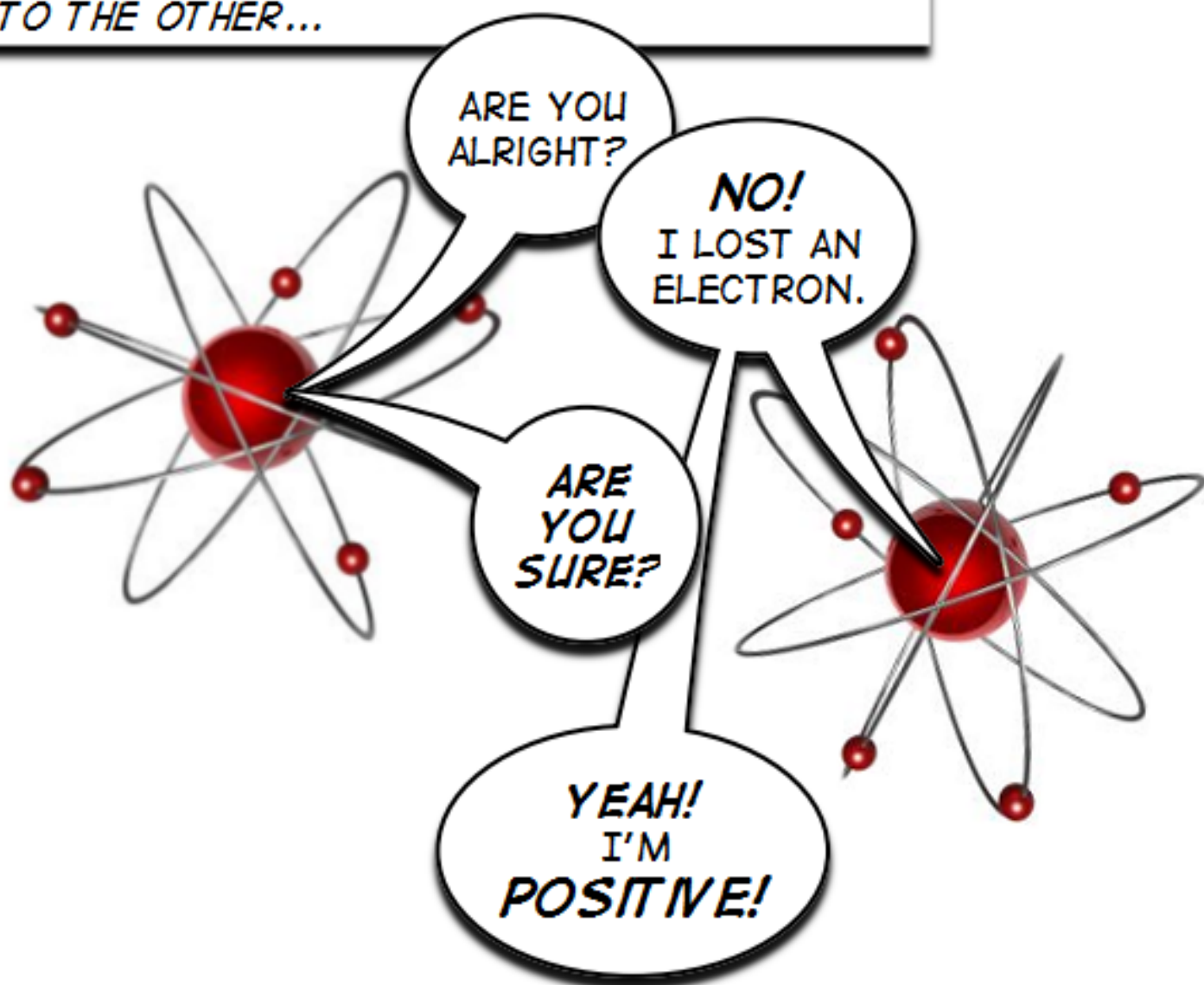


# WEEK ONE:

## Matter

TWO ATOMS ARE WALKING DOWN THE STREET AND THEY RUN INTO EACH OTHER. ONE SAYS TO THE OTHER...



# Day One

**Today, you and your child will:**

1. *Read the text*
2. *Review the text with your child*
3. *Complete the student worksheets*
4. *Find the following materials for Days Two and Three:*

Hard boiled eggs

Drinking glass

Vinegar

6-10 similar objects (buttons, paper clips, screws, keys, donuts, etc.)

**You and your child(ren) will be covering the following Science Standards this week:**

Matter is made of minute particles called atoms, and atoms are composed of even smaller components. These components have measurable properties, such as mass and electrical charge. Each atom has a positively charged nucleus surrounded by negatively charged electrons. The electric force between the nucleus and electrons holds the atom together.

# Definitions:

<b>Matter</b>	the name for all of the solids, liquids and gases in the universe
<b>Theory</b>	("thee-or-ee"); a statement about some scientific event that has been tested many times and have all had the same results
<b>Chemistry</b>	("kem-iss-tree"); the study of matter and how it changes
<b>Mass</b>	the measurement of how much matter there is in an object
<b>Physical properties</b>	("fizz-eh-kull"); the characteristics of objects that stay the same such as color, shape and size
<b>Chemical properties</b>	the characteristics of objects that can change such as through burning or rusting

## **Sample Questions to ask after your child finishes their reading for Day One:**

**If you could not look inside a box, how could you figure out what is inside?**

You could shake the box and see if the objects roll, tumble or slide around; smell the box and see if the objects are giving off an odor; turn the box upside down and see if the objects tumble around or sticks to the sides of the box; or, you could place a magnet next to the box and see if the objects are made of iron.

