



# LESSON: Hot or Cold Feet?

## Episode: "Snowy Jamaica"

Franny travels to the sandy beaches of Jamaica, where she meets up with her friend Johnny. When Franny learns that Johnny has never seen snow, she goes to great and imaginative lengths to help him experience it. They make snowflakes out of paper and make a snowman on the beach. Along the way, Franny learns that using her imagination can take her anywhere she wants to go. In *Franny's Treasures*, Franny and Bobby help viewers learn about snowflakes and have fun with snowmen.

### Learning Objectives/Skills

#### Children will:

- \* **demonstrate an understanding of the words hot and cold.**
- \* **make predictions about what will happen to an ice cube when it's removed from its cold environment.**
- \* **observe and describe how an ice cube changes at room temperature.**
- \* **use fine motor skills and creative thinking to make a picture of a sandman from various materials.**

### Grade

**PreK - 2nd Grade**

### Subject

**Physical Science**

### National Standards

**NS.K-4.1, NS.K-4.2, NS.K-4.4,  
NS.K-4.6**

### Approx. Times

**45 minutes  
(Plus 20 minutes prep)**

## Overview

Climate is the average weather for a geographic area over an extended period of time. Some climates never get cold enough for ice and snow to form. Other climates never get hot enough for ice and snow to melt. Many familiar things around us can be described as hot or cold; people can feel hot or cold, weather can be hot or cold, even things can be hot or cold -- a cup of tea, a popsicle, or an oven. We use temperature as an indicator to tell us how hot or cold something is. We can do this by using a thermometer. There are many different kinds of thermometers, and while they may visually represent the temperature in different ways, it remains constant

that something with a high temperature is hot and something with a low temperature is cold.

In these activities, children will participate in a discussion and game about hot and cold using the word "temperature." Looking at visuals of thermometers and using their bodies to act out differences in temperature, they will become familiar with the idea that something with a high temperature is hot and something with a low temperature is cold. They will make predictions about what will happen to an ice cube when it is removed from its cold environment. They will make observations about the size, shape, and feel of frozen water, and how that size, shape and feel changes when the ice cube begins to melt. Finally, the children will make a "snowman" out of sand (just like Franny and Johnny made in Jamaica) that can survive any climate.



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## Materials

### Classroom materials:

- Pictures representing hot and cold things
- Example of a thermometer (digital or mercury)
- Drawing of a mercury thermometer displaying a high temperature
- Drawing of a mercury thermometer displaying a low temperature
- Ice cubes in bowls
- Paper towels
- Glue (white glue or glue sticks)
- Crayons
- Bowls of sand (Optional: colored craft sand or regular sand with some glitter mixed in)
- Bowls of spare craft supplies to use as the sandman's eyes, nose, and mouth (buttons, small shells, bits of construction paper, fabric or yarn)

### Each child will need:

- Franny and Johnny sandman template photocopied on card stock

## Prep

## Introduction

- Draw two mercury thermometers, one that represents a hot or high temperature and one that represents a cold or low temperature. Draw them on large pieces of paper or on the chalkboard.



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## Prep (continued)

### Activity 1:

- Cut out images (pictures or photos) depicting hot and cold items from magazines or printed from the internet.

### Activity 2:

- Freeze the ice cubes and place in bowls.
- Set up the ice cube experiment/craft workspace so that children can sit in small groups at tables. Have paper towels on hand.

### Activity 3:

- Photocopy Franny and Johnny sandman template on card stock (one for each child).
- Gather craft supplies, including crayons, glue, and bowls of sand, and craft materials for faces, into the bowls. Set aside supplies to be set up in craft workspace after ice cube experiment is complete.





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## Introduction

1. Lead children in a discussion about hot and cold. Ask children to give you examples of some things that feel hot and some things that feel cold. Ask:
  - *Has anyone heard the word "hot"? Can you name some things that feel hot?*
  - *Has anyone heard the word "cold"? Can you name some things that feel cold?*
2. Explain to the children that a thermometer is one way that people can measure how hot or cold something is. Show them an example of a thermometer. Ask them to repeat the word "thermometer."
3. Introduce the word "temperature," explaining that a thermometer measures something called temperature. Have them repeat the word "temperature."
4. Introduce the two thermometer drawings. Ask the children if they can guess which one is depicting a high temperature and which one is depicting a low temperature. Help the children make the connection between the level of mercury in the drawing and how hot or cold the temperature is. Ask:
  - *Temperature tells us how hot or cold something is, which one of these thermometers do you think is showing us a high or hot temperature? Which one is showing us the low temperature? How do we know?*
5. Use the thermometer drawings to further expand on the idea that something with a high temperature feels hot and something with a low temperature feels cold. Invite the children to act out feeling hot (fanning themselves) or feeling cold (shivering) depending on which thermometer you point to. Ask:
  - *When I point to the thermometer with the hot temperature can you act out feeling hot?*
  - *When I point to the thermometer with the cold temperature can you act out feeling cold?*





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## Activity 1 - Ice Cube Experiment: Predictions and Observations

1. Lead children in a discussion about things inside their home that are cold. Ask:
  - *Who has a refrigerator at home?*
  - *Do you also have a freezer?*
  - *Can you describe what it feels like when you open the freezer door?*
  - *What things might you find inside a freezer?*
2. Children may suggest ice as something that can be found inside a freezer. Explain that ice forms at low temperatures. Reference the thermometer drawings.
3. Guide children through making connections between the words hot and cold and the idea of high and low temperature. Children should understand that the temperature in the room is much higher than the temperature in a freezer. Ask:
  - *If ice forms at very low temperatures, does that make ice hot or cold?*
  - *Does this room feel like the inside of your freezer?*
  - *Is this room hotter or colder than the inside of a freezer?*
4. Pass out bowls with one or two ice cubes in each to small groups of children seated at tables. Use the following questions to help the children make predictions.
  - *I have some ice in this bowl. What do you think is going to happen to it in this room that is hotter than the cold freezer that it came from?*
  - *What do you notice about the look and feel of the ice at this point in time?*
  - *What shape is the ice?*
  - *What do you think will happen to the ice when left out at room temperature?*
  - *How do you think the shape will change?*
5. After discussing and observing, leave the ice cubes in their bowls and move on to Activity 2. You will come back and observe the changes that have taken place in Activity 3.



