Ice cream factory

Summary

Age category
6 - 8 years
Topic
Geometry
Measurement
Numbers & operations
Total duration
600 minutes

Students create their own ice cream.

Problem(s) to be tackled

How can we produce a healthy ice cream?

Real context

Real-world motivation

Many of the nice things that we eat are full of sugar that is unhealthy for us humans. Let us create a healthy ice cream of natural ingredients that both tastes good and is good for us. Can you help us create a healthy ice cream?

Goals

Skills

- Formulate and solve problems (M)
- Choose and use appropriate mathematical methods in order to solve a problem (M)
- Mathematical skills such as measurement (M)
- Identify and work out proposals for solutions (T, E)
- Create an ice cream (T, E)
- Geometric shapes/forms (M)
- investigate scientific concepts and test their own formulated hypotheses (S)

Knowledge

Mathematics

- Measurement
- quantitative comparison
- Volume
- Mathematical concepts such as quantity, weight, volume

Science

- Learning some characteristics of water: water cycle, surface tension
- Health in relation to food

stem4math

Co-funded by the Erasmus+ Programme of the European Union

- senses, taste, colour

Methodology

Part	Description	Timing
1	**Introduction** The teacher introduces the activity: A hot day... It would be nice to have a delicious ice cream! Can we make our own? What is ice cream made of? The key ingredient of ice cream is 'water'. Ask the students... 'Is water important?' and 'Why is water important?' Have the students write it down as a mind map. Discuss their answers.	60'
2	**The water cycle** This step and the next steps are about the specific properties of water like the water cycle and surface tension. As a teacher you can choose to skip immediately to step 9 and 10, in which inquiry, design, optimizition go hand in hand while creating ice cream. This step is about the water cycle. Let the students draw the water cycle. Watch a video about the water cycle.	60'
3	**Experiment: the water cycle** Together with the children you can do the experiment about the water cycle. (see downloads, experiment 1). Use the correct terminology for the phases (melting, condensation, evaporation)	60'
4	**Experiment: surface tension** Children experience the concept of surface tension. (see downloads, experiment 2)	60'
5	**Poster about the water cycle** Art/picture: Draw the water cycle and write down the facts.	60'
6	**The phases of water** The three phases of water. Introduction about the phases of water. Retell.	60'
7	**Experiment about the three phases of water** Worksheet: Experiment; The three phases of water; gas, liquid and solid.	60'

8	**How to measure?** Lesson about volume and how to weigh and measure.	60'
9	**Ingrediënts for ice cream** Lesson about ingredients: vitamins, nutrients in certain foodstuffs and the fruits and berries that will be used when making the ice cream. Discussion about healthy eating habits, fructose versus added sugar and being sugar smart.	60'
10	**Making Ice cream** Worksheet: We produce our own ice cream by using all the knowledge we have learned. We repeat the concepts in mathematics, science and technology. We produce sugar smart ice cream with only fructose and use water and watermelon as a base.	60'

Organization

Materials

Worksheet for students, movies, ice cream sticks, measuring cup, kitchen scales, plate, baking paper.

Grouping

Students will work in different group configurations (3, 4 or 5 in each group, depending on the size of the class) during this activity. When creating the ice cream, students will work in their Groups.

Coaching

Useful questions

- How can we make ice cream?
- Which ingredients are there in ice cream?
- What are the 3 forms in which water can appear?
- How do we call the transition from gas to liquid, from liquid to solid, from solid to liquid, ... ?
- Which ingredients are you going to use in your ice cream?
- What can you do to improve the taste of your ice cream? (change one thing at a time = fair inquiry)

Adaptations (abilities of age group, within the group, etc.)

Students will work based on their abilities, level-adjusted.

Assessment

Teacher’s assessment

The assessment will take place in a formative way during the course of the activity.

Student's assessment

Student questionnaire before and after.

stem4math

Co-funded by the Erasmus+ Programme of the European Union

Tips and tricks

Geometric shapes: We look at 2D and 3D shapes and compare. The children practise the ability to reflect and reason.

Draw the shapes by using a ruler.

stem4math

Co-funded by the Erasmus+ Programme of the European Union