

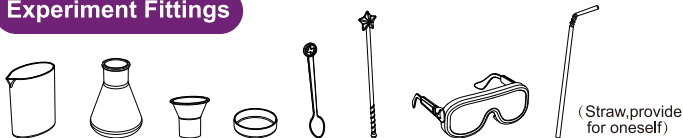
01

Magic Bubbles

Experiment Materials

Detergent, Soft white sugar, Clear water

Experiment Fittings



Experiment Procedures

1. Pour 100ml water into the flask with a measuring cup.
2. Pour 25ml of dishwashing liquid into a measuring cup.
3. Pour appropriate amount of soft sugar into the petri dish and add 2 spoons into the measuring cup with the sampling spoon.
4. Pour the water in the flask back into the measuring cup and stir well with a stirring rod until the sugar and detergent are dissolved.
5. Pour the prepared liquid into the intermediate reactor along the funnel.
6. Repeatedly press the right side expansion device until the bubbles overflow from the intermediate reactor and observe the bubble world made by yourself.
7. dip one end of the straw into the bubble water, the other end of the air, start your own bubble creation!

Note: at the end of the experiment, take out the yellow bubbler in the intermediate reactor and pull out the catheter connecting it.

Experiment Principle

Soft white sugar can increase the viscosity of bubble, make the thin liquid film of bubble is not easy to break, and wrap the air inside tightly.

02

Volcanic Magma

Experiment Materials

Baking soda, White vinegar, Detergent, Red pigment

Experiment Fittings



Experiment Procedures

1. Using a sampling spoon, take 4 tablespoons of baking soda and add it into the intermediate reactor along a dry funnel.
2. Measure 125ml white vinegar in a measuring cup and add 5 drops of red pigment.
3. Meanwhile, take 10ml of detergent from the test tube and pour it into the measuring cup. Stir with the stirring rod until all the ingredients are mixed.
4. Quickly pour the liquid from the measuring cup into the intermediate reactor through the funnel.
5. Observe the magnificent "lava" rising from the reactor!

Experiment Principle

White vinegar is acidic and baking soda is alkaline. When the two are mixed, a chemical reaction occurs that produces a large amount of carbon dioxide gas, this carbon dioxide gas causes a lot of foam in the detergent solution, creating "lava".

03

Colorful Pearl Rain

Experiment Materials

Edible oil, Red pigment, Yellow pigment, Blue pigment,
Clear water

Experiment Fittings



Experiment Procedures

1. Take 150ml cooking oil from a measuring cup and pour it into the intermediate reactor through the funnel.
2. Pour 10ml of water into each of the three tubes, select three pigments, drop 3 drops of one color into each tube, and stir evenly with a stirring rod.
3. Drain the three test tubes one by one with the dropper and drip after drip into the intermediate reactor.
4. Enjoy the wonderful visual experience of the pearl rain!(The floating oil can be collect-ed for other experiments)

Experiment Principle

The density of water is higher than that of edible oil, so the drops will sink to the bottom of the bottle while dropping into the edible oil. Water droplets are spherical because of the same force around them while falling down.

Discolored Iodine

Experiment Materials

Blue pigment, Iodophors, Vitamin C tablets, Clear water

Experiment Fittings



Experiment Procedures

1. Take 100ml water in a measuring cup and drop in 2 drops of blue pigment. Stir well with a stirring rod and pour into the intermediate reactor.
2. Take 50ml water in a measuring cup and drop in 30 drops of iodine volt. Stir evenly with a stirring rod and pour into the intermediate reactor.
3. Remove the funnel, insert the stirring rod into the intermediate reactor, stir evenly and observe the color change.
4. Put a piece of vitamin C into the intermediate reactor, stir for a while and observe the phenomenon.

Experiment Principle

Iodophor is oxidative and vitamin C is reductive. Redox reaction occurs when they are added to water. The water will change back to its original color when iodophor is completely reacted. At the same time, there are pigments in the solution due to the remaining pigments.

Liquid Floor

Experiment Materials

Bed pigment, Blue pigment, Detergent, Edible oil,
Clean water

Experiment Fittings



Experiment Procedures

1. Add 3ml of detergent, 3ml of water and 3ml of cooking oil into the three test tubes respectively.
2. Put 1 drop of blue pigment into the tube filled with detergent and 1 drop of red pigment into the tube filled with water, and stir evenly with a stirring rod to make the pigment in the two tubes even.
3. Slowly pour the red liquid along the wall of the test tube into the tube containing detergent, then slowly pour the cooking oil along the wall of the test tube into the tube containing two kinds of liquid, observe the color floor.

Experiment Principle

Different objects have different densities, so the densities of detergent, water and oil are different. Among the three liquids, detergent has the highest density, followed by water, and then oil. The liquid with high density will sink to the bottom, while the liquid with low density will float to the top, thus achieving the effect of stratification.

