Grade 1

At Home Learning

The learning this week will focus on a cross-curriculum approach in Reading/Writing, Mathematics and Science. The student is expected to predict and identify changes in materials caused by heating and cooling.

The learning focus for Social Studies will be a review of citizenship, responsibility, and time. Students will use those skills learned in Reading/Writing and Mathematics to complete these activities.

It is recommended that each day students spend 20 minutes reading independently, spend 30 minutes on the cross-curricular materials (Science, Math, Reading/Writing) and spend 15 minutes on the Social Studies materials.

Materials provided by district resources: STEMscopes and Studies Weekly.
Changes from Heat

Sometimes you feel too hot. Sometimes you feel too cold. How do you cool off? How do you warm up?

Take another look at these pictures. How does the fire change the wood? How does the fire change the food? How else can heat change things?

Adding heat causes melting and evaporation. What happens if you add heat to ice? The ice melts. It changes from a solid to a liquid.

What happens if you add heat to water? The water boils and evaporates. When water evaporates, it changes from a liquid to a gas. The gas rises into the air.

Adding heat also changes texture. Texture is how rough or smooth something feels. Ice may be bumpy or rough. Adding heat melts the edges and creates smooth water. Evaporation can change a lake bottom from smooth mud to rough, cracked soil.
What Do You Think?

Heat changes things in other ways. What did heat change in these things? Fill in the blanks with these words: color, size, or shape.

The burner changed ___________.
The popcorn changed ___________.
The candy changed ___________.

Look Out!

When we cool something, we take away heat. Water freezes when heat is removed.

Cooling changes things. Taking away heat freezes liquids. When a liquid freezes, it becomes a solid. Freezing gives liquids a shape.

How else can cooling change things? Red-hot objects are not red after they cool. Also, removing heat from smooth water can make ice cubes with rough edges. That means cooling something can change its shape and texture.

Cream mixed with sugar is runny. It turns into solid ice cream when it cools.
The person is making a horseshoe. It will turn black when it cools.
Changes from Heat

Though we do not notice it, this bridge changes shape as it heats up and cools down. Why is it not damaged as it changes?

Discover Science: Changing Bridges

Metal things get slightly bigger as they get hotter. They get slightly smaller as they cool. A metal bridge has a different size and shape on a hot day compared to a cool day. People who design bridges understand this. They add gaps around the metal pieces. Each piece has space to get bigger as it heats up.

Hot lava flows out of volcanoes. As it flows, it cools down also.

This picture shows both hot and cool lava. Write cool next to the arrow pointing to the cool lava. Write hot next to the arrow pointing to the hot lava.

Which property did you use to make your decision? Did color help you?
### What Do You Think?

#### What Do You Know?
What happens to each of the following objects when you add or remove heat? Write your answers in the boxes beside the pictures. Use these words:

- dry out
- freeze
- get smaller
- melt

<table>
<thead>
<tr>
<th>If you:</th>
<th>It will:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add heat to ice cream</td>
<td></td>
</tr>
<tr>
<td>Add heat to a wet towel</td>
<td></td>
</tr>
<tr>
<td>Remove heat from water</td>
<td></td>
</tr>
<tr>
<td>Remove heat from a metal rod</td>
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</tbody>
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Changes from Heat

Connecting With Your Child

Heat and Air

In this investigation, you and your child will study the way that air can expand and contract when heat is added or removed. You will need these materials: an empty, plastic water or soda bottle (about one pint); a freezer; and a hot water tap. The less rigid the bottle is, the better.

Begin by explaining that the empty bottle is not really empty because it is full of air. Explain that air is made of extremely small moving particles. As these particles are heated, they move faster. As they are cooled, they slow down.

Follow this procedure to complete the investigation:

1. Put the cap on the bottle, and ask your child to squeeze it. Your child will not be able to crush the bottle because it is full of air.
2. With the cap still on, turn on the hot water tap and hold the bottle under it for one minute. Ask your child to try to squeeze the bottle again. It will be even harder to squeeze the bottle because the air inside expands when you add heat to it. (That is, the particles move more quickly and therefore are farther apart.) For further proof, undo the cap and listen to the air rushing out.
3. Put the cap back on the bottle, and put the bottle in the freezer. Ask your child to predict what will happen to the bottle in the freezer.
4. Remove the bottle after 30 minutes, and ask your child to explain why it changed shape. (Air contracts when heat is removed. The particles slow down, and therefore they cannot move as far apart.)
5. Finally, have your child hold out his or her hands, palms up, and explain that you are going to pour cold air onto them. Remove the bottle cap and tip the bottle as you would when pouring water into someone’s hands. Your child will feel the cold air on his or her palms. Explain that you were able to “pour” the air because cold air is heavier than warm air.

