, AND G LOOK LIKE AT THE ATOMIC LEVEL
* THE DIFFERENCE BETWEEN HIGH AND LOW KE AND STRONG AND WEAK ATTRACTION
* HOW PARTICLES MOVE DIFFERENTLY IN S, L, AND GASES
* THAT PARTICLES MOVE IN A SOLID

Adapted from Marzano *A Handbook for Classroom Instruction that Works*.