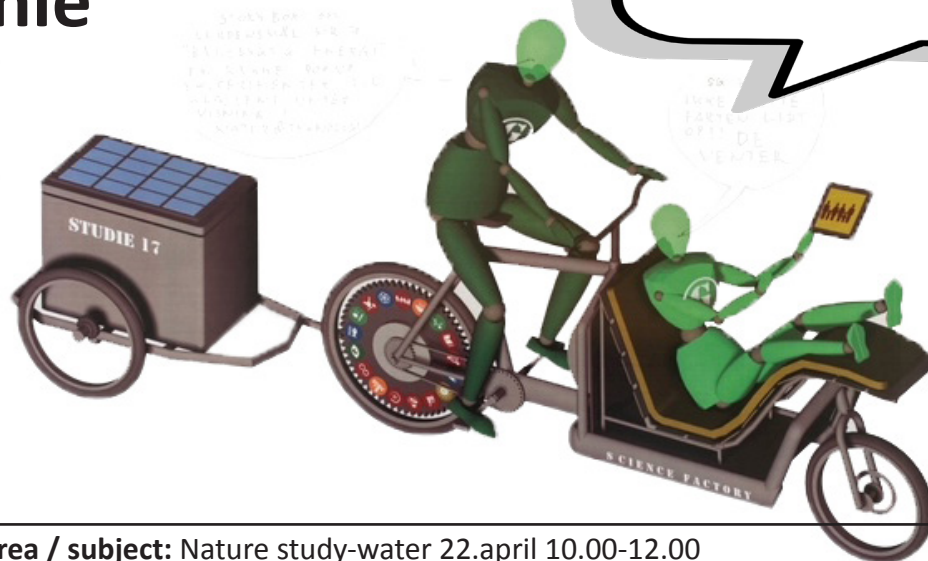


Adventures with Green and Greenie



Education area / subject: Nature study-water 22.april 10.00-12.00

Class level: 12 - 14 years old

Duration: 2h

Required materials:

Two glasses (150-300ml), tap water, a couple of sheets of paper towels or toilet paper "minimum 2ply", or another that can be used as a filter, tablespoon with soil (from a house plant or other insoluble matter), teaspoon with sugar, glass or transparent plastic container (that will contain hot water 150-500ml), hot water, cling film (enough to cover the container without gaps), ice, ground pepper, a bowl of tap water(200 ml), liquid soap (half a teaspoon), ground cinnamon, a glass of water.

Guidance for the experiment:

prepare all materials in advance except hot water and ice. We will do the experiment with hot water and ice in the middle of the class, so there will be time to bring materials.

Materials you will need for this experiment:

Experiment 1 "Dissolution of substances in water"

Required materials: two glasses (150-300ml), tap water, a couple of sheets of paper towels or toilet paper "minimum 2ply", or another that can be used as a filter, tablespoon with soil (from a house plant or other insoluble matter), tea-spoon with sugar.

Experiment 2 "Rain formation"

Required materials: glass or transparent plastic container (that will contain hot water 150-500ml), hot water, cling film (enough to cover the container without gaps), ice.

Experiment 3 "The surface tension of water"

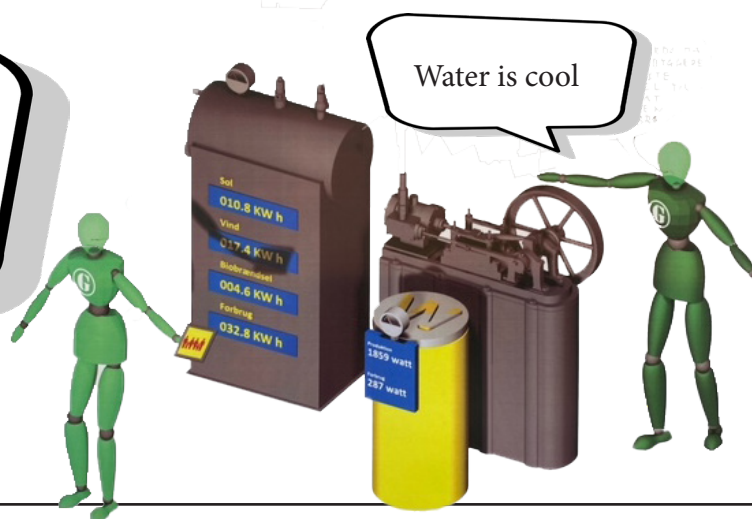
Required materials: ground pepper, a bowl of tap water(200 ml), liquid soap (half a teaspoon).

Experiment 4 "Hydrophobic substances"

Required materials: ground cinnamon, a glass of water.

HEY Greenie...

Did you know water covers 70 percent of the Earth's surface, but water represents just 0.05 percent of the Earth's total mass.



Activity guide:

During the first experiment, we will discuss which substances are soluble in water and which are not. first, stir the soil in water and try to scrub the water through a filter or toilet paper. thus, we get clear water again. we will also try to stir the sugar.

During the second experiment, we will try to get condensation. pour hot water into a glass, cover the glass with cling film and put an ice cube on the film. after a while you can see condensation, which will collect under the film and begin to drip down. this is how rain appears in nature.

-During the third experiment, we put pepper in water, then we put soap on the tip of our finger and lower it in water. we will see how the pepper floated to the edges of the water.

During the fourth experiments, we put cinnamon in water, and put our finger down, and noticed that the finger remained dry thanks to cinnamon.

Scientific explanation:

Experiment 1 "Dissolution of substances in water"

Many substances do not dissolve in water and that is because they are non-polar and do not interact well with water molecules.

Experiment 2 "Rain formation"

There is a change of state of aggregation. liquid water evaporates due to temperature and turns into steam. ice causes steam to turn back into liquid and condensate.

Experiment 3 "The surface tension of water"

Because the pepper is so light it just floats on top of the water. When the dish soap is introduced, the surface tension is lowered basically causing the bulging of the water to lower (or flatten) carrying the floating pepper to the outside.

Experiment 4 "Hydrophobic substances"

Cinnamon is a hydrophobic substance. So when you put your finger in the glass, the cinnamon will form a layer between you and the water and you will not get

Links:

<https://www.youtube.com/watch?v=oeOcfm9qDMI&t=38>

<https://www.youtube.com/watch?v=i-7YQXusDR0>

<https://www.youtube.com/watch?v=JbaScpYu8Vs>