

## — TORNADO *in a Jar* —

**Supplies**-EMPTY BOTTLE, TAP WATER, DISH SOAP, VINEGAR, GLITTER {OPTIONAL}

**Experiment**-FILL YOUR BOTTLE WITH WATER, LEAVING ABOUT AN INCH OF SPACE AT THE TOP.

DROP IN 1 TSP. VINEGAR, 1 TSP. DISH SOAP AND A PINCH OF GLITTER.

SWIRL THE JAR FOR ABOUT 5 SECONDS. THEN SET IT DOWN ON A FLAT SURFACE AND WATCH THE TORNADO.

**Explanation**- WHEN YOU SPIN THE WATER, IT CREATES A VORTEX IN THE CENTER, CENTRIFUGAL FORCE CAUSES THE WATER TO SPIN AROUND THAT VORTEX MAKING A TORNADO.



©PLAYDOUGH TO PLATO 2015.

## — VOLCANO *in a Jar* —

**Supplies**-EMPTY BOTTLE, DISH SOAP, VINEGAR, BAKING SODA

**Experiment**-ADD  $\frac{1}{4}$  CUP OF BAKING SODA TO THE BOTTOM OF YOUR BOTTLE.

ADD SEVERAL DROPS OF DISH SOAP ON TOP.

POUR IN 1 CUP OF VINEGAR. THEN WATCH THE VOLCANO ERUPT!

**Explanation**- WHEN YOU MIX VINEGAR AND BAKING SODA TOGETHER IT CAUSES AN ACID-BASE REACTION THAT FORMS A GAS CALLED CARBON DIOXIDE. THAT GAS BUBBLES AND FOAMS IN THE VINEGAR-BAKING SODA MIXTURE CREATING AN "ERUPTION". THE DISH SOAP MAKES THE FOAM EXTRA FROTHY AND BUBBLY.



©PLAYDOUGH TO PLATO 2015.

## — FIREWORKS *in a Jar* —

**Supplies**-EMPTY BOTTLE, TAP WATER, OIL, FOOD COLORING, PLATE, FORK

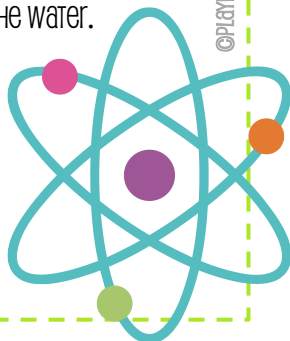
**Experiment**-FILL YOUR BOTTLE WITH WATER, LEAVING ABOUT TWO INCHES OF SPACE AT THE TOP.

POUR ABOUT 2 TABLESPOONS OF OIL ON YOUR PLATE.

ADD SEVERAL DROPS OF FOOD COLORING TO THE OIL AND STIR WITH A FORK.

POUR THE OIL INTO THE BOTTLE AND WATCH THE FOOD COLORING SINK OUT OF THE OIL AND INTO THE WATER.

**Explanation**- FOOD COLORING AND OIL DO NOT MIX. OIL IS LESS DENSE THAN WATER SO IT WILL SIT AT THE TOP OF THE BOTTLE. THE FOOD COLORING IS HEAVIER THAN THE OIL SO IT DROPS OUT OF THE OIL AND BEGINS DISSOLVING IN THE WATER.



©PLAYDOUGH TO PLATO 2015. ADAPTED FROM I CAN TEACH MY CHILD

## — FLYING *tea bags* —

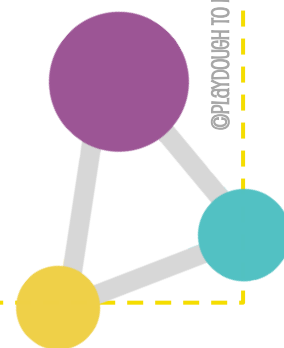
**Supplies**-TEA BAG, SCISSORS, MATCH OR LIGHTER

**Experiment**-CUT OFF THE TOP OF THE TEA BAG AND DUMP OUT THE TEA LEAVES.

FLATTEN THE TEA BAG AND SHAPE IT INTO A CYLINDER. STAND THE TEA BAG UP ON ONE END.

HAVE A GROWN UP LIGHT THE TOP OF THE TEA BAG WITH A MATCH OR LIGHTER. WATCH THE BAG FLY INTO THE AIR.