Here are some questions to discuss with your child:

1. Can you name something else that changes size when heat is added or removed?
2. What do you think would happen if we filled the bottle with water and put it in the freezer? (Explain that water, like air, is made up of extremely small moving particles.) Although things usually shrink when they cool, water is unique in that the particles align to make a larger volume overall when it becomes solid. This is more detail than you need to provide to your child, but you can discuss that water is different from other materials for that reason.
Draw and label three different changes from heat in your comic strip in the boxes below.
Complete the cause and effect boxes below. Draw and label what caused the change and what happened.

**Cause**
What made it happen?

**Effect**
What happened?
Heating an object may cause it to melt or evaporate. Cooling an object may cause it to freeze. When left out of the freezer, ice cream will melt. The graph below shows the time it took each flavor of ice cream to melt when it was left out on the counter.

**Ice Cream Melting Time**

<table>
<thead>
<tr>
<th>Flavor</th>
<th>Time (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vanilla</td>
<td>3</td>
</tr>
<tr>
<td>Chocolate</td>
<td>4</td>
</tr>
<tr>
<td>Mint</td>
<td>5</td>
</tr>
<tr>
<td>Cherry</td>
<td>4</td>
</tr>
<tr>
<td>Strawberry</td>
<td>2</td>
</tr>
</tbody>
</table>

1. How long did the mint flavor take to melt? __________ minutes

2. Order the flavors of ice cream from the one that melted the slowest (smallest number) to the one that melted the fastest (largest number):

   __________   __________   __________   __________   __________   __________

3. Which ice cream took only 2 minutes to melt? ______________

4. How many minutes does each line represent? _________ minutes

5. Which two flavors of ice cream took 5 minutes to melt? _______________ and _______________
LOOK at this picture:

THINK about the boy eating ice cream on a hot day. What would happen if the ice cream scoop fell off the cone?

WRITE what would happen when the ice cream hit the ground. Does its color change? What about its shape?

Notes
Let’s Review...

- Good Citizens
- Responsibility
- Time

What are some rules at school? Do you have a classroom rule about staying in your seat? Rules keep us safe at home and at school.
Let’s Review...

Good citizens make a pledge to their country and state. When you say the pledge, you are making a promise to be loyal to your country.

Write the name of the flag above each picture. Then draw a line from each pledge to the correct flag.

I pledge allegiance to the flag of the United States of America, and to the republic for which it stands, one nation under God, indivisible, with liberty and justice for all.

Honor the Texas flag; I pledge allegiance to thee, Texas, one state under God, one and indivisible.

Practice reciting the pledges with a partner. What do you think these pledges mean?

Good citizens are responsible. Good citizens respect others by following rules.

Talk with a partner about each picture. Circle the pictures of good citizens.
Circle **yes** if the sentence tells something that is correct. Circle **no** if the sentence tells something that is **not** correct.

1. If you see someone who is being bullied, you should ignore it and not help.
   - yes   no

2. You should tell an adult if you see someone being dishonest.
   - yes   no

3. It is wrong to make fun of people and hurt their feelings.
   - yes   no

4. Good citizens never keep a promise.
   - yes   no

5. Following rules will help keep you safe.
   - yes   no

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**My Daily Timeline**

Draw a picture to show what you do at each time of the day.

- 9:00 a.m.
- 1:00 p.m.
- 5:00 p.m.
In the boxes below, draw a picture of something that happened, is happening or will happen to you.

Past | Present | Future
--- | --- | ---

Read each sentence. Circle past, present or future to show what the sentence is about.

1. Anna wants to be a police officer when she grows up.
   past          present          future

2. Jack’s family went camping last July.
   past          present          future

3. Our class is reading Studies Weekly today.
   past          present          future

Tell a Story
Tell your friend a story. It can be a story you have read or a story you make up. Try to use words like these: first, next, then and last. You can use the days of the week and the months of the year, too.