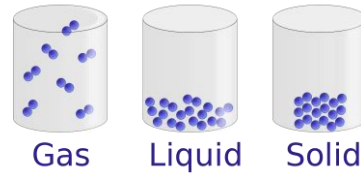


## Defining Matter

- Matter- anything that has mass and takes up space (ie. Has volume)
- Mass and weight mean two different things in science:
  - Mass- amount of stuff in an object; measured in grams; does NOT depend on gravity
  - Weight- how much gravity pulls down on mass; measured in pounds; DOES depend on gravity

## States of Matter: Solid, Liquid, Gas, and Plasma

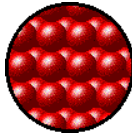
- Based upon particle arrangement
- Based upon energy of particles
- Based upon distance between particles



3

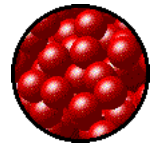
## SOLID

- **Particles of solids are tightly packed, vibrating about a fixed position.**
- **Considerable bonding... atoms held in place in crystal lattice.**
- **Solids have a definite shape and a definite volume (incompressible).**



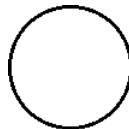
## LIQUID

- **Particles of liquids are tightly packed, but are far enough apart to slide over one another.**
- **Some bonding between particles... intermolecular forces.**
- **Liquids have an indefinite shape and a definite volume.**



## GAS

- **Particles of gases are very far apart and move freely with little bonding.**
- **Gases have an indefinite shape (expand to fill the container) and an indefinite volume (compressible).**



## Changes of State