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## Activity 2 - Hot or Cold Game

1. Invite the children to stand up and move into an open space in the room.
2. Tell the children that they are going to play a hot and cold game. Show them one of the images you've gathered from the magazines. Ask the children to decide whether the picture represents something hot or cold. If they think it represents something hot, they are going to jump up high because hot things have a high temperature. If they think it represents something cold, they are going to crouch down low because cold things have a low temperature.
3. Ask the children to practice jumping up high and crouching down low.
4. Hold up each of the hot and cold pictures individually and identify them. Invite the children to think broadly about the different kinds of things that can represent hot and cold (for example, a stove, a day of swimming at the beach, ice cream, a ski slope, etc.). Prompt them to jump or crouch as you flip through the images.
5. The game is concluded after the children have identified each picture as either hot or cold.
6. Tell the children that they are now going to return to the experiment workspace.



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### Activity 3 - Ice Cube Experiment: Observation of Physical Changes

1. Invite the children to observe the ice cubes again. Ask:
  - *Now that the ice has been out of its cold environment for several minutes, what do you notice starting to happen to the ice?*
  - *Are the ice cubes getting bigger or smaller?*
  - *Does anyone notice what the ice is turning into?*
2. Prompt the children to observe that the ice is turning into water because the temperature is greater in the classroom than in the freezer. Explain that ice and snow both form when water gets very, very cold.
3. Remove the melted ice cube bowls from the tables and ask the children to stay seated while you introduce the next activity.



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## Activity 4 - Make a Sandman

1. Refer to the "Snowy Jamaica" episode to introduce the idea of climate. (A climate is the typical weather you can expect to experience in the place you live). Ask:
  - *Did Johnny live in a hot place or a cold place?*
  - *Does this mean that Johnny lives in a hot climate?*
  - *What kind of climate do we live in? What kind of weather do we experience throughout the year?*
2. Explain that some places never get cold enough for snow to form -- places like Jamaica, where Johnny lives. Other places are cold and covered in snow, and it never becomes hot enough for the snow to melt. Tell the children that different places like these are called climates. Someone who lives in a hot climate like Johnny might never see snow.
3. Tell the children that they are going to make a "snowman" that they can keep in both hot and cold temperatures. Ask:
  - *Does anyone remember what Johnny and Franny used to make their "snowman"?*
  - *Would someone who lives in a hot climate like Johnny get snowy weather?*
4. Set out bowls of sand and spare craft materials, glue sticks, and crayons. Each child should have a Franny and Johnny template printed on card stock in front of them.
5. Prompt the children to color in their templates.
6. Once they have colored their templates, ask the children to spread glue on the snowman outline on their templates.
7. After the children have applied the glue to the template, ask them to sprinkle the sand over the glue until it is completely covered.
8. Prompt them to shake the excess sand into the bowl.
9. Invite the children to be creative. Ask:
  - *What spare materials could you use for eyes, a mouth, and a nose?*
10. Encourage the children to give the sandman a face, using the craft materials and glue.
11. Challenge the children to name their sandman.



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## Science Extensions

Extend the ideas of temperature and climate. Track the temperature over a period of time. Encourage the children to watch how the temperature and weather change from one time of year to the next.

1. Place a thermometer just out of the window so you can read it.
2. Record the temperature by coloring in a paper thermometer each day with a red marker or crayon. Display the thermometers side by side in chronological order. As the days and weeks pass, the thermometers will form a simple bar graph. Ask the children:
  - *Does the level of red color stay constant from day to day or is it going up and down?*
  - *Is the temperature going up or down gradually or are there sharp peaks and valleys?*
  - *What can this thermometer bar graph tell you visually?*
3. Create a weather station in your classroom and ask the children to describe the weather and record their findings. If multiple children are involved, assign a weather girl or boy each day to help you take the thermometer reading. Announce the temperature and chart the weather.
4. Take your children on a weather exploration through your neighborhood during each of the different seasons. Prompt the children to make observations about the changes in weather from season to season:
  - *Use your nose. Can you recognize the smell of fallen leaves in the crisp autumn air?*
  - *Can you feel stickiness on your skin in the humid summer months?*
  - *Use your ears. Do new seasons bring new sounds? Listen for chirping birds in the spring or the sound of snow under your feet in the winter.*
  - *Use your eyes. Look for evidence of animals that only come out at certain times of the year. Can you find animal tracks or spot any squirrels scurrying about?*
  - *What types of shoes do you wear in different weather?*





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## Literacy Connections

- ***Weather Words and What They Mean***, by Gail Gibbons
- ***Temperature: Heating Up and Cooling Down***, by Darlene R. Stille and Sheree Boyd
- ***The Reasons for Seasons***, by Gail Gibbons

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