

# Research games with ice cubes - using ice for artistic activity

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| <b>1</b> | <b>Overall aims:</b> <ul style="list-style-type: none"> <li>• Enriching knowledge about the properties of salt</li> <li>• Developing skills of critical thinking, observation, posing hypothesis and making inferences during experiments</li> <li>• Developing manual skills while fishing for ice cubes</li> <li>• Developing communication skills</li> <li>• Expressing emotions when painting with ice paints</li> </ul> |
| <b>2</b> | <b>Vocabulary - keywords</b><br>Ice, ice cubes, freezing, melting, challenge                                                                                                                                                                                                                                                                                                                                                 |
| <b>3</b> | <b>Sustainable abilities developed</b> <ul style="list-style-type: none"> <li>• Critical thinking competency</li> <li>• Collaboration competency</li> </ul>                                                                                                                                                                                                                                                                  |
| <b>4</b> | <b>Pillars of sustainability included</b> <ul style="list-style-type: none"> <li>• Socio-cultural</li> </ul>                                                                                                                                                                                                                                                                                                                 |
| <b>5</b> | <b>STEAM domains</b><br>S, E, A, M                                                                                                                                                                                                                                                                                                                                                                                           |



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## Teaching methodologies/activity outline

### Introduction

#### STEAM challenge 1 – Fishing for an ice cube!

Teacher prepares a glass with an ice cube floating in it, a string and different spices (salt, sugar, flour, pepper, etc.) - a set of materials for each child or team of children.

Problem: How can I get an ice cube out of a glass using a string and spices?

Note: We cannot pull it out with your hands / fingers. Children try to design a strategy.

Examples of this challenge can be watched here:

<https://www.youtube.com/watch?v=0kluwAtldq4>

### Main part

#### STEAM challenge 2 – Catch as many ice cubes as possible!

The teacher fills the bowl about 3/4 full with water, then adds ice cubes covering the top of the water. He prepares a long string (approx. 30 cm long) and salt.

Problem: What does it take to catch as many ice cubes with 1 string as possible?

Children try to design the strategy. Then we compare the results with each other - who managed to catch the most ice cubes? Who caught the least of them? What are the differences between the numbers - describe using the terms: how much more / how much less. The example can be found here:

<https://www.engineeringemily.com/fishing-for-ice-cubes-steam-activity-for-kids/>

#### Painting with ice cubes - winter landscape

The teacher prepares "ice" paints in advance or together with children: Pour water into an ice cube mold, then add food dyes, mix and put short ice cream sticks in each container. Note: If we want to create a winter landscape, when preparing the paints, you can add a different amount of blue dye, creating different shades. The description of preparing the ice-paints can be found here:

<https://www.easypeasyandfun.com/painting-with-ice/>

Freezing should take about 6-8 hours or overnight. Then we take out the prepared paints, secure the area where the painting will take place (note - the food dye will stain) and start playing. Note: Painting with "ice paints" can take place outdoors, e.g. in the kindergarten garden (on a warmer winter day). In this way, we minimize any damage caused by staining pre-school equipment with dyes from paints.

After painting and cleaning up the materials, the teacher asks the children to try to create a story based on their painting.

### Summary

Children present their stories - create an art exhibition.



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| 7  | <b>Expected learning outcomes</b><br><b>The child will be able to:</b> <ul style="list-style-type: none"> <li>• Explain in his own words what is needed to catch ice cubes;</li> <li>• Prepare "ice paints";</li> <li>• Create and art work using ice paints;</li> <li>• Create a story based on art work.</li> </ul>                                                                                                                        |
| 8  | <b>Assessment</b><br>Summary in a circle - unfinished sentences method: <ul style="list-style-type: none"> <li>- Today I found out ...</li> <li>- The most enjoyable activity was...</li> <li>- The most difficult thing for me was ...</li> </ul>                                                                                                                                                                                           |
| 9  | <b>Equipment and materials to be used in learning unit (tools, ingredients etc)</b><br>Water, ice cube molds, freezer, bowls, glasses/ cups, strings, spices: salt, sugar, flour, pepper, food colors, technical paper block                                                                                                                                                                                                                 |
| 10 | <b>Kind of setting - lab, kitchen, outdoor etc.</b><br>Preschool, garden                                                                                                                                                                                                                                                                                                                                                                     |
| 11 | <b>References - source:</b><br><a href="https://www.youtube.com/watch?v=0kIuwAtldq4">https://www.youtube.com/watch?v=0kIuwAtldq4</a><br><a href="https://www.engineeringemily.com/fishing-for-ice-cubes-steam-activity-for-kids/">https://www.engineeringemily.com/fishing-for-ice-cubes-steam-activity-for-kids/</a><br><a href="https://www.easypeasyandfun.com/painting-with-ice/">https://www.easypeasyandfun.com/painting-with-ice/</a> |

