Alice B. Beal Elementary School

Hi, Beal Students and Families!

The schedule below will help you with your daily work. Have fun learning!

Remote Learning Lessons for Grade: Science Grade 4 Week 11	
Week of: 6/15	
Tasks:	**Monday**
Video	https://mysteryscience.com/energy/mystery-6/electrical-energy/37?code=MTY5OTU3MDA&t=student
Questions	**How long did it take to travel across the country before cars and planes?** In this Mystery, students explore how heat is another form of energy that can make things go. In the activity, Heat Spinner, students first make a paper Heat Spinner and observe how air can create movement. Then, students use their Heat Spinners to experiment with a heat source (an incandescent bulb) and discover how heat energy can make the spinner move in different ways.
Activity	1. **Watch mystery answering questions as you go.** 2. **Experiment: Do the experiment taking pictures as you go if you have the equipment. If you need to improvise please do. You need: lamp, push pins, ruler, scissors, paper cups, pencil with eraser, pipe cleaners, rubber bands, light bulbs,** 3. **Follow the mystery with the instructions of the activity.**
Tasks:	**Tuesday**
Video	https://mysteryscience.com/energy/mystery-7/heat-energy-energy-transfer/268?code=MTY5OTU3MDA&t=student
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Activity	1. **Today, we will investigate how heat can be used to make things move. This simple idea led to the invention of steam engines and a revolution in human transportation! Students will create their own simple heat engines and tested different heat sources.** 2. **You can support your child's learning by watching videos of some of the few steam locomotives still in operation (http://safeyoutube.net/w/qwPd). Ask your child: how do these trains get energy to move?** 3. **Watch mystery and answer questions as you go.** 4. **Experiment: Do the experiment taking pictures as you go if you have the equipment. If you need to improvise please do. You need: lamp, push pins, rulers, scissors, paper cups, pencils with erasers, pipe cleaners, rubber bands, light bulbs, handouts, end-of-mystery assessment.** 5. **Prepare Push Pins (Optional): Push each push pin into the eraser of a pencil. This makes the push pins easier for students to handle.** 6. **Prepare the Worksheets: Cut each "Get to Know Your Spinners" printout on the dotted line. Each student needs a half sheet. Cut each "Heat Spinners" printout on the dotted line. Each pair of students needs a half sheet. Cut the "Do Not Touch the Light Bulb!" printout on the dotted line to make two signs. You need one sign for each Experimental Station with a lamp.** 7. **Watch Our Video for An Important Tip: Watch this video and notice when the spinner moves and when it stops. The spinner moves because rising hot air pushes on it. That rising air has to come from somewhere. In the video, the spinner moves when there's a gap between the heat source and the cup. Cool air moves through this gap and replaces the rising hot air. This is called the "chimney effect," and it can make a big difference in how much the spinner moves. We like to use a lamp because students usually don't set the cup directly on top of the heat source. If you use a gel pack or some other heat source, be aware that closing off the bottom of the cup completely can stop the circulation of air and therefore the movement of your spinner.** 8. **Follow the mystery with the instructions of the activity.**
Tasks:	**Wednesday Must Do**
Video	**StemScopes: Content Connections Video-Sea Creatures.**
Questions	**What are some of the strangest animals?**
Activity	1. **Log onto StemScopes through the Student Applications.** 2. **Go to Assignments.** 3. **Click on Content Connections Video-Sea Creatures.** 4. **Watch video and pause when it asks you questions and discuss the answers.**

	5. Watch video answering questions as you go. **6. Answer questions using video** **7. Turn in when finished**

I have posted a list of websites on the bealelementary.org page. Please choose activities that your child would like to explore. Please pick an activity from the list to do with your scientist each day that you don't do an assignment. Have fun and stay curious.

Get to Know Your Spinner

Name:_____

1. Working with your partner, set the cup on the desk. Try these experiments and write down what happens. Does the spinner wobble? Spin? Do nothing at all?

   1a. Breathe gently on your spinner from one side. What happens? _____
   1b. Blow gently down on your spinner from straight above. What happens? _____
   (If the spinner falls off the pin, don't blow as hard.)
   1c. Talk to your spinner. What happens? _____
   1d. Fan the spinner with your hand. What happens? _____

2. Now you are going to pick up the cup VERY carefully. It takes skill to pick up the cup without knocking off the spinner. Once you can do that, try these experiments.

   2a. Lift the cup straight up. What happens? _____
   2b. Lower the cup straight down. What happens? _____
   2c. Have your partner hold the cup while you blow upwards into the cup. (This is tricky!) What happens?
   _____

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MYSTERY science
Energizing Everything | Mystery 7

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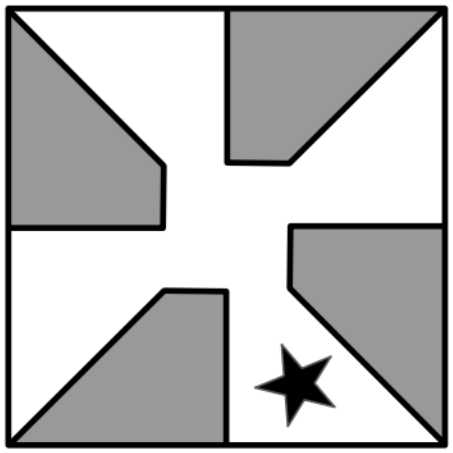
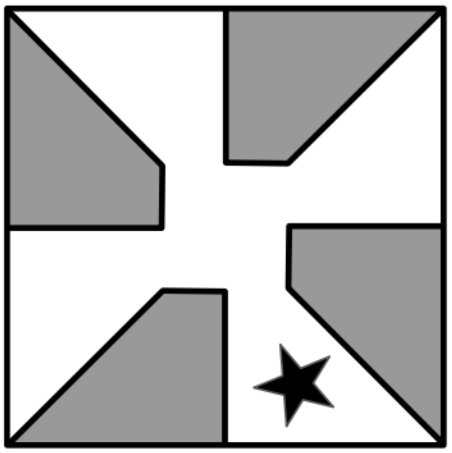
Heat Spinners