**Explanation**- THE AIR INSIDE THE TEA BAG GETS HOT WHEN THE FIRE IS LIT AND THE AIR MOLECULES BEGIN MOVING AROUND QUICKLY INSIDE THE TEA BAG. THE HOTTER, LESS DENSE AIR RISES ABOVE THE COOLER, DENSER AIR OUTSIDE THE TEA BAG CREATING A CONVECTION CURRENT THAT CAUSES IT TO LIFT INTO THE AIR.



©PLAYDOUGH TO PLATO 2015.

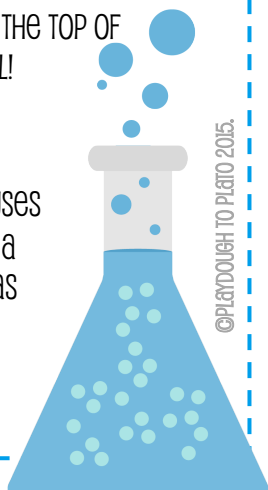
# MAGIC balloons

**Supplies**-EMPTY BOTTLE, BALLOON, ALKA SELTZER, WATER

**Experiment**-BREAK 4 ALKA SELTZER TABLETS INTO SMALL PIECES AND DROP THEM INTO THE BOTTLE.

FILL THE BOTTLE WITH ABOUT 1 CUP OF WATER AND QUICKLY STRETCH THE BALLOON OVER THE TOP OF THE BOTTLE. WATCH THE BALLOON FILL!

**Explanation**-WHEN YOU MIX ALKA SELTZER AND WATER TOGETHER IT CAUSES AN ACID-BASE REACTION THAT FORMS A GAS CALLED CARBON DIOXIDE. THIS GAS FLOATS TO THE TOP OF THE BOTTLE, FILLING THE BALLOON WITH CARBON DIOXIDE.



# STATES of MATTER

**Supplies**-BALLOONS, WATER

**Experiment**-FILL ONE BALLOON WITH WATER AND PLACE IT IN THE FREEZER OVERNIGHT.

THE NEXT MORNING, BLOW UP A SECOND BALLOON WITH AIR.

FILL A THIRD BALLOON TAP WATER.

WHEN THE WATER IN THE FIRST BALLOON HAS FROZEN COMPLETELY, PLACE THE THREE BALLOONS SIDE BY SIDE. SQUEEZE, POKE AND EXPLORE WITH THEM. WHAT IS THE SAME? WHAT IS DIFFERENT?

**Explanation**- THE THREE BALLOONS ARE FILLED WITH THREE DIFFERENT STATES OF MATTER: GAS {air}, LIQUID {water} AND SOLID {ice}.



# MAGIC rainbow MILK

**Supplies**-PLATE, MILK, FOOD COLORING, DISH SOAP, Q-TIPS

**Experiment**-POUR MILK ONTO THE PLATE, COVERING IT.

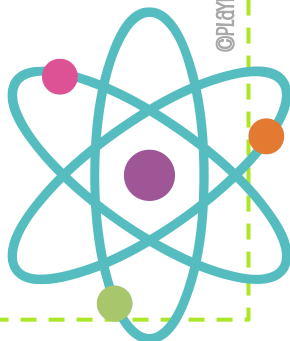
RANDOMLY DROP SEVERAL DIFFERENT COLORS OF FOOD COLORING ON THE MILK.

DIP YOUR CLEAN Q-TIP IN THE MILK. DOES ANYTHING HAPPEN?

NOW DIP A NEW Q-TIP IN DISH SOAP.

TOUCH THE Q-TIP TO THE SURFACE OF THE MILK IN SEVERAL SPOTS AND WATCH THE COLORS SWIRL AROUND.

**Explanation**- MILK IS MADE OF MANY THINGS INCLUDING WATER AND FATS THAT ACT LIKE OIL. OIL AND WATER DON'T LIKE EACH OTHER. ONE PART OF SOAP LIKES FAT AND ONE PART LIKES WATER SO WHEN THE SOAP TOUCHES THE MILK, THE SOAP MOLECULES MOVE THROUGH THE MILK SEARCHING FOR FAT AND MIXING UP THE FOOD COLORING IN ITS PATH.



