

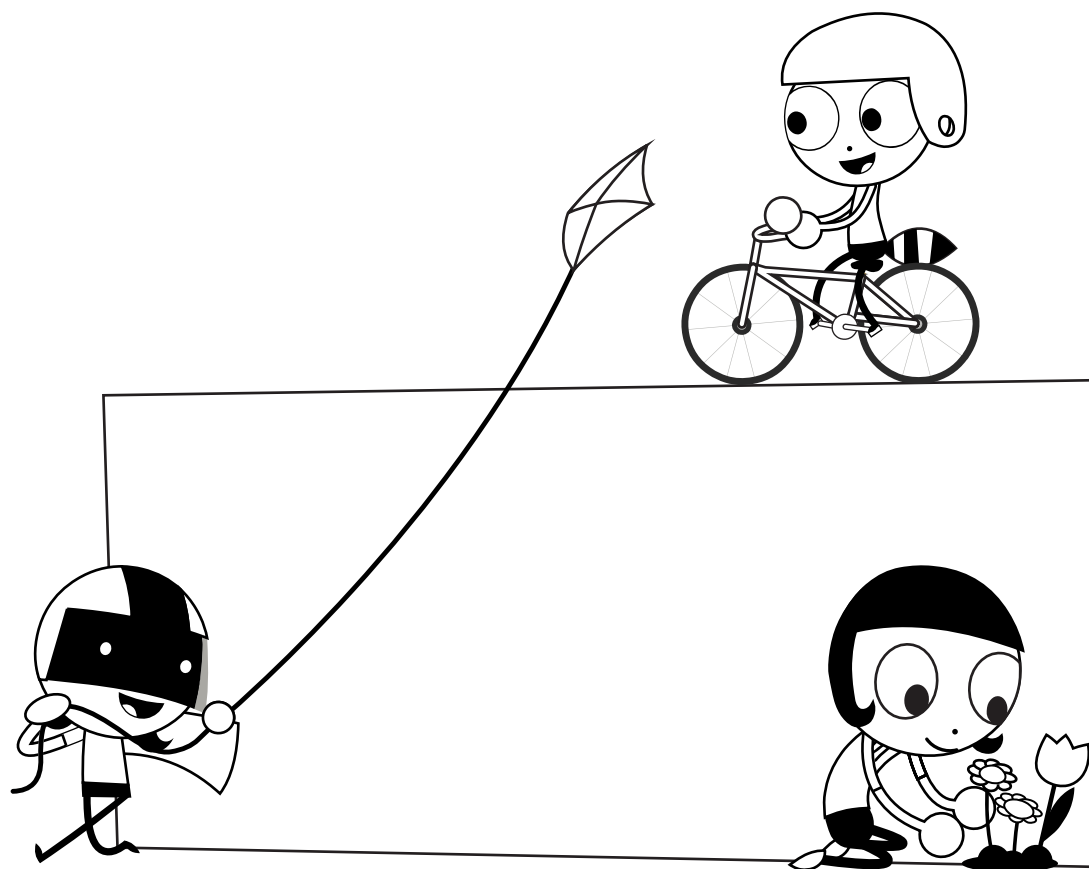
ARIZONA



# Summer of Possibilities

# Playing with Water

1-2





# Ice Cubes and Water: Now and Later

Name \_\_\_\_\_

### Instructions:

1. Fill one plastic, clear cup with water and a second plastic, clear cup with ice.
2. Find a piece of chalk, a pencil, and take the two cups and this paper and go outside.
3. Pour a small amount of water on the ground. Outline the water puddle with chalk. In the first column, draw what you notice about the water.
4. Next, place one of your ice cubes on the ground and outline it with chalk. Leave one ice cube in a clear cup. After 30-minutes, in the second column, draw what you observe about the ice.
5. When another 30-minutes pass, write or draw a question you are interested in.

### During my investigation I noticed this about the water...

When I first poured the water on the ground, the water looked like this...

After 30-minutes, the water I poured looked like this...

