

Freezing/Melting Lesson Plan

Materials:

Part 1:

Changing Matter Worksheet

Part 2:

Measuring cups

Measuring spoons

Paper Towels

~½ cup Half & half cream

~1 Tbsp Sugar

~1 Tsp Vanilla Extract

~Mint Extract

Chocolate Chips

Maple Syrup

1 Ziploc bag

1 Large Container

Ice

Salt

Spoons

Bowls

Objective:

Review states of matter. To experiment with solids and liquids to create a new (and yummy!) mixture.

Intro (together, 5 minutes)

I'll ask the kids about different states of matter (sticking to solid, liquid and gas). Put some ice in 2 cups and measure the temperature. Add salt to 1 cup. Ask what will happen to mixtures and temperatures if we leave it there.

Worksheets/discussion (groups, 5-10 minutes)

Break into groups and fill out the worksheets. Ask students if the items could be turned into other states of matter, and if so, how (yes, by

heating/cooling). What temperature do they think these things would happen. Important one is cream. Explain that it is mostly water and we can expect its boiling point and freezing point to be 100C and 0C (212 and 32 F).

Effect of Salt Demo (together, 5-10 minutes)

Bring kids back together to see what happened to our two glasses of ice. Discuss the degree of melting and the measured temperatures. Ice should have melted more with salt, and be colder. Explain that salt makes ice want to be water, melting ice takes energy, lowering the temperature of the ice/water.

Can we use this for something? Yes! We can use salt and ice to freeze water (or cream in our case).

Ice cream making (groups, rest of time)

Half-fill a large container with ice
Add ½ cup of salt and shake up a bit

Half-fill a plastic cup with cream
Add 1 tbsp sugar and 1 tsp vanilla and stir
→For mint chip, replace vanilla with mint extract and add some chocolate chips
→For maple, add only 2 tbsp of maple syrup
Pour mixture into a small Ziploc bag.

Place Ziploc bag inside the coffee can and close.
Shake the can for ~10 minutes. Students can take turns shaking.
Remove the small bag.
Open the small bag and spoon mixture into bowl or turn bag inside out over bowl if it is frozen stuck.
Enjoy ice cream.

...If there is still time and supplies, feel free to make a batch of a different flavor. My personal favourite was the maple.