# CANDY chromatography

**Supplies**-SKITTLES, COFFEE FILTERS, WARM WATER

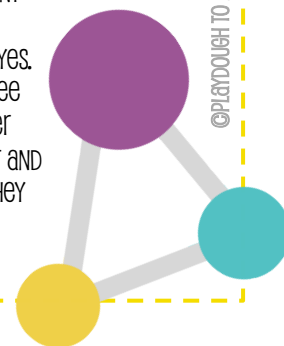
**Experiment**-FLATTEN SEVERAL COFFEE FILTERS ONTO SEPARATE PLATES.

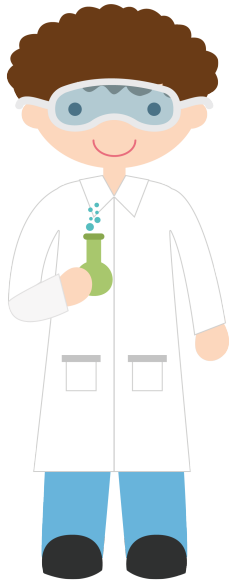
DIP ONE COLOR SKITTLE INTO THE WARM WATER AND LAY IT ON A COFFEE FILTER.

REPEAT THE STEPS WITH SEVERAL DIFFERENT COLORED SKITTLES.

WATCH THE COLORS SEPARATE INTO DIFFERENT COMPONENTS. FOR INSTANCE, GREEN SPREADS INTO YELLOW AND BLUE.

**Explanation**- CANDY MAKERS COMBINE DIFFERENT COLORS OF DYE TO COLOR THEIR CANDIES. FOR INSTANCE, BROWN IS MADE OF RED AND BLUE DYES. SOME DYES ARE MORE ATTRACTED TO THE COFFEE FILTER PAPER AND MOVE UP HIGHER WHILE OTHER DYES LIKE RED DISSOLVE MORE EASILY IN WATER AND ARE LESS ATTRACTED TO THE FILTER PAPER SO THEY DON'T MOVE AS WELL. THIS PROCESS IS CALLED CHROMATOGRAPHY.





MY

# super cool SCIENCE KIT

©PLAYDOUGH TO PLATO 2015.

## — FIND more —

*Rainbow Jar -*

[HTTP://WWW.PLAYDOUGHTOPLATO.COM/RAINBOW-JAR-ST-PATRICKS-DAY/](http://www.playdoughtoplato.com/rainbow-jar-st-patricks-day/)

*Crystal Names -*

[HTTP://WWW.PLAYDOUGHTOPLATO.COM/KIDS-SCIENCE-CRYSTAL-NAMES/](http://www.playdoughtoplato.com/kids-science-crystal-names/)

*Pop Rockets-*

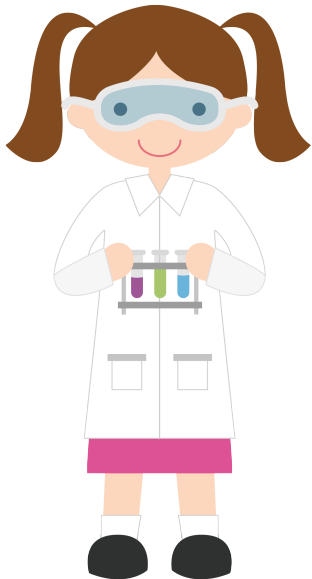
[HTTP://WWW.PLAYDOUGHTOPLATO.COM/KIDS-SCIENCE-EXPLODING-POP-ROCKETS/](http://www.playdoughtoplato.com/kids-science-exploding-pop-rockets/)

*Dancing Frankenworms-*

[HTTP://WWW.PLAYDOUGHTOPLATO.COM/KIDS-SCIENCE-DANCING-FRANKENWORMS/](http://www.playdoughtoplato.com/kids-science-dancing-frankenworms/)



©PLAYDOUGH TO PLATO 2015.



MY

# super cool SCIENCE KIT

©PLAYDOUGH TO PLATO 2015.

## — LEGAL stuff —

*Graphics -* CREATED BY STUDIO SHINE.

[HTTPS://WWW.ETSY.COM/SHOP/STUDIOSHINE](https://www.etsy.com/shop/studioshine)

*All Rights Reserved-* COPYING ANY PART OF THE FILE AND PLACING IT ON THE INTERNET IN ANY FORM IS STRICTLY FORBIDDEN.

©PLAYDOUGH TO PLATO 2015.