### I observed this about the ice...

When I first placed the ice on the ground, the ice looked like this...

After 30-minutes, the ice looked like this..

**What do you notice about how liquid water changed?** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**What do you notice about how solid water (ice) changed?** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**A question I still wonder about is...** \_\_\_\_\_  
\_\_\_\_\_

**I made the connection in my mind when I observed the water and ice that...** \_\_\_\_\_  
\_\_\_\_\_

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WIND DANCER FILMS



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Name \_\_\_\_\_



# Create a Family Water Conservation Plan

**Big Idea:** Water is an important natural resource. We need clean water for drinking, washing our hands, and growing food. We can help to make sure there is enough water for everyone by conserving water, which means using less every day.

**Explore:** Think of all the times that you use water at home each day. Starting when you wake up in the morning, go through your normal routine. Every time you think of an activity that uses water, write it in the chart below.

**TIP:** Don't forget "hidden water" activities like washing clothes, flushing the toilet, or using a dishwasher. These appliances can use a lot of water.

Fill in the chart below with all the activities that you can think of.

Morning	
Afternoon	
Evening	

Find more games and activities at [pbskidsforparents.org](http://pbskidsforparents.org)












Name \_\_\_\_\_

## Create a Family Water Conservation Plan

### Record:

1. Read the water-saving tips chart below.
2. Together as a family, pick at least three ways that you can try to save water at home. Circle these tips in the chart below.
3. On the Water-Saving Plan page, write your three water-saving tips, and add one of your own!
4. Decorate the plan and put it up in a place where everyone in your family can see it. It will remind you to follow your plan every day to conserve water.

<p>Turn off the water while you brush your teeth.</p> 	<p>Choose fewer games and art activities that use a lot of water.</p> 	<p>Don't use the toilet as a trash can. Every time you flush you use a lot of water!</p> 
<p>Wash your dishes in a bowl or bucket of soapy water instead of running the water in the sink.</p> 	<p>Take a shower instead of a bath. Use a timer to keep your shower short.</p> 	<p>Have special glasses or water bottles for each family member to use all day long, instead of getting new cups for every drink of water.</p> 
<p>Only run your dishwasher or laundry machine when you have a full load to do.</p> 	<p>Put a bucket outside to catch water when it rains. Use this to water plants later.</p> 	<p>Make sure that you turn off the sink completely when you are done using it so that water doesn't drip.</p> 

**Reflect:** If 1 tip that you use can save you 2 gallons of water a day, how much water would you save in a day by using 2 tips?

How much water would you save in a day by using 3 tips?

How much water would you save in a week, using 2 tips a day?

How could you share some of these water saving tips at school or in other places in your community?

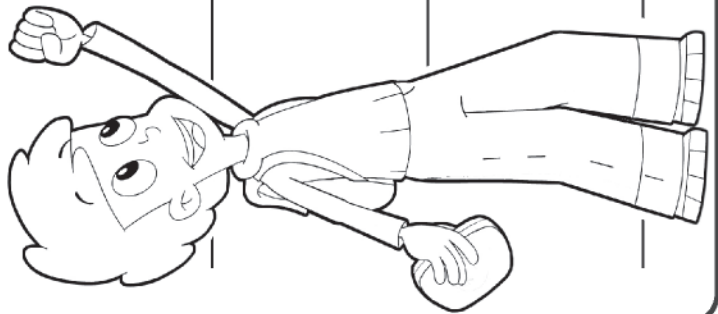
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Name \_\_\_\_\_

