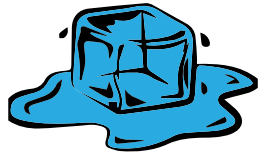


# JR-ENGINEERS

## DON'T LET THE ICE MELT



### ENGINEERING CHALLENGE #1

#### WHAT MAKES ICE MELT FASTER?

In this experiment, you will investigate what makes ice melt faster, by adding several different solids to your ice.

**Supplies:** Ice cubes, muffin tin, jars or containers, various solids: salt, sugar baking soda, sand or dirt etc., stopwatch or clock

**Time Constraint:** 30 minutes (or more if time allows)

Add 4-5 ice cubes to 6 cupcake cups. Make sure the same amount of ice is in each one. Add 3 tablespoons of each solid to each one. Set the timer to check back on the ice cubes every 10 minutes over 1/2 hour and record your results.

**Extend the challenge:** Use a timer and record how long it took each material to melt the ice. Record the results. Try adding solids of your own choice and record that data too. Now, turn the data into a graph!

#### Questions for Reflection:

What caused the ice to melt fastest?

If you could use or add a different material what would you choose?

How quickly can you melt a pile of ice cubes?

# JR-ENGINEERS

## DON'T LET THE ICE MELT



### ENGINEERING CHALLENGE #2

#### HOW QUICKLY CAN YOU MELT ICE?

In this experiment, you will explore how quickly you can melt a pile of ice cubes! At what temperature does ice melt?

**Supplies:** Ice cubes, plates, paper towels

**SUGGESTED ITEMS:** Salt, cloth, paper, small plastic containers

**Time Constraint:** 30 minutes (or more if time allows)

Give each kiddo or group of kids the materials which include paper towels and a specific number of ice cubes on a plate. Encourage the kids to use the materials to try and melt the ice quickly!

Extend the challenge: Use a timer and record how long it took each kiddo or group of kids to melt the ice. Record the results. Try two more times and record that data too. Now, turn the data into a graph!

**Questions for Reflection:**

**What worked and why?**

**What you would do differently the next time?**

**Did you record any unexpected results?**

# JR-ENGINEERS

## DON'T LET THE ICE MELT



### ENGINEERING CHALLENGE #3

#### HOW DO YOU KEEP ICE FROM MELTING?

In this third experiment, you will investigate with how you can keep ice from melting. Instead of seeing how fast ice melts, let's try to keep it cool instead!

**Supplies:** Ice cubes, small zip-top bags, small plastic containers  
Check out the recycling bin, junk drawer, garage for materials.  
(Aluminum foil, packing peanuts, felt, fabric, craft foam, cotton)

**Time Constraint:** 30 minutes (or more if time allows)

Brainstorm the best materials available to keep the ice from melting. Decide what materials or combination of materials you want to use to keep your ice cubes from melting by insulating them! Create one or more insulated containers to test your ideas. Place all the containers in a cool dry place away from a heat source or direct sunlight. Check your containers every 10 minutes.

**Extend the challenge:** Choose one thing to change such as a smaller or larger container or a larger or smaller ice cube.

#### Questions for Reflection:

Think about what materials worked best and why.

How can you improve your results?





# JR-ENGINEERS

## ICE MELTING CHALLENGES

Learn about The Scientific Method! Record your results!



Material: \_\_\_\_\_ Time: \_\_\_\_\_

Observations: \_\_\_\_\_



Material: \_\_\_\_\_ Time: \_\_\_\_\_

Observations: \_\_\_\_\_



Material: \_\_\_\_\_ Time: \_\_\_\_\_

Observations: \_\_\_\_\_



Material: \_\_\_\_\_ Time: \_\_\_\_\_

Observations: \_\_\_\_\_



Material: \_\_\_\_\_ Time: \_\_\_\_\_

Observations: \_\_\_\_\_