06

Submarine Spring

Experiment Materials

Effervescent tablet, Blue pigment, Edible oil, Clear water

Experiment Fittings



Experiment Procedures

1. Take 50ml of clean water from a measuring cup and add 10 drops of blue pigment at the same time. Stir well and add to the intermediate reactor.
2. Take 125ml edible oil from a measuring cup and pour it into the intermediate reactor along the funnel wall.
3. Throw a piece of effervescent film into the reactor and observe the wonderful "submarine spring" emerging from the the intermediate reactor!

Experiment Principle

Effervescent tablets with water after the rapid release large amounts of carbon dioxide, the carbon dioxide gas carrying the colored water rushed out of the reservoir, reach the top of the reservoir, eventually overflow into the air, and create wonderful sights like submarine spring.

Swollen Belly

Experiment Materials

Baking soda, Citric acid, Cleanwater

Experiment Fittings



Experiment Procedures

1. Take 150ml of water in a measuring cup, add 1 teaspoon of citric acid to it with a sampling spoon and stir with a stirring rod until completely dissolved, then pour the solution from the measuring cup into the flask.
2. Using a sampling spoon, take 1 teaspoon of baking soda and place it inside the balloon with the help of a funnel.
3. Put the balloon around the opening of the flask and pour the baking soda into the flask.
(Make sure the balloon entangles the container tightly to avoid leaking, otherwise, it will fail.)
4. Observe the belly of balloon which expands gradually.

Experiment Principle

Citric acid is an acidic substance, while baking soda is an alkaline substance. A large amount of carbon dioxide gas will be produced after mixing the two substances, which can make the balloon blow up.

The Secret of Starch

Experiment Materials

Starch, Iodophor, Clear water

Experiment Fittings



Experiment Procedures

1. Take 150ml of water in a measuring cup, add 20 drops of iodophor and stir well with a stirring rod, then pour into the intermediate reactor.
2. Pour an appropriate amount of starch into the petri dish, add half a spoon of starch into the intermediate reactor with a sampling spoon, remove the funnel, insert the stirring rod into the intermediate reactor, stir evenly and observe the color change.
3. Use the sampling spoon to add another half spoon into the intermediate reactor and stir evenly with the stirring rod.
4. Compare the two color changes, let's explore the secret of starch!

Experiment Principle

Starch will turn purple-red or blue when it meets iodine. These color reactions enjoy high sensitivity and can be used to identify the content and qualitative of starch, as well as to analyze iodine content. Many foods in our daily life contain starch, such as apples and eggs. Let's look for starch in our life.

Colorful Meteor Shower

Experiment Materials

Red pigment, Yellow pigment, Blue pigment, Edible oil, Clean water

Experiment Fittings



Experiment Procedures

1. Take about 300 ml of clear water by measuring cup and pour it into the intermediate reaction vessel.
2. Pour 50 ml of edible oil into a dry measuring cup. And then drop 10 drops of red, yellow and blue pigments each into the cup, stirring evenly for about 15 seconds.
3. Pour the liquid of the measuring cup into the intermediate reaction vessel by funnel wall.
4. Stand for 10 seconds and you can enjoy the fantastic world of the colorful meteor showers!

Experiment Principle

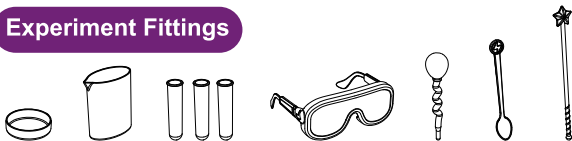
The pigment cannot be dissolved in the oil, so when it is added to the oil, it is wrapped in drops of pigment. After the edible oil mixed with pigment is poured into the water, the density of edible oil is less than the density of water, so it will cover the pigment and float on the water surface. After resting for a period of time, the pigment has the highest density and starts to sink. After reaching the water layer, it will dissolve into the water, forming a "meteor shower".

Making Liquid Rainbow

Experiment Materials

Red pigment, Yellow pigment, Blue pigment, White sugar, Warm water

Experiment Fittings



Experiment Procedures

1. Measure 25ml of warm water in a measuring cup and add 3ml of warm water to each of the three test tubes.
2. Select 3 pigments and drop 1 drop of one color into each tube, shake the tube to mix the pigments evenly.
3. Pour the sugar into the petri dish, take 1/4 teaspoon with the sampling spoon and add it into the tube with the blue pigment. Then take half a teaspoon with the sampling spoon and add it into the tube with the red pigment.
4. Draw the blue liquid in the tube with the dropper, and let the solution slowly flow along the inner wall of the tube into the tube with the red pigment.
5. Then the yellow liquid is injected into the tube containing the two colors in the same way.
6. Feel the gorgeous liquid rainbow in front of you!