# Our Family Water-Saving Plan

**We plan to save water at home by...**



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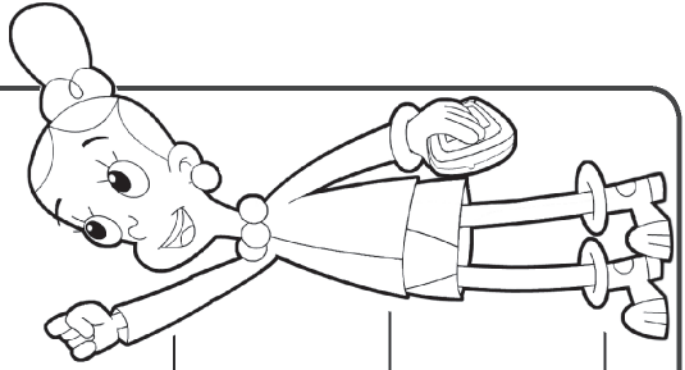
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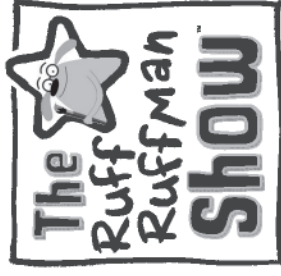
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# Rainbow Popsicle

## Time:

You'll need at least four hours to make and freeze the popsicles, but Ruff promises it's worth it!

## Explore:

kitchen chemistry, material properties, inquiry process (predict, document, test, reflect)

## Materials:

- Recipe printout
- 4 popsicle molds (Don't have any popsicle molds? Try using paper or plastic cups, or empty yogurt containers.)
- 4 popsicle sticks (if making your own molds)
- Blender
- Spoon
- 1/3 cup watermelons, deseeded
- 1/3 cup oranges
- 1/3 cup pineapples
- 1/3 cup kiwi
- 1/3 cup blueberries

Note: To save time, you may want to pre-cut the ingredients. If you don't have a blender, use five different colored fruit juices instead.

**Kid Description:** Grab a grown-up to make a rainbow popsicle. This recipe is pretty cool!

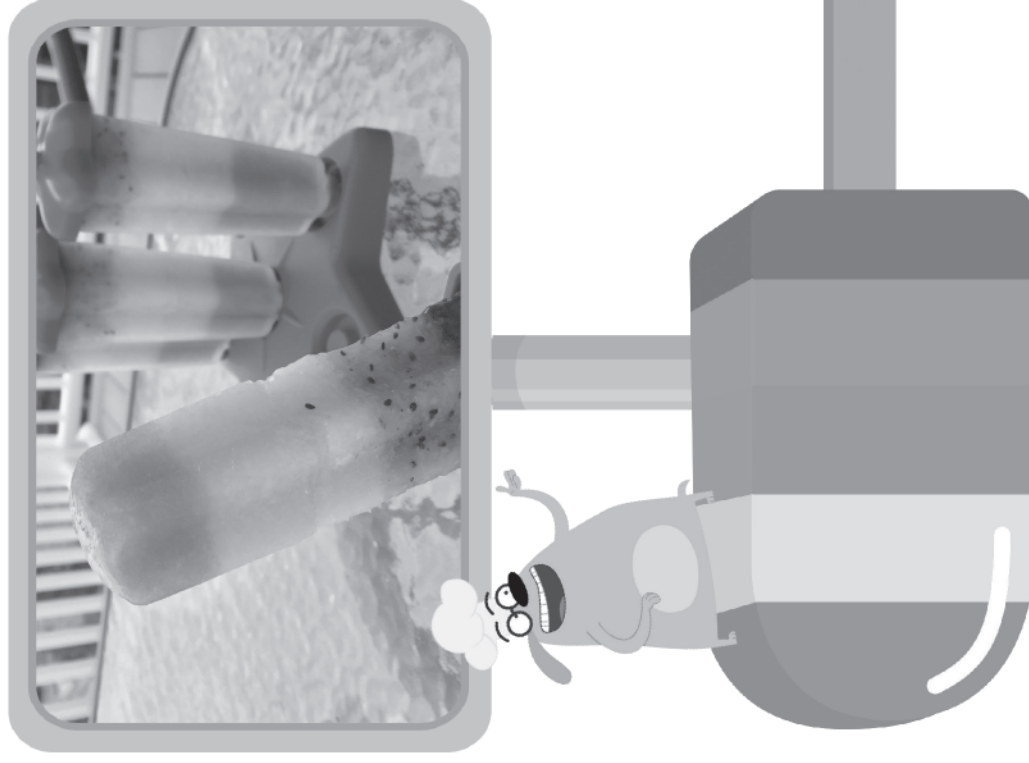
This recipe makes four popsicles.

