

Erasmus + Project Day Weather Winter

Water, ice and melting pot

(Why we sprinkle in the winter salt on the streets)

Preparation:

Groups (4 children each):

For experiment 1: 4 ice cubes, 3 plates, 1 "potty", salt, sugar, pans + tea light + matches

For experiment 2: for each child 1 ice cubes + plate + thread, salt

For experiment 3: cup 1: filled with ice cubes + thermometer

Cup 2: filled with ice cubes from salt water + thermometer

Lesson planning:

1. Introduction (discussion group):

Percussion audio: from "Fidelio 3 westermann" 2007

3/4 Glatt - eis, ver - flix - tes Glatt - eis! (2-mal)

3/4 Vor - sicht, du musst lang - sam geh'n! (2-mal)

3/4 Ssssst - bop, schon pas - siert! (2-mal)

"Smooth ice-cold ice.

Be careful, you have to go slowly!

Sssst - bopp! Already happened"

Preconceptions:

1. What can you do in winter so that you do not slip on slippery ice?

- walk slowly
- to spread something: stones (split), sand ...salt

2. Give an ice cubes in the circle: What do you feel?

The ice is cold

Hands become wet → water

Preconceptions:

When ice melts, it becomes water ↔ when water freezes it becomes ice

Ice melts when it gets warm (here through the warm hands)

=> Question: Why does ice melt with salt - even if the salt is not warm?

=> Experiments

Experiments (group tables)

Experiment 1:

A few possible additional observations:

Ice Cube + Salt: The molten water tastes of salt

Ice cubes + sugar: The molten water tastes like sugar

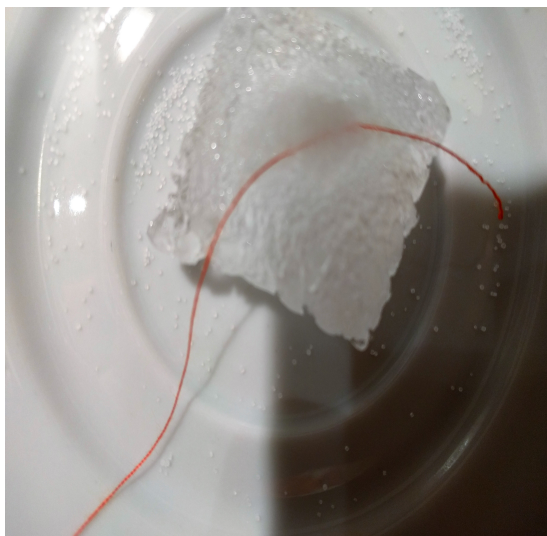
Salt / sugar "eats" holes in the ice cubes - looks great; The ice cube over the candle melts quite smoothly



Experiment 2:

(Works without the attached pencil, of course)

Needs some patience!



Experiment 3:



Children read the explanations independently:

Reflection with pupils / postconcepts (discussion group):

Ice + salt has a lower freezing / melting point

Salt dissolves in water

Some children were able to explain the reason for salting in the winter

Transfer question (page 2 below) almost succeeded all children

Reflection:

The entry into the topic was very close to the life of the children, as it was very smooth on the project day. In group 1, even in front of our window, to the entrance, the housekeeper scattered the schoolyard.

Tests 1-3 can run the same time, since waiting times must always be given. While waiting children can read the explanations on the reverse of the worksheet.

The children have done the experiments with great curiosity and care.

In experiment 1, they observed the ice cubes very closely and discussed a lot of possible changes in the experiment: for example: if the amount of salt / sugar is enlarged, does the ice cube melt faster?

Will sugar be as cold as salt is?

In Experiment 2, the children looked very closely at how the thread in the ice cubes lowered. It was very exciting, who found the right time to pull the ice cubes on the thread.

In experiment 3

Some children had to be told that the temperatures of ice + salt are below 0 ° C.

The children were very busy with the attempts and had in the approx. 20 minutes working time hardly time to record their observations on the worksheet. On a project day, this is quite okay, in the classroom it is certainly good to plan more time here.

Nevertheless, a change in the preconceptions could be made in this short unit. Since the worksheet provides the explanations on the reverse, the topic can also be deepened in the following teaching units.

The use of simple, everyday materials in the experiment set up the children to "reconstruct" it at home. Many wanted to show ice fishing at home to their parents.