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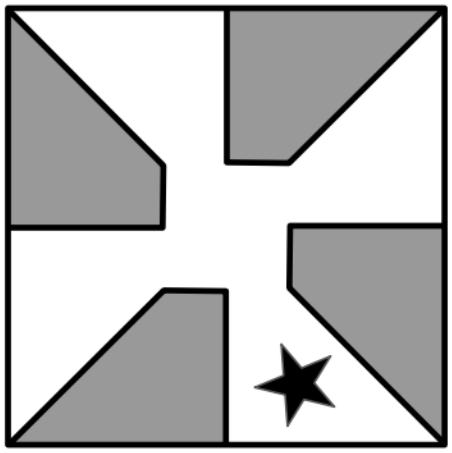

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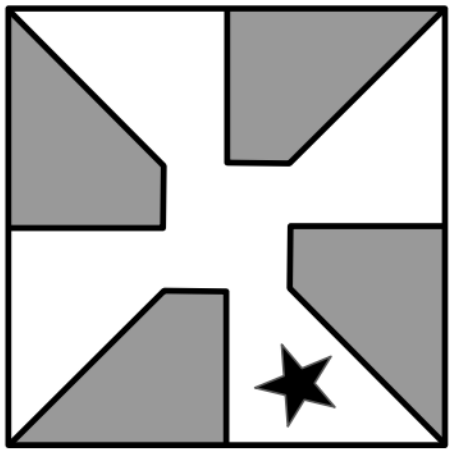
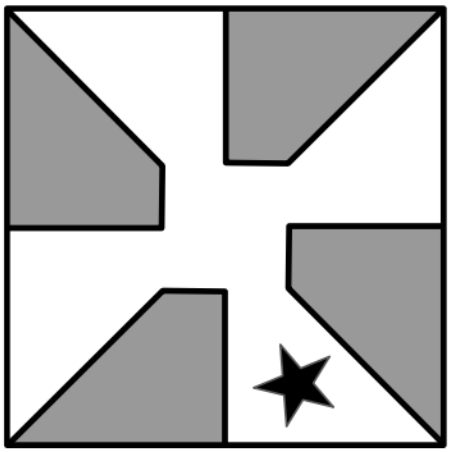

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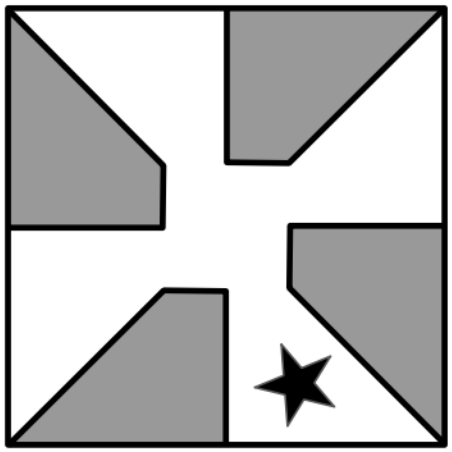

Inventing a Heat Engine

Name:_____

Discuss & Invent

Discuss these questions and write your answers on a separate piece of paper.

1. Watch the video on the screen of the spinner and the candles. (The video is on Step 6.) Discuss what could be making that spinner move. Draw a picture to show what you think is going on.
2. Discuss: How could you use a paper heat spinner in a Chain Reaction machine? Draw a picture or describe what you could do.
3. Talk to your spinner. Figure out what sentence makes it spin the most. Why does that sentence work so well?
4. Discuss: The spinner spins in one direction when you lift the tower and the other direction when you lower it. Explain why that might be. Draw a picture to support your explanation.

Experimental Station

5a. Find the heat source at this station. Describe it: _____

5b.

Put the spinner here:	Let about 20 seconds pass, then notice what the spinner is doing. Write down your observations. Draw a picture if you want.
Next to the hot thing	After 20 seconds, I notice...
Above the hot thing	After 20 seconds, I notice...
Below the hot thing	After 20 seconds, I notice...

5c. Did you find any spots where the spinner doesn't turn—or turns just a little? Where?

_____

5d. Did you find a spot where the spinner turns steadily? Where? Does it turn at least 30 times?

_____

Energizing Everything

Mystery 7: How long did it take to travel across the country before cars and planes?

Name: _____
Date: _____

End of Mystery Assessment

1. A fuel is something that...
   a. contains stored energy
   b. can burn
   c. releases heat
   d. all of the above

2. Steam locomotives (trains) move by burning fuel that…
   a. releases energy from height
   b. releases electrical energy
   c. releases heat energy
   d. stores energy in batteries

3. TRUE or FALSE? (circle one) Energy comes in many forms.

4. How can you tell that stored energy is being released? Describe two pieces of evidence that you could see, hear, or feel.

_____

_____

_____

_____

5. How did transportation change because of the invention of the engine? In your answer, describe transportation before and after there were engines.

_____

_____

_____

_____

_____

6. In the space below, **draw a diagram** that shows energy being transferred from one place to another. Then, **label** the parts of the diagram. Include at least two types of of energy.

You can use the heat spinners from the activity, or come up with your own example. You can get creative!