

Name: \_\_\_\_\_

Date: \_\_\_\_\_

KEY

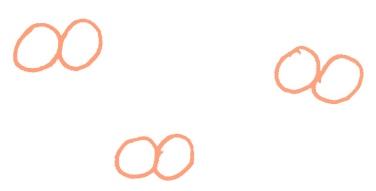
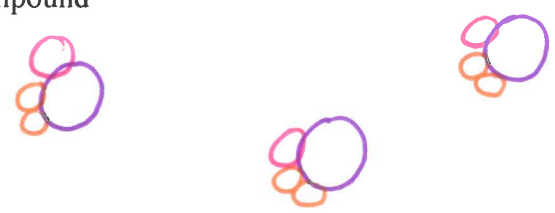
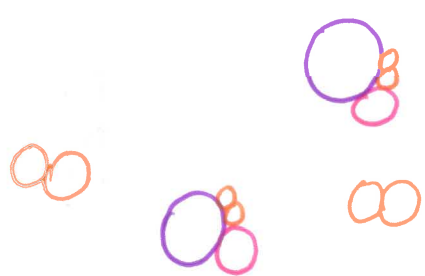
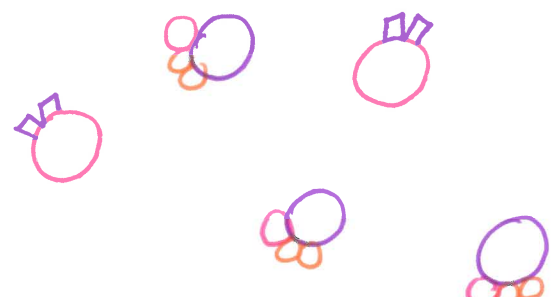
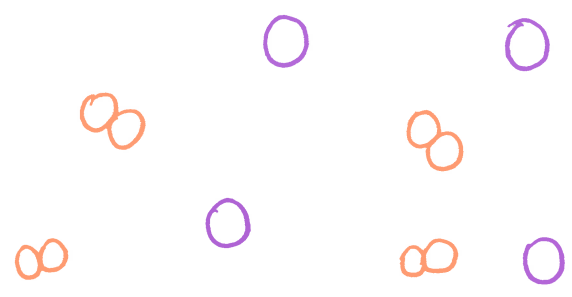
## CHEMISTRY 11 CLASSIFICATION OF MATTER

### PART A:

Using variations of different shapes and/or colours, try to depict the following types of matter and write whether it is a pure substance or mixture:

PS

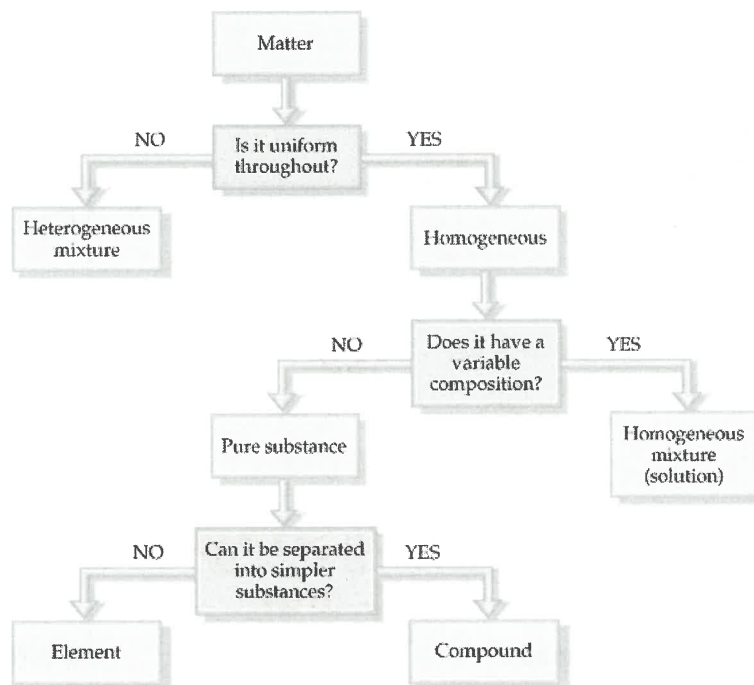
M

<p>Element</p>  <p>Type of Matter: <u>PS - only one type of atom</u></p>	<p>Compound</p>  <p>Type of Matter: <u>PS &gt; one type of atom in each</u></p>
<p>Element &amp; Compound</p>  <p>Type of Matter: <u>Mix</u></p>	<p>2 different compounds</p>  <p>Type of Matter: <u>Mix</u></p>
<p>Two different elements</p>  <p>Type of Matter: <u>Mix</u></p>	

## PART B:

Classify the following items as **pure substances (S)** or **mixtures (M)**

1. Sodium S
2. Water S
3. Soil M
4. Coffee M
5. Oxygen S
6. Rubbing Alcohol S
7. Carbon dioxide S
8. Cake batter M
9. Air M
10. Soup M
11. Iron S
12. Salt water M
13. DQ ice cream M
14. Nitrogen S
15. Eggs M
16. Blood M
17. Table salt S



18. Nail polish M
19. Milk M
20. Coke M

Classify the following mixtures as **homogeneous (HO)** or **heterogeneous (HE)**

- |                              |           |                                |           |
|------------------------------|-----------|--------------------------------|-----------|
| 21. flat soda pop            | <u>HO</u> | 29. City air                   | <u>HE</u> |
| 22. Cherry vanilla ice cream | <u>HE</u> | 30. Paint                      | <u>HO</u> |
| 23. Italian salad dressing   | <u>HE</u> | 31. Rubbing alcohol            | <u>HO</u> |
| 24. Sugar                    | <u>HO</u> | 32. Iron nail                  | <u>HO</u> |
| 25. Soil                     | <u>HE</u> | 33. Beach sand                 | <u>HE</u> |
| 26. Aluminum foil            | <u>HO</u> | 34. Pure air                   | <u>HO</u> |
| 27. Black coffee             | <u>HO</u> | 35. Spaghetti & meatball sauce | <u>HE</u> |
| 28. Sugar water              | <u>HO</u> |                                |           |

## PART C:

Based on the information given, decide whether the substance described is a pure substance, a solution or a mechanical mixture. Explain your answer.

- a) A colourless liquid is allowed to evaporate in an open dish; when all the liquid is gone, a white crystalline residue remains.

solution / mixture

- b) A colourless liquid is set in a water bath to cool. At  $18^{\circ}\text{C}$ , crystals begin to form in the liquid. More and more crystals form, with the temperature remaining at  $18^{\circ}\text{C}$  until the whole mass is solidified.

pure substance

- c) A liquid having a density of  $0.90\text{ g/mL}$  is set in an open dish to evaporate. After half of it is gone, the density is found to be  $0.95\text{ g/mL}$ .

solution / mixture

- d) A liquid is set to evaporate in an open dish. Eventually, it all evaporates, leaving no residue.

pure substance

- e) A brownish coloured liquid is subjected to high speed spinning in a centrifuge. After this, there is seen to be a light brown material at the bottom of the centrifuge tube and a dark brown, clear liquid at the top.

solution / mixture

- f) A piece of metal is placed in a porcelain cup which is then placed in a furnace. The temperature of the furnace is slowly raised. At  $300^{\circ}\text{C}$  the metal begins to melt, but it is not all liquified until the temperature has reached  $440^{\circ}\text{C}$ .

solution / mixture