



Ice Painting

In this package you'll find an engaging activity that you can do at home using materials found around your house! This activity focuses on the three states of matter: solids, liquids, and gasses. We hope you enjoy the activity and are awed, inspired and enlightened.

PROGRAM BASICS



I. ICE PAINTING (Time: 25 minutes (active time))

Children will create and use coloured ice cubes to explore changes in states of matter from solid to liquid and to explore the ways that colours mix to create new colours.

I. WAX RESIST PAINTING (Time: 25 minutes (active time))

Children will create and use coloured ice cubes to explore changes in states of matter from solid to liquid and colour mixing. They will also explore the way that wax repels water-based pigments and create a wax resist painting.

CURRICULUM CONNECTIONS – SCIENCE AND TECHNOLOGY

Grade 2 - Students will explore the properties of solids and liquids and changes of state (i.e. freezing and melting).

Grade 5 - Students will observe the commonly found states of matter (solids, liquids and gasses) and the characteristics of each.

CURRICULUM CONNECTIONS – VISUAL ARTS

Grade 1, Grade 2 and Grade 3 - Students will develop an understanding of some elements of design - line, shape, and colour.

ICE PAINTING

(Activity Time: 25 minutes (active time))

Children will create and use coloured ice cubes to explore changes in states of matter from solid to liquid and to explore the ways that colours mix to create new colours.

Materials

- Ice cube tray
- Food colouring
- Tap water
- Freezer
- Paper/Cardstock
- Popsicle Sticks (Optional)

Pre Activity Set Up

Fill each ice cube tray $\frac{3}{4}$ full of water. Ask the children to add 3-4 drops of food colouring to each ice cube tray. Encourage them to create a range of colours. Place the popsicle sticks into the ice cube trays and place in the freezer overnight. On the day of the painting, have an area set up where you can start painting. Wear clothes you don't mind getting dirty. Set up a tablecloth or a tray that you can paint on.

Instructions

Introduction

Take the ice cube trays out of the freezer. Ask the children what they noticed about the ice cube trays after they've been in the freezer overnight. Explain the three states of matter:

- Matter usually has one of three states: solids, liquids, and gasses
 - o Solids have a stable shape and you can't compress it without breaking it. Like the ice.
 - o Liquids take on the shape of their container but you can't compress it. If you filled a plastic bottle all the way up with water you couldn't crumple the bottle.
 - o Gasses take on the shape of their container and you can compress/squeeze gasses. You can crush an air-filled plastic bottle because gasses can be compressed.

Development

The ice cubes should have melted slightly and are wet enough to paint with. Gently run the ice cube over the paper. It will melt across the page and leave a smear of pigment.

Children can create a picture using different colours and observe what happens when the colour mix. Ask the children about how the ice cubes feel compared to the paper. Is the ice cube colder or warmer than the paper? When the children are happy with their painting return the ice cube tray to the freezer for another day. As the paint dries, ask the children to observe where the paper feels dry and where it is still damp.

Conclusion

This activity lets children explore all three main states of matter: solid ice, liquid paint and gaseous water vapour (as the painting dried). Spend a moment to review the three states and their transitions: When a liquid turns into a solid, we call that freezing. When a solid turns into a liquid we call that melting and when a liquid turns into a gas it's called evaporation. When gas turns back to liquid we call it condensation. Ask the children if they've observed those changes in states of matter in every day life (e.g. weather, iced drinks, etc.)

WAX RESIST PAINTING

(Time: 25 minutes (active))

Children will create and use coloured ice cubes to explore changes in states of matter from solid to liquid and colour mixing. They will also explore the way that wax repels water-based pigments and create a wax resist painting.

Materials

- Ice cube tray
- Food colouring
- Tap water
- Freezer
- Paper/Cardstock
- Wax crayons (including white)
- Popsicle Sticks (Optional)

Pre Activity Set Up

Fill each ice cube tray $\frac{3}{4}$ full of water. Ask the children to add 3-4 drops of food colouring to each ice cube tray. Encourage them to create a range of colours. Place the popsicle sticks into the ice cube trays and place in the freezer overnight. On the day of the painting, have an area set up where you can start painting. Wear clothes you don't mind getting dirty. Set up a tablecloth or a tray that you can paint on.

Instructions

Introduction

Before creating your wax resist have a discussion about some of the elements of art: line, shape and colour.

One element of art is **LINE**. A line is a mark made using a drawing tool or brush. Can you describe a line for me?

- *Curved, vertical, horizontal, diagonal, zig zag, straight*

A second is **SHAPE**. A shape is something that is flat (2D). Can you give me an example of a shape?

- *Circle, square, rectangle, diamond, star, oval*

A third element of art is **COLOUR**. Can you give me an example of a colour?

- *Red, blue, orange, purple*

Development

Take the ice cube trays out of the freezer. Ask the children what they noticed about the ice cube trays after they've been in the freezer overnight. Review the three main states of matter: solids, liquids, and gasses

Ask the children to use wax crayons to create lines and shapes in different colours. Make sure that they press hard to apply a thick layer of wax.

The ice cubes should have melted slightly and are wet enough to paint with. Gently run the ice cube over the paper. It will melt across the page and leave a smear of pigment. However, where the wax crayon will repel the water and will not absorb the pigment creating a wax resist.

When the children are done painting, return the ice cube trays to the freezer for another day.

Conclusion

Ask the children what they noticed about the wax crayon after they painted over it. Once the painting is dry they might be able to wipe the paint off of the wax parts to make the crayons stand out even more.

Explanation

Water is a “polar molecule”, this means that one side of the H₂O molecular has a weak positive charge and the other side has a weak negative charge. The positive and negative charges are attracted to one another and that makes water molecules stick together really well. Wax molecules are not polar. Polar and non-polar substances do not mix easily and so the solid wax resists the liquid water.