SCIENCE NOTEBOOK : WATER
INVESTIGATION 1 : Dancing raisins

Resource Center

You will need:
1 handful of raisins
Sparkling water
1 glass container

What to do:

1. Fill the glass container with sparkling water
2. Add the raisins carefully one by one into the glass container

After the investigation:
Describe your observations

After the investigation:
Draw a picture of your observations.

Why do you think this happened?

SCIENCE NOTEBOOK : WATER
INVESTIGATION 2 : Diving water balloons

Resource Center

You will need:

4 water balloons
1 large clear bowl filled with water

What to do:

1. Fill a water balloon with water and tie a knot to close it.
2. Fill the second water balloon with water – but now use less water than you have used for the first water balloon. Additionally, blow some air into the water balloon and then tie a knot to close it.
3. Fill the third water balloon with very little water.
4. Do not put any water in the fourth water balloon.
5. Put all the water balloons in the water bowl and observe what happens.

After the investigation:

Describe your observations

After the investigation:

Draw a picture of your observations.

Why do you this this happened?

You will need:
Different objects
One large clear container filled with water

What to do:

Put the objects on to the water surface.
Which ones are floating?
Which ones are sinking?

Are you able to make the sinking objects float?

Are you able to sink the floating objects?

SCIENCE NOTEBOOK : WATER
INVESTIGATION 3 : floating / sinking

Resource Center

My objects:

After the investigation:
Describe your observations

After the investigation:
Draw a picture of your observations.

SCIENCE NOTEBOOK : WATER
INVESTIGATION 4 : Floating paper clip

Resource Center

You will need:
1 paper clip
1 bowl filled with water
A pair of tweezers
Water and washing-up liquid

What to do:

1. Fill the bowl with water and put it on a table.
2. Rub the paper clip between your fingers so it will get slightly greasy and will float better in the water. Pick up the paper clip with the tweezers and put the paperclip face down carefully onto the water surface. Now add a tiny drop of washing up liquid to the water.

After the investigation:
Describe your observations

After the investigation:
Draw a picture of your observations

Why do you think this happened?

SCIENCE NOTEBOOK : WATER
INVESTIGATION 5 : Lemon buoyancy

Resource Center

You will need:
1 unpeeled lemon
1 peeled lemon
1 glass jug filled with water

What to do:

Take turns adding the peeled and the unpeeled lemon to the water jug. What can you see? Does anything surprise you? Can you explain what you observe?

After the investigation:
Describe your observations

After the investigation:
Draw a picture of your observations

Why do you think this happened?

SCIENCE NOTEBOOK : WATER
INVESTIGATION 6 : Buoyancy in water

You will need:
Play dough
1 large bowl filled with water

What to do:

1. Roll the play dough in your hands until it has formed into a ball.
2. Hold the ball close the water surface and let it drop into the water. Make sure to make a note beforehand of what you think might happen once you will drop it.
3. Change the shape of the play dough into a small bowl.
Hold the bowl close above the water surface and let it drop into the water. Again, make sure to make a note beforehand of what you think might happen once you will drop it.

After the investigation:
Describe your observations

After the investigation:
Draw a picture of your observations

Why do you think this happened?

SCIENCE NOTEBOOK : WATER
INVESTIGATION 7 : Aluminum foil boat

Resource Center

You will need:
Aluminum foil
1 large bowl filled with water
Some marbles

What to do:
Build a model of a boat out of 3 A4 foil sheets
Place it carefully in a bowl filled with water.
Carefully add the marbles one after the other into the boat.
Count how many marbles the boat can hold before it sinks.

How many marbles could your boat carry?

What you think	Your result

After the investigation:

Describe your observations

Draw your boat:

SCIENCE NOTEBOOK : WATER

Resource Center

Dancing raisins: Raisins have a greater density than water and this is the reason why they sink to the ground. Little air bubbles from the sparkling water stick to the rough surface of the dried fruits. The gas in the bubbles – carbon dioxide - is much lighter than water. Once enough air bubbles stick to the surface of the raisins' the air bubbles will lift the raisins up. It is the same as if you would put on arm bands while diving. You will be pushed up to the surface and have no chance to stay under water. Once on the water surface, the air bubbles burst – and the raisins lose their 'arm bands'. When this happens, the raisin becomes heavier than water again and will sink to the ground. The same happens again until there is no carbon dioxide left in the water.

Floating paper clip Look closely, preferably with a magnifying glass: The water surface is slightly pressed under the weight of the paper clip like a skin. Water actually has a kind of skin that forms at the border with other substances, especially air. The reason: Water molecules (the smallest water particles) attract each other. The inner attraction causes the water surface to stretch a little, almost like a trampoline. Thanks to this surface tension, light things such as paper clips, leaves or small pieces of bark are carried by the water. In addition, the weight of a paper clip is spread over a fairly large area. The same amount of metal in a ball shape would sink immediately. Have you ever observed water runners? These nimble insects can even run on the water thanks to the surface tension. Their legs are spaced widely apart, which spreads their weight out over as large a surface as possible, but also pushes down the water easily.

Lemon boat The lemon is heavier with peel than without and is also heavier than water. But weight is not the only consideration when swimming. There are thousands of tiny air bubbles in the lemon peel. They give the fruit the necessary buoyancy so that it floats. If you peel the lemon, it no longer has these air bubbles and then it sinks, even though it is lighter without the peel.

Water bombs Anything that is lighter than water floats. Air is lighter than water. That's why the water bombs float with a lot of air, while the water bomb only filled with water sinks.

Buoyancy in water When a boat floats in water, it displaces, or pushes away, some of the liquid to make room for itself. The boat's own weight pulls it down. However, at the same time, the pressure from the water pushes it upwards. This force is called buoyancy. If the buoyancy is lower than the weight of the boat, the boat will sink. Not everything floats on the water. While a piece of wood may easily float, a piece of iron of the same size would never float.
This is because wood weighs less than the volume of the water that it displaces, or pushes away.