Particles and mixtures

Identify the building blocks of matter and classify samples.

Name _____ Date _____

A. Atoms, molecules and pure substances

Complete the sentences using the word bank. Use each term once.

atom / **molecule** / **pure substance**

1. The smallest unit of an element is an _____.
2. Two or more atoms chemically bonded form a _____.
3. A sample made of a single element or compound is a _____.
4. A water molecule is H2O. How many hydrogen and oxygen atoms are in it?

_____

B. Classify each sample

Write pure substance, homogeneous mixture or heterogeneous mixture.

1. Distilled water (only H2O) _____
2. Salt fully dissolved in water _____
3. Sand stirred into water _____
4. Oil and water in two layers _____
5. Sugar fully dissolved in water _____
6. Why is salt water homogeneous even though it contains two substances?

_____

_____

_____

LIVEWORKSHEETS

Separating mixtures

Choose a separation method and explain changes of state.

Name _____ Date _____

C. Separate solids from liquids

Choose filtration, decantation or evaporation. Use each method once.

1. Remove suspended sand from water using a filter.

2. Pour clear water off the top after mud settles.

3. Recover dissolved salt from salt water. You only need to keep the salt.

4. Why does ordinary filter paper fail to remove dissolved salt?

D. Changes of state

Name each change. Then circle whether the water gains or loses thermal energy.

1. Ice turns to liquid water. _____ gains / loses
2. Puddle water becomes water vapor. _____ gains / loses
3. Water vapor forms droplets on a lid. _____ gains / loses
4. Liquid water becomes ice. _____ gains / loses

E. Apply what you know

A cup contains sand, dissolved salt and water. You want to recover the sand and the salt separately. Explain which method to use first and why.

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