Lesson 4 Part 2: Properties of Matter

Make a brainstorm / thought map.

MATTER
Classify:

1. ammonia
2. Fe₂O₃ (s)
3. sodium
4. air
5. milk
6. sea water
7. water + sand
8. natural gas
9. milk
10. white vinegar
11. mercury
12. NaCl (aq)
13. ^{14}C
14. fried rice
15. gasoline
16. 10k gold
17. Li(s)
18. carbonated water
19. brass
20. C₆H₁₂O₆ (aq)
21. green veggie juice
22. F₂
23. NaNO₃
Phases of Matter

1. When a substance changes state, it is a _______________________________ change.
2. Why?

Consider the four containers below:

1. Which of these are mixtures? ___________ pure substances? ________________
2. Which only contain compounds? ___________ only elements? ________________
3. Which contain a gas? _______ a liquid? _______ a solid? _______
Describing matter at each phase:

1. Solid
   a. Matter has ________________ shape and ________________ volume.
   b. Particle movement: ____________________________________________

2. Liquid
   a. Matter has ________________ shape and ________________ volume.
   b. Particle movement: ____________________________________________

3. Gas
   a. Matter has ________________ shape and ________________ volume.
   b. Particle movement: ____________________________________________
Effect of Energy on Phases of Matter

**Triple point**: At this precise temperature and pressure, the substance will be in a state of equilibrium between the three states, and minor variations would cause it to shift between them.

**Critical point**: Essentially there is a blurry line between the liquid and gaseous states.
Draw particle representations for the following:

A mixture of iron and sulfur

A compound of iron and sulfur

- Explain why a magnet can separate iron atoms from the mixture but not from the compound.

Consider the containers below.

- Which of these are mixtures? __________ pure substances? __________
- Which contain only compounds? __________ only elements ______

Consider the containers below.

- Which of these are mixtures? __________ pure substances? __________
- Which contain only compounds? __________ only elements ______