

Fun Weather Experiments To Do At Home



1. Make a thunderstorm
2. Cloud in a bottle
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4. What's in the wind
5. Balloon in a bottle
6. Tornado in a bottle
7. Make it rain

Name: _____

MAKE A THUNDERSTORM

What you need:

Clear, plastic container (size of shoebox)
Red food coloring
Ice cubes made with blue food coloring
Water

What to do:

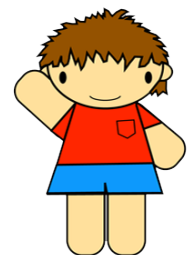
Fill the plastic container two-thirds full with lukewarm water

Let the water sit for one minute.

Place a blue ice cube at one end of the plastic container.

Add a few drops of red food coloring to the water at the other end of the plastic container.

Note what happens:



Explanation:

The blue water represents the cold air mass and the red water represents the warm, unstable air mass. The blue cold water sinks while the red warm water rises. This happens because of convection. A thunderstorm is caused by unstable air and convection plays an important part. The warm front is forced to rise due to meeting the cold front where the air meets is unstable and thus causing a thunderstorm.

CLOUD IN A BOTTLE

What you need:

2-litre clear PET bottle
Matches (adult assistance needed to light matches)
Warm water

What to do:

Fill the clear PET bottle one-third full of warm water and put the lid on. As warm water evaporates, it adds water vapor to the air inside the bottle. This is the first ingredient to make a cloud.

Squeeze and release the bottle and observe what happens. You'll notice that nothing happens. Why? The squeeze represents the warming that occurs in the atmosphere. The release represents the cooling that occurs in the atmosphere. If the inside of the bottle becomes covered with condensation or water droplets, just shake the bottle to get rid of them.

Take the cap off the bottle. Carefully light a match and hold the match near the opening of the bottle.

Then drop the match in the bottle and quickly put on the cap, trapping the smoke inside. Dust, smoke or other particles in the air is the second ingredient to make a cloud.

Once again, slowly squeeze the bottle hard and release. What happens? A cloud appears when you release and disappears when you squeeze. The third ingredient in clouds is a drop in air pressure.

Note what happens:



EXPLANATION:

Water vapor, water in its invisible gaseous state, can be made to condense into the form of small cloud droplets. By adding particles such as the smoke enhances the process of water condensation and by squeezing the bottle causes the air pressure to drop. This creates a cloud!

BLUE SKY EXPERIMENT

What you need:

Flashlight
2-liter PET bottle
Milk
Water

What to do:

Fill the PET bottle 3/4 full of water and prop up the flashlight, so it will shine through the bottle from the side.

Add a teaspoon of milk to the water.

Put the lid on the bottle and shake to mix up the water and milk.

What do you see? Keep adding milk until you start to see a blue light that is scattered to your eyes from the mixture.

Once you see the blue light, add more milk to the mixture until you see more of an orange or red light.

Note what happens:



EXPLANATION:

Just like in the atmosphere, the mixture scatters more of the blue wavelength than any other color. ' why the sky is blue! At sunrise or at sunset, there is even more scattering taking place due to the angle of the sun. This causes the reds and oranges to scatter into our atmosphere. That's why our sunsets and sunrises are so colorful!

WHAT'S IN THE WIND

What you need:

A few paper plates
Vaseline/petroleum jelly
Magnifying glass
Paper punch
String
Windy day

What to do:

Punch a hole at one end of each plate.

Thread each hole with a length of string

Spread Vaseline over one side of each plate.

Take the plates outdoors on a windy day and hang them in various areas.

Leave them outside for about an hour or two to collect what may be blowing in the wind.

Retrieve the plates and see what they have collected.

Note what happens:



EXPLANATION:

Some of the items that may have been collected include insects, dirt, seeds and leaves. Use the magnifying glass for further observation.

BALLOON IN A BOTTLE

What you need:

Plastic water or pop bottle

Large bowl

Balloon

Ice water

Hot water

What to do:

Fill the plastic bottle with hot water.

Swirl the water around to make the bottle hot and then pour it out.

Refill the bottle one-fourth full with hot water and place the balloon over the mouth of the bottle.

Fill the large bowl with ice water and place the bottle in the bowl.

Watch as all of the air is taken from the balloon. It might even get sucked into the bottle.

Note what happens:



EXPLANATION:

What happens? The hot air in the bottle expands as the cool air outside the bottle contracts. When you first place the balloon over the mouth of the bottle, the air in the bottle is hot. As the air cools from the ice water outside the bottle it contracts and pushes the balloon into the bottle. This is why the air is taken from the balloon and sometimes gets sucked into the bottle.

TORNADO IN A BOTTLE

What you need:

PET bottle
Tsp liquid dish soap
Tsp vinegar
Water
Glitter

What to do:

Fill the bottle about 3/4 full of water.

Put a teaspoon of the liquid soap into the bottle.

Also, add a teaspoon of vinegar into the bottle.

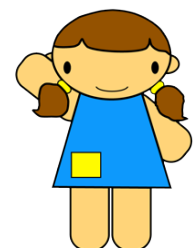
Add the glitter

Tighten the lid and shake the jar to mix up the ingredients.

Now, swirl the jar in a circular motion.

The liquid will form a small tornado.

Note what happens:



EXPLANATION:

The swirling motion you give the bottle forms a vortex and is a easy way to create your own tornado.

MAKE IT RAIN

What you need:

Glass jar
Plate
Hot water
Ice cubes

What to do:

Pour about 6cm of very hot water into the glass jar.

Cover the jar with the plate and wait a few minutes before you start the next step.

Put the ice cubes on the plate.

Note what happens:



EXPLANATION:

What happens? The cold plate causes the moisture in the warm air, which is inside the jar to condense and form water droplets. This is the same thing that happens in the atmosphere. Warm, moist air rises and meets colder air high in the atmosphere. The water vapor condenses and forms precipitation that falls to the ground.