**How is a theory different than a prediction?**

A theory is a statement about an event that has been repeated many times through experiments. A prediction is a guess about what may happen after an experiment.

**Is it easier to see physical or chemical properties?**

Answers will vary. Physical properties should be much easier to see since we can observe matter very simply. Chemical properties take more time and require some form of chemical reaction to take place before we can observe them.

**What happens to the matter inside a banana as it turns brown?**

After you leave a banana out on the counter for a few days it starts to turn dark brown in color. This is because the tiny objects that make up a banana are moving around. All of this movement of matter makes the banana look like it has changed color!

**What has to happen to see the chemical properties of matter?**

Matter has to change into a different kind of matter for you to see its chemical properties.

# Answers to worksheet questions for Week One:

## Page 1:

1. Chemistry
2. Mass
3. Theory
4. Physical properties
5. Chemical properties
6. Matter

## Page 2:

1. Theory
2. Chemical properties
3. Mass
4. Matter
5. Chemistry
6. Physical properties

## Page 3:

q a o y a h t m i b q m m i s v x u n f  
t t q c m l y h x o y m x y p e d t f u  
c h e m i c a l p r o p e r t i e s h m  
p c d t q w n v w s q x o f t c u j v d  
z h w a p x z d b g d n y v v f n g k g  
i c d o h b y d s k e u y n s r x w h n  
p h y s i c a l p r o p e r t i e s e c  
z r m b j f v h f t p i d w r t z g c c  
e e a o p t n p o y y q y l q a o f h k  
o z t o v b r j g q n j w f v m n h e m  
q o t h o q c d v t j w d l p j d e m u  
n c e b j c o i t p n b w w e b b o i s  
m w e a x v i f x g w i l j y g r r s y  
n z i o b e l q u l t p t m d f t y t x  
m n f t o o d m a s s x n u r b c h r r  
r p s p l x d r t r c g o u k n l i y n

# Day Two

**Today, you and your child will:**

1. Review "Day One" with the information below.
2. Run the activity, "Rubber Eggs"

If you soak chicken bones in vinegar (the thinner bones work best), the vinegar will react with the calcium in the bones and weaken them so that they will become soft and rubbery, as if they had come from a rubber chicken. It is the calcium in your bones that makes them hard and strong. As you age, you may deplete the calcium faster than you replace it. If too much calcium is lost from your bones, they may become brittle and susceptible to breaking. Exercising and eating a diet that includes calcium-rich foods can help prevent this from happening.

# Rubber Eggs

The matter that protects an egg can be changed with the right ingredients.

## Materials:

Hard boiled eggs

Drinking glass

Vinegar

## Activity:

1. Place the egg in the glass or jar.
2. Add enough vinegar to completely cover the egg.
3. Watch the egg. What do you see? Little bubbles may come off the egg as the acetic acid in the vinegar attacks the calcium carbonate of the eggshell. Over time the color of the eggs may change as well.
4. After 3 days, remove the egg and gently rinse the shell off of the egg with tap water.
5. How does the boiled egg feel? Try bouncing the egg on a hard surface. How high can you bounce your egg?
6. You can soak raw eggs in vinegar for 3-4 days, with a slightly different result. The eggs shell will become soft and flexible. You can gently squeeze these eggs, but it's not a great plan to try to bounce them on the floor.

## Explanation:

If you soak chicken bones in vinegar (the thinner bones work best), the vinegar will react with the calcium in the bones and weaken them so that they will become soft and rubbery, as if they had come from a rubber chicken. It is the calcium in your bones that makes them hard and strong. As you age, you may deplete the calcium faster than you replace it. If too much calcium is lost from your bones, they may become brittle and susceptible to breaking. Exercising and eating a diet that includes calcium-rich foods can help prevent this from happening.

# Day Three

**Today, you and your child will:**

1. Review “Day One” with the information below.
2. Run the activity, “Physical Characteristics of Matter”

All objects in the world can be organized and differentiated according to like characteristics.

The method of dividing objects by physical characteristics and separating them into two categories is called a dichotomous key.

Dichotomous keys are used to organize nearly every living and nonliving object in the natural world by scientists.



# Physical Characteristics of Matter

Children will identify and organize objects by their physical characteristics.

## Materials:

6-10 similar objects (buttons, paper clips, screws, keys, donuts, etc.)

Activity Worksheet (provided)

## Activity:

1. Have children divide the objects into two groups. These groups can be large/small, square/round, etc.
2. Name each group on the worksheet.
3. Choose one pile and divide that group into two different piles based on different physical characteristics.
4. Divide the other pile in the same manner.
5. Continue dividing the groups until each item stands by itself.

## Explanation:

All objects in the world can be organized and differentiated according to like characteristics. The method of dividing objects by physical characteristics and separating them into two categories is called a dichotomous key. Dichotomous keys are used to organize nearly every living and nonliving object in the natural world by scientists.

# Dichotomous Key

You do not have to fill out every box!

Begin here. Divide your objects into two groups.

