Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ UGA myID \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **Volume** | **Shape** | **Compressibility** | **State** |
| 1 | 4.65 cm3 | Cube | No |  |
| 2 | 25.5 mL | ---- | No |  |
| 3 | 6.2 L | ---- | Yes |  |
| 4 | 50.0 cm3 | ---- | No |  |

Use the data to fill out the table with the appropriate state of matter, which answers questions 1 – 4. Your multiple choice options are:

1. Solid
2. Liquid
3. Gas

Label each picture as a solid, liquid, or gas, answering questions 5 – 7. Use the same multiple choice answers as you did for 1 – 4.

|  |  |
| --- | --- |
| water molecules that are far apart and appear to be in motion5. | water molecules that are structured in a regular, repeating pattern.6. |
| water molecules that are close together but not in a regular, repeating pattern7. | Images from Tro, Introductory Chemistry |

1. You perform an experiment and discover a new substance! You measure its properties and find that the molecules are packed closely together. When the substance is heated, the molecules start to move past each other but don’t fill the entire container. That means the substance, before it was heated, was a…
   1. Solid
   2. Liquid
   3. Gas

Fill out the table, classifying each type of matter as a pure substance or mixture. Then, classify the type of pure substance or mixture. Your answer choices for questions 9 – 12 are:

1. Pure substance
2. Mixture

Your answer choices for questions 13 – 16 are:

1. Element
2. Compound
3. Homogeneous
4. Heterogeneous

|  |  |  |  |
| --- | --- | --- | --- |
| **Substance** | **Contents** | **Classification (pure substance or mixture)** | **Classification (element, compound, homogenous, heterogeneous)** |
| Copper pipe | Copper |  | 13. |
| Black tea | Water, sucrose, caffeine, L-theanine, many other compounds |  | 14. |
| Sugar | Sucrose (C12H22O11) |  | 15. |
| Unshaken vinaigrette salad dressing | Top layer: canola oil  Bottom layer: water, sodium chloride (NaCl), vinegar (acetic acid, HC2H3O2)  Settled at bottom: pepper, basil, garlic |  | 16. |

1. You boil some water until all of the water is gone. You see a white substance on the bottom of the pot after the water has evaporated, but you didn’t see a white substance in the water before boiling. What type of matter was this?
   1. Pure substance
   2. Homogeneous mixture
   3. Heterogeneous mixture
   4. Compound
2. What is the difference between a molecule and a compound?
   1. Molecules contain two or more of the same atom, while compounds contain two or more different atoms.
   2. Molecules contain two or more different atoms, while compounds contain two or more of the same atom.
   3. Molecules can contain two or more of the same or different atoms, while compounds must have two or more different atoms.
   4. There are no differences between molecules and compounds.

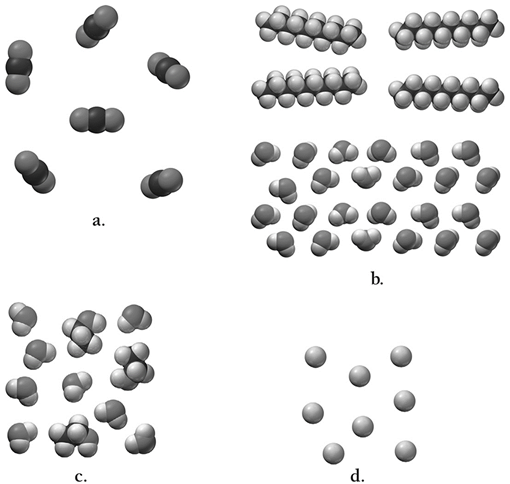
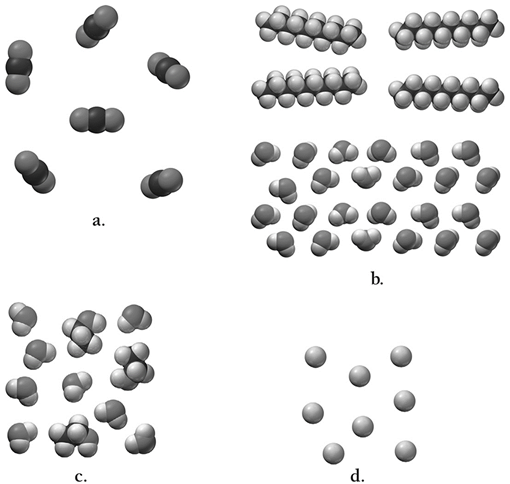
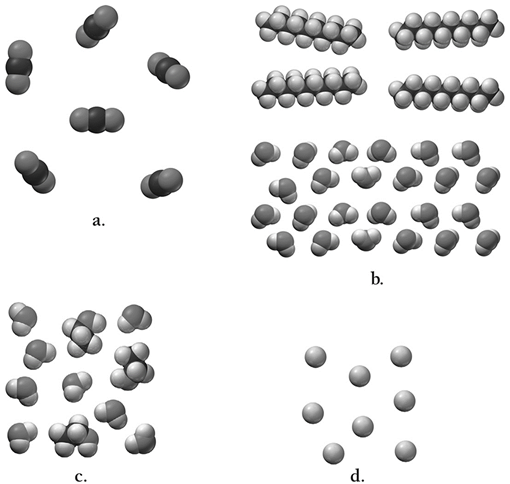
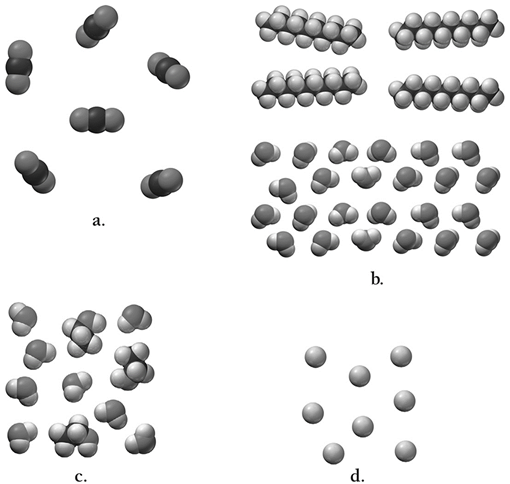
Label each picture first as a pure substance or mixture. Second, label it as homogeneous, heterogeneous, an element, or a compound. For questions 19 – 22, these are your multiple choice options:

1. Pure substance
2. Mixture

For questions 23 – 26, your options are:

1. Element
2. Compound
3. Homogeneous
4. Heterogeneous

Images from Tro, Introductory Chemistry



|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |

1. Which statement is true when classifying matter?
   1. All molecules are compounds.
   2. All elements are monatomic.
   3. All pure substances are elements.
   4. Some compounds are only one element.
   5. Some pure substances are compounds.