

Light Absorption Experiment

Have you ever walked across a blacktop barefoot on a hot day? Ouch, right? What about a sandy beach? Or a green yard? Did your feet feel any different, or was it the same? We know that the sun creates light and heat, two various forms of energy. And we know that different light wavelengths create different colors. So which color is best for absorbing heat?

Materials Needed:

- Variety of different color paper (red, blue, black, white, yellow, green) cut into squares 3 x 3 inches
- a piece of aluminum foil cut into 3 x 3 inches
- a piece of wood (a cutting board would work great)
- something to keep time
- something to write with and write on to track the results
- a sunny day
- enough ice cubes for each material

Additional material needed for bonus activity:

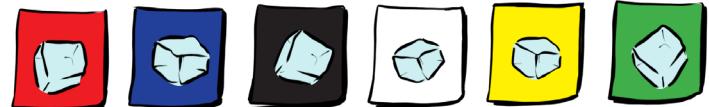
Different cloths. Think a cotton shirt, jeans, flannel

Activity:

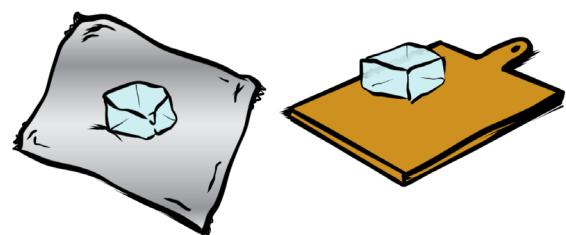
Hold it right there, we need to answer a question

Before you start: On which color and material do you think the ice cubes will melt first? Why?

Step 1: Start by cutting out all of the paper and foil to equal size.



Step 2: Find a sunny spot outside where you can set up your experiment without disruption (a sunny windowsill also works).



Step 3: Place each color of paper, foil, and wood on the ground with an ice cube on top (see illustration).

Step 4: Set the timer.

Step 5: Watch!

Question Time!



1. What ice cube melted first? How long did it take to melt?
2. What ice cube melted last? How long did it take to melt?
3. What conclusion can you draw?

Extra Credit!

Bonus Material: Variety of different color paper (red, blue, black, white, yellow, green) cut into squares 3 x 3 inches, a piece of aluminum foil cut into 3 x 3 inches, different color cloths, something to keep time, something to write with and write on to track the results, a sunny day, and enough ice cubes for each material

Activity:

Not so fast! We have a question to answer

Before you start: What ice cube do you think will melt first?

Step 1: Prepare the paper and foil the same as you did for the first experiment. There is no need to cut the cloth; just make sure only one layer covers the ice cube.

Step 2: Place the ice cube directly on the ground (if doing inside, use a large plate or platter (not a cookie sheet!).

Step 3: Cover each ice cube with different color paper and material.

Step 4: Start the timer and watch!

Question Time!



1. Were your results the same or different from the first experiment?
2. Which color or materials melted first?
3. Why do you think that is?
4. Which color or material melted last?
5. Why do you think that is?
6. What conclusion can you draw?

For the Adults: This activity works on science, problem-solving, observation, and executive function skills.

Solar Recipes

Think you can't bake a pizza without a kitchen oven? Nope!

Think again! Your solar oven harnesses the sun's energy and redirects it toward the foil heating the contents inside.

Your solar oven can cook anything that an inside oven can cook, though it may take longer. Here are some tried-and-true solar oven favorites!

Materials Needed:

- aluminum foil
- tortilla chips
- favorite cheeses
- lettuce
- tomatoes
- any other nacho favorites!

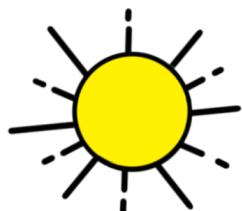
Solar Nachos!

Recipe:

Step 1: Create a pouch using aluminum foil and cover the bottom with tortilla chips.

Step 2: Cover the chips with $\frac{1}{2}$ cup of cheese and seal the foil over the top.

Step 3: Close the aluminum foil and place it in a sunny area.



Cook time: 45 minutes (may require longer on a cooler day)

Step 4: Add favorite nacho toppings.

Step 5: Enjoy!

S'mores!

Materials Needed:

- aluminum foil
- chocolate
- marshmallow
- graham crackers

Recipe:

Step 1: Assemble the s'more!

$\frac{1}{2}$ Graham cracker, chocolate, marshmallow, $\frac{1}{2}$ graham cracker.

Step 2: Place s'mores on the aluminum foil plate.

Step 3: Close the aluminum foil and set it in a sunny area.

Cook time: 45 minutes

Step 4: Enjoy!

For the Adults: This activity works on literacy, math, science, and executive function skills.

Pizza!

Materials Needed:

- aluminum foil
- English muffin
- tomato sauce
- mozzarella cheese
- your favorite topping. Try pineapple!

Recipe:

Step 1: Cut the English muffin in half.

Step 2: Scoop $\frac{1}{2}$ tablespoon of tomato sauce onto the muffin.

Step 3: Cover the sauce with 1 tablespoon of cheese.

Step 4: Add your favorite toppings.

Step 5: Place mini pizza on a sheet of aluminum foil.

Step 6: Close the aluminum foil and place in a sunny area.

Cook time: 45 minutes

Step 7: Enjoy!

Solar Guessing Game

Mini graphic game

How long does it take for the light of the sun to reach Earth?

a) 16 minutes

b) 2 hours

c) 8 minutes

If you walked a 20-minute mile, how long would it take you to walk around the sun?

a) 10 weeks two days

b) 101.598 years

c) 78.1 years

How old is the sun?

a) 4.6 billion years old

b) 2 million years old

c) 10 billion years old

What is the temperature of the sun's surface?

a) 100,000 f*

b) 9,932 f*

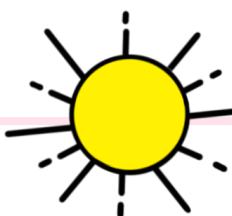
c) 7,530 f*

How many Earths would fit inside the sun?

a) 200

b) 16

c) 1 million



Answer Key: c., b., a., b., c.

Activity and discussion guide developed by early childhood education specialist Rachel Giannini.