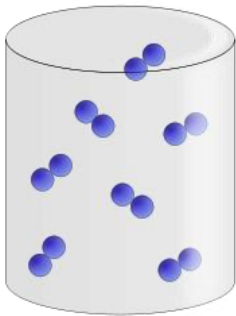
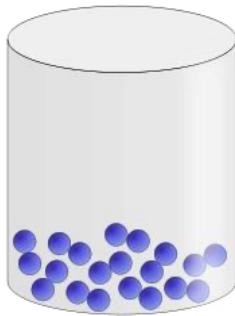


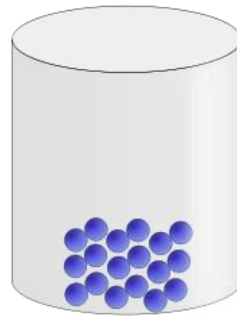
PHYSICAL SCIENCE



Gas



Liquid



Solid

MATTER VS. MASS

What is matter? Identify the matter in the picture on pages 4/5: _____

_____ is anything that has _____ and takes up _____.

Mass is the amount or measure of _____ in an object.

All matter is made up of _____, which can be too _____ to see.

Matter of any type can be _____ down into _____ parts

WRAP IT UP

1. Do sand particles have mass?



STATES OF MATTER

Matter can be classified by its state. _____,
_____, and _____ are all physical
_____. Each state has a specific
_____.



Solids have a definite shape.



Liquids take the shape of their container. They do not necessarily fill a container completely.



Gases have no definite shape.

Gases spread out to completely fill a closed container

WRAP IT UP

Find examples of solids, liquids, and gases in your classroom. Explain how you classified each of the objects as a solid, liquid, or a gas.

INVESTIGATE: MATTER



How can you detect materials that have dissolved in water?

Dissolve – when a solid dissolves in a liquid, the tiny particles that make it up become evenly mixed into the liquid.

Evaporate – changes state from a liquid into a gas, the solid is left behind

In this investigation, you will use evaporation to separate salt from salt water.

MATERIALS:

🔊 salt



🔊 water in a cup



🔊 spoon



🔊 dropper



🔊 black construction paper



🔊 hand lens



STEP 1: Pour a spoonful of salt into the water. Stir until you can no longer see the salt.



Record your observation:

STEP 2: Use the dropper to place three separate drops of salt water onto black paper.

STEP 3: Let the water evaporate for one hour or more.

STEP 4: Use the hand lens to examine the three areas of the paper where you dropped the salt water.

Record your observations.

PROPERTIES OF MATTER

Physical Properties are _____
_____ of a material that identify the material.
Every object has observable characteristics.

COLOR AND SHAPE When you search for your purple helmet, you are using color to describe an object. Its round shape allows it to fit snugly on your head.

HARDNESS Could you use a stuffed toy to drive a nail into wood? Of course not! You need something hard and strong, such as this hammer.

MAGNETISM The iron in these nails is attracted to the magnet. Magnets also attract cobalt and nickel.

REFLECTIVITY What do mirrors and these shiny pots have in common? They all reflect light in a way that allows you to see an image.

SOLUBILITY The property of solubility allows you to mix up a cold glass of grape drink. The powder dissolves in the water.

TEXTURE Even with your eyes closed, you would know this is a basketball. Its nubby texture and rubbery feel give it away!

HARDNESS

Hardness is a _____ of how _____ a material is to _____, _____, or _____. Hardness is _____ on a scale that ranks materials from _____ to _____. Scientist use hardness as a way to identify minerals.

Chalk is a _____ mineral.

A diamond is a _____ mineral.

Scientists use the scratch test to determine the relative hardness of a material. If one material scratches another, it is harder than the other material.



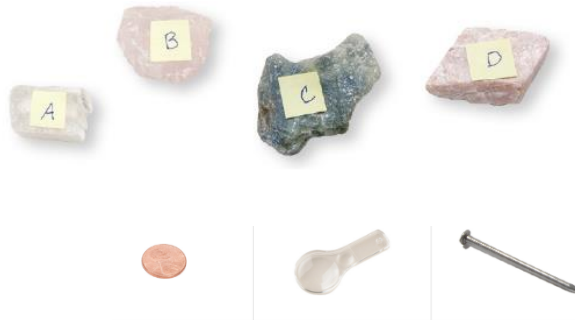
INVESTIGATE: HARDNESS



How can you test minerals for hardness?

One quick way to determine the hardness of a material is to do a scratch test. In this investigation, you'll use the physical property of hardness to test some common minerals.

MATERIALS:



STEP 1: Examine each of the mineral samples with a hand lens.



Record what you see.

STEP 2: Try to scratch each of the samples with your fingernail. Use the hand lens to examine the area you tried to scratch.



Record your observations.

STEP 3: Repeat step 2, but this time scratch with the penny and then the iron nail.



Record your observations.

STEP 4: Finally, try to scratch each sample with the other three samples.



Record your observations.

MAGNETISM



Another _____ of matter is _____.
Magnetism is a _____ produced by _____ that pull some _____.
Objects can be _____ on whether they are _____ to a magnet.

Metals that are magnetic: _____, _____, _____

ELECTRICAL CONDUCTIVITY

Electrical Conductivity is another _____ of _____.

_____ is a measure of how well _____ can move through a material. Good conductors of electrical energy, or _____, allow electricity to flow easily.

Examples: _____, _____, _____, and _____.

An _____ is a material that _____ or _____ the flow of electricity.

Examples: _____, _____, _____, and _____.

WRAP IT UP

What is the difference between an electrical conductor and an electrical insulator?

