

Name: _____

Due Date: _____

SEPARATION TECHNIQUES

BRAINSTORM SEPARATION OF MIXTURES

Salt Water

Vegetable Oil and Sand

Muddy Water

Vegetable Oil and Water

Nuts and Bolts

Salt and Pepper

Iron Filings and Sand

Answer this question after discussing it in class:

- a) Are the separated components still mixtures, or are they now pure substances?
Why or why not?

Separating Mechanical Mixtures

a) Floatation and Settling

- allow _____ materials to settle to the _____ of a liquid and extract them with a tool

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- if a substance _____ to the top of a liquid, it can be _____ from the surface using a tool

b) Sorting

- separating substances based on _____ (_____, _____, _____)
- some recycling programs require the _____ to _____ glass plastic, and paper

c) Sifting

- separating _____ by _____
- involves passing solid materials through a _____ or _____
- parts that are _____ to pass through are separated from larger ones that _____
- different from filtration because filtration separates _____ from _____ or _____ where sifting only involves _____

d) Magnetism

- some metals are magnetic because their particles are _____ to the particles within _____
- magnet can be used to separate magnetic materials (_____, _____) from others (_____, _____)
- example: _____

Separating Solutions

a) Filtration

- separating _____ from _____ or _____ (_____)
- when a solution is poured through a filter, solid parts are _____, and _____ or _____ pass through
- if solid is small enough, it may still _____ through the _____

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○ example: _____ dissolved in _____

• examples: _____

b) Evaporation

• change of state from _____ to _____

• used to recover _____ solute from a solution

• _____ causes evaporation to happen more quickly

• examples: _____

c) Distillation

• uses two changes of state: _____ and _____

• allows the recovery of both _____ and _____ from a solution

• solution is first _____, which vaporizes the solvent (turning it into a _____), and separates it from the solute

• gas _____ on a cool surface and is collected, leaving the solute behind

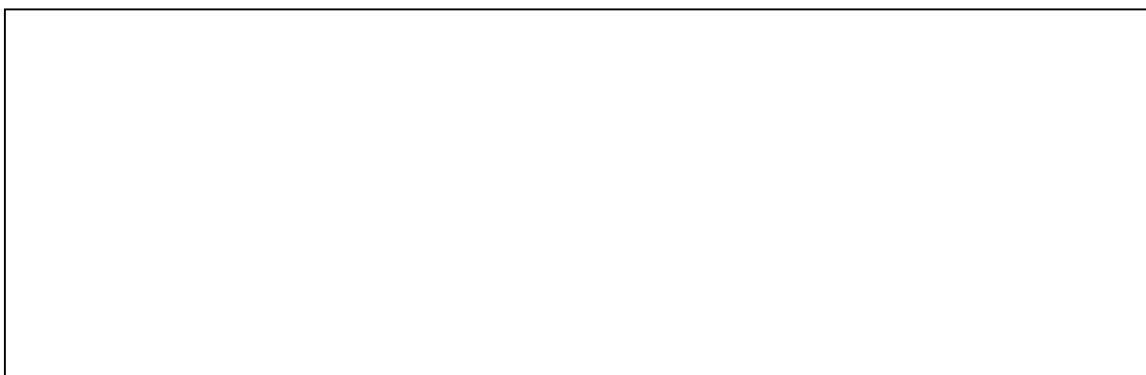
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ANALYSIS QUESTIONS

1. Explain the difference between evaporation and distillation. Provide an example of each method of separating solutions.

2. You are given a mixture of chalk dust, large pieces of black board chalk, paper clips, and salt. Draw a well-labeled diagram to explain how you would separate each substance in the mixture.



3. What steps could you take to purify water for drinking if you were unsure about the quality of the water? Which impurities might you be taking out when using these methods?