Experiment Principle

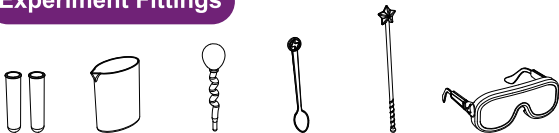
The same amount of water with different amounts of sugar will make different densities of liquid. The more sugar you add, the denser the liquid, the denser the liquid will sink to the bottom, and the less dense the liquid will float to the top, stratifying the solution to form a liquid rainbow.

Acid-Base Test

Experiment Materials

Citric acid, Baking soda, PH test paper, Clean water

Experiment Fittings



Experiment Procedures

1. Add 5ml of water to each tube.
2. Fill one tube with 1/4 teaspoon baking soda with a sampling spoon and stir well with the stirring rod.
3. Clean the sampling spoon, then fill another tube with 1/4 teaspoon of citric acid and stir well with the stirring rod.
4. Draw the solution from the two test tubes with the dropper (after absorbing one solution, remember to clean it and then absorb another solution), drop it on both ends of a PH test paper, and observe and compare the color changes.

Experiment Principle

PH test paper can be used to detect acidity and alkalinity. It turns red or yellow when it comes to acidity and blue or green when it comes to alkalinity. Let's test the acidity and alkalinity of substances in our daily life together.

Milk Animation

Experiment Materials

Red pigment, Yellow pigment, Blue pigment, Pure milk, Detergent

Experiment Fittings



Experiment Procedures

1. Take 100ml of pure milk from a measuring cup and pour it into the experimental chassis.
2. Put 5 drops of red, yellow and blue pigment into the center of the milk.
3. Add 5ml detergent into the test tube, use the dropper to absorb the detergent, and drop into the center of the pigment.
4. Enjoy the spectacular milk animation.

Experiment Principle

Dishwashing liquid contains surfactants that destroy the surface tension of the milk, so that the pigment around the milk will spread and create a beautiful animation.

Flower Makeup

Experiment Materials

Red pigment, Yellow pigment, Blue pigment,
Three white flowers, Clear water

Experiment Fittings



Experiment Procedures

1. With a measuring cup measuring 30 ml water, to add 10 ml each to three test tubes, drop 10 drops of one color into each tube, and mix them evenly.
2. Insert the three white flowers into three test tubes separately.
3. Observed the appearance changes of the flowers after 1 day.

Experiment Principle

Plant leaf internal has many tiny "pipe", we called the capillary, infiltrating liquid in the capillary of foliage is hollow, it to the liquid pressure, the liquid rising along the wall, this is the "capillary phenomenon", by capillary action, white flowers can pigment gradually to suck up water, and spread in the context of the petals, cause a color change.

Diffusion Of Pigment

Experiment Materials

Red pigment, Blue pigment, Salt and Clear water

Experiment Fittings



Experiment Procedures

1. Add 5ml of water to each of the two test tubes, and drop 1 drop of red pigment into each. Then add 10ml of water into the other test tube, and at the same time drop 1 drop of blue pigment, and stir with the stirring rod to make the pigment of the three test tubes even.
2. Pour salt into a petri dish. With a sampling spoon, place half a teaspoon of salt in a test tube filled with a blue liquid. Stir until the salt is dissolved in water.
3. Use the dropper to suck 5ml of the blue solution and slowly add it to one of the tubes containing the red liquid along the wall of the test tube.
4. Clean the dropper, use the dropper to absorb the red liquid in another tube, slowly add the blue liquid into the tube along the wall of the test tube.
5. Compare the reactions in two test tubes containing two liquids.

Experiment Principle

Diffusion phenomenon refers to the phenomenon of material molecules transferring from high concentration region to low concentration region until uniform distribution, mainly due to density difference. The rate of diffusion is proportional to the concentration of the substance.

Ice In Magma

Experiment Materials

Edible oil, Red pigment, Small ice (about 15*15*15mm),
Clear water

Experiment Fittings



Experiment Procedures

1. Measure 150ml of water in a measuring cup and add 5 drops of red pigment, and stir well with stirring rod, then pour the liquid in the measuring cup into the intermediate reactor along the funnel.
2. Measure 100ml of edible oil in a dry measuring cup and pour it into the intermediate reactor along the funnel.
3. Remove the funnel and place a small piece of ice into the intermediate reactor from the hole at the top left of the intermediate reactor.
4. Observe the floating and sinking of ice in the intermediate reactor.

Experiment Principle

The density of water is the highest in the three substances, the density of oil is minimal, the density of ice is between oil and water, so water is at the bottom, oil is at the top, and ice is suspended between water and oil.