## Predict

- ★ Brainstorm and discuss what freezing means.
  - Ask: How do you freeze something?
  - Ask: How do you know when something is frozen?
  - Ask: What is a solid? What is a liquid?
  - Explain: Solids are hard things that don't move easily. Liquids are wet and move around very easily. When ice melts, it turns into water, which is a liquid. When water freezes, it turns back into ice, which is a solid.

- ★ Explain what you're going to make, and how you'll make it.

- Explain: We're going to make rainbow popsicles today by freezing liquids. We're going to start off with five different fruits. First, we'll blend the solid fruits into liquid fruit juice. We'll freeze each fruit in its own layer in a popsicle mold. The popsicle will look like a rainbow made of five different layers of frozen fruits.



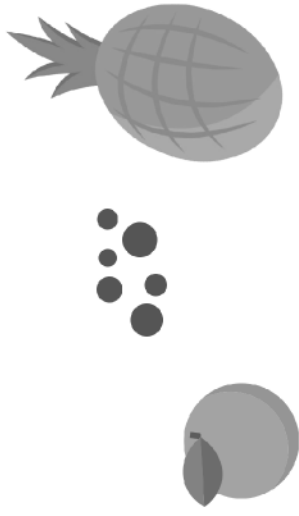
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## Prepare

- ★ Make sure kids wash their hands!
- ★ Have kids follow along with the recipe on the printout. If there are multiple kids, help them take turns measuring each ingredient.
- **Explain:** This is the recipe. A recipe tells us all of the ingredients we need and the instructions to make something. Follow along and check off each ingredient as we add it to the popsicle mold to make sure we don't miss anything!
- ★ Kids can put the ingredients in the blender, and an adult can operate the blender. Adults should cut up all ingredients. Kids can choose whichever order they would like to combine the fruits in their popsicle mold, or they can follow the order on the recipe to create a true "rainbow" popsicle. **Note:** If you are using fruit juice instead of fruit, omit the blender step.
- **Ask:** What happens to the fruit when you put it in a blender? Is it a solid or a liquid now?
- **Ask:** What will happen to the fruit when you put it in the freezer?



- ★ Introduce the ingredients you'll use.
- **Ask:** Are these fruits solids or liquids?
- **Ask:** What will happen when we put the fruits in the blender?
- ★ On the printout, write down the kid's predictions about how long it will take for each layer of the popsicle to freeze.
- **Ask:** Based on our investigation of the ingredients, how long do you think it will take for each layer to freeze? I'll document your prediction by writing it on the printout.
- **Ask:** Do you think each layer will take the same amount of time or different amounts?



## The Recipe

(Repeat for each fruit layer)

1. Add one fruit to blender.
  2. Pulse until blended.
  3. Add 1–2 tablespoons of fruit to each popsicle mold.
  4. Put in freezer until frozen.
- **Note:** The first two layers each should take about one hour to freeze. The last three layers should each take about 40 minutes to freeze.
  - If making your own popsicle molds, insert the popsicle sticks after the second layer is frozen. The sticks should be able to stand straight up.