THERMAL CONDUCTIVITY

Matter is made up of _____ that are always _____, or _____. The energy of _____ particles is called **thermal energy**. The ability to conduct _____ is a _____ that can be used to identify materials.

Good conductors of thermal energy, or **thermal conductors**, allow thermal energy to _____ through them as heat.

Good thermal conductors: _____, _____, and _____

Some objects do not conduct thermal energy well. These materials are **thermal insulators**.

Good thermal insulators: : _____, _____, and _____

We can use these materials to protect us from hot objects, such as a pot on a stove. _____, _____, and _____ are also good thermal insulators.

THERMAL CONDUCTORS

The metal rod on the thermometer conducts thermal energy.



Iron is a good thermal conductor. Many pots and pans are made of metals, including iron.



This spatula is made of wood. Wood is a good thermal insulator.



Pot holders are made of cloth. Cloth is a good thermal insulator.

THERMAL CONDUCTORS

INVESTIGATE: SOLUBILITY

Which materials dissolve in water?

In this investigation, you'll test the solubility of materials in water.

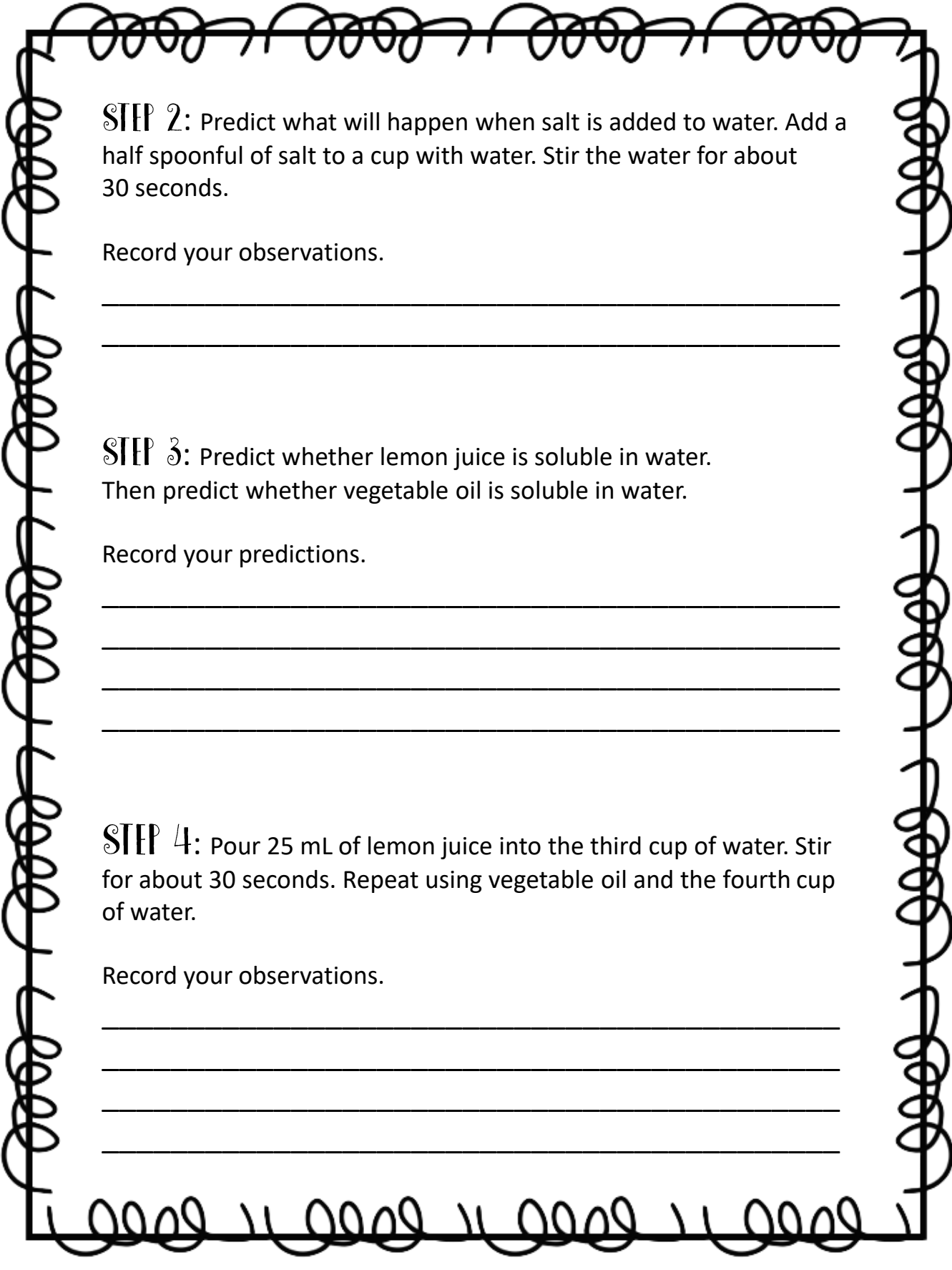
MATERIALS:



STEP 1: Predict what will happen when sand is added to water. Add a half spoonful of sand to a cup with water. Stir the water for about 30 seconds.



Record your observations.



STEP 2: Predict what will happen when salt is added to water. Add a half spoonful of salt to a cup with water. Stir the water for about 30 seconds.

Record your observations.

STEP 3: Predict whether lemon juice is soluble in water. Then predict whether vegetable oil is soluble in water.

Record your predictions.

STEP 4: Pour 25 mL of lemon juice into the third cup of water. Stir for about 30 seconds. Repeat using vegetable oil and the fourth cup of water.

Record your observations.