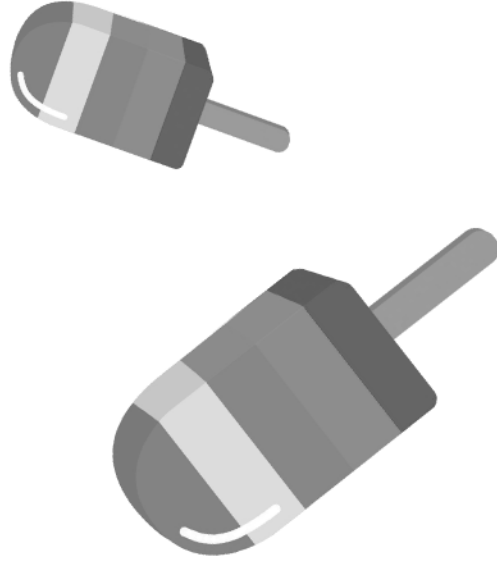
- ★ Have kids check the first layer after every 15 minutes to see how long it takes to freeze. Document the time it takes to make each layer on their recipe printout.
- **Ask:** How long did it take for the popsicle layer to freeze? Document it on your printout.

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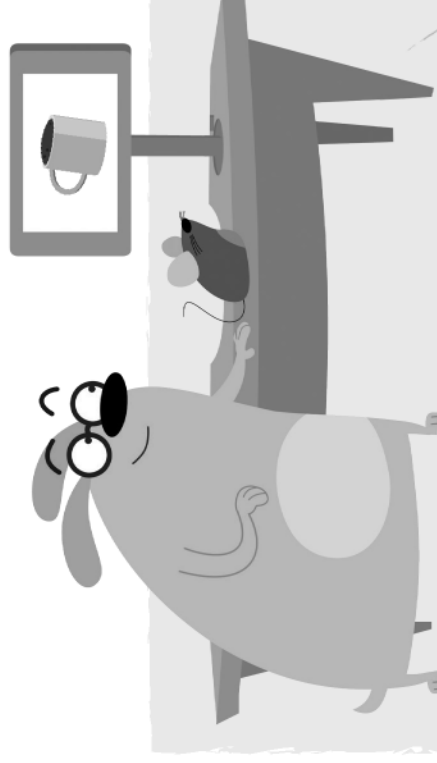
## Test

- ★ Take the popsicles out of the freezer.
  - Ask: Can you see each of the ingredients now?
  - Ask: How does the popsicle look different from when the ingredients were first cut up?
  - Ask: Did each layer take the same time to freeze? Why or why not?
- ★ Time to eat!
  - Ask: What does the popsicle taste like?
  - Ask: Which fruits can you taste?



## Reflect

- Ask: What made the ingredients change into a popsicle?
- Ask: What would happen if you put the ingredients in the freezer for less time? What about more time?
- Ask: What would happen if you heated the ingredients?



## Next:

Now try making the **chocolate mug cake recipe** to see what happens when you heat ingredients!

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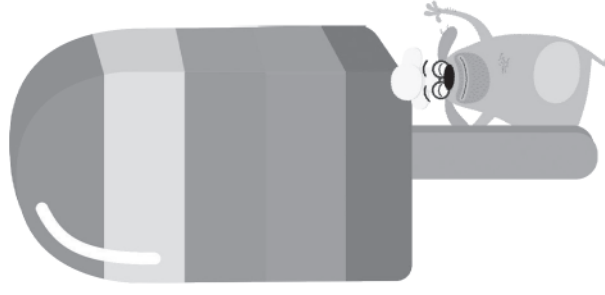
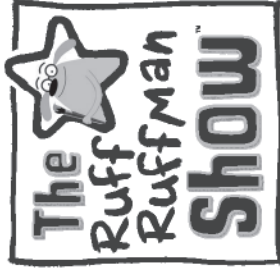


# Recipe

# Rainbow Popsicle

Predict how long it will take for each popsicle layer to freeze.  
Observe what happens and document how long it took for each layer to freeze.

Layer	Prediction	Result
Fruit:		
Fruit:		
Fruit:		
Fruit:		
Fruit:		



## Make it

### Ingredients

- 1/3 cup watermelon
- 1/3 cup orange
- 1/3 cup pineapple
- 1/3 cup kiwi
- 1/3 cup blueberry

### Recipe

Repeat for each fruit layer.

1. Add one fruit to blender.
2. Pulse until blended.
3. Add 1-2 tablespoons of fruit to each popsicle mold.
4. Put in freezer until frozen.

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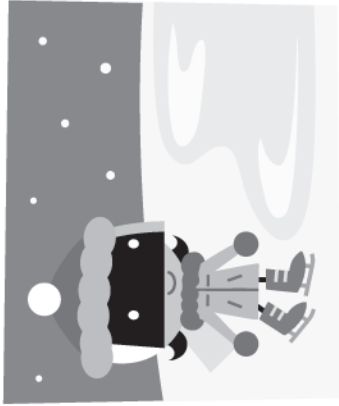
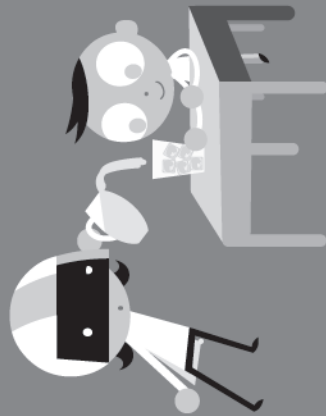


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# Playing With Water

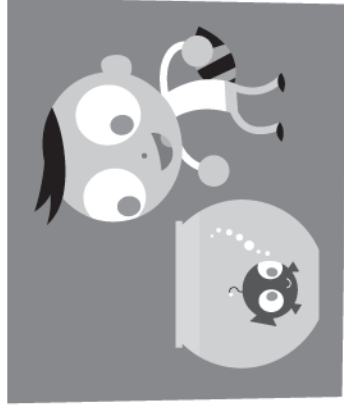
Water can be found in three different states: liquid, solid, and gas. Cut out the playing cards and flip the cards face down. Then, choose a card and answer the question. Continue until all cards are drawn.



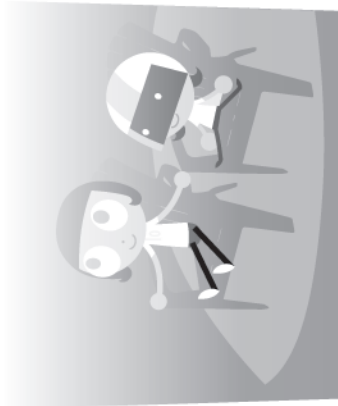
**Dee is getting ready to ice skate. What kind of water can Dee ice skate on?**



**Del has gone for a swim. What kind of water does he swim in?**



**Del has a new pet fish. What kind of water is his fish swimming in?**



**Dot and Dee watch the fog roll across the water. What kind of water is fog?**



**Dot is waiting for her steamy soup to cool down before she can eat it. What kind of water is steam?**



**Dot and Del are playing in the snow. What kind of water is snow?**





# Water Play Cards

Water can be found in three different states: liquid, solid, and gas. Cut out the playing cards and flip the cards face down. Then, with a partner, take turns choosing two cards — looking for pairs. If you find a pair, go again. If you do not find a pair, flip the cards over in the same space and the next person will take a turn.



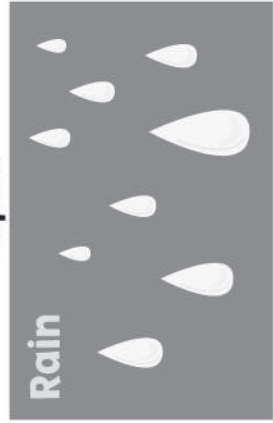
Liquid

Solid

Gas



Liquid



Rain

Solid



Ice

Gas



Fog

Liquid



Pond

Solid



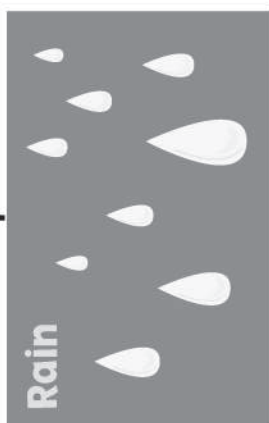
Snow

Gas



Steam

Liquid



Rain

Solid



Ice

Gas



Fog

Liquid



Pond

Solid



Snow

Gas



Steam