

Science lesson plan ideas:

- Lesson 1: Lava lamp
- Lesson 2: Human body systems (trace someone and draw a system)
- Lesson 3: Phases of the moon with Oreos
- Lesson 4: Cloud formation (cotton)
- Lesson 5: Walking water
- Lesson 6: Slime
- Lesson 7: Ice fishing
- Lesson 8: Skittles color spread
- Lesson 9: Dish soap boat race

## **Lesson 1: Lava Lamp**



**Video:** [📺 Lava Lamp](#)

**Science behind it:**

- **Vocab**

- > density: this decides if something sinks or floats. Heavy stuff sinks, and lighter stuff floats. For example, like how a rock sinks in water but a rubber duck floats.
- > chemical reaction: when two things mix and make something new, like bubbles or fizz.
- > molecules: tiny building blocks that make up everything (like Legos for a substance)

**Supplies:**

- Clean plastic bottle
- Water
- Vegetable oil
- Alka seltzer
- Food coloring

**Procedure:**

1. Fill the bottle up about 1/4th (1 quarter) with water.
2. Pour the vegetable oil into the bottle until it is almost full. You may want to use a measuring cup with a spout or a funnel. You may have to wait a couple of minutes for the oil and water to separate.
  - Water and oil are made of different kinds of molecules and have different densities. They do not mix, and water is heavier, so it stays at the bottom. Oil is lighter, so it floats on top.
3. Add a few drops of your favorite food coloring. Watch as the color sinks through the oil. Did your drops of color mix with the water immediately or float in between for a few minutes?
  - Food coloring is like water; it has a similar density, so it sinks through oil. Once it reaches the water, it mixes in and makes it colorful.
4. Break your fizzy tablet in half and drop part of it into the bottle. Get ready ... here comes the bubbly blobs!
  - When the fizzy tablet touches the water, it starts a chemical reaction. It creates gas bubbles that carry the water through the oil.

5. You can even get a flashlight, turn off the lights, and drop in another half tablet. This time, shine the flashlight through the lava lamp while the blobs are bubbling!
  - When the bubbles pop at the top, the colored water becomes heavy again. It sinks back down to the bottom. This makes the blobs move up and down!

**Reflection worksheet Lava Lamp (1st-2nd):**

1. What two liquids did we use in the bottle?

- A. Water and juice
  - B. Water and oil
  - C. Milk and oil
- 2. Which liquid stayed at the bottom?**
- 3. What did the food coloring do?**
- A. It floated on top of the oil
  - B. It sank through the oil and mixed with the water
  - C. It disappeared
- 4. What made the colorful bubbles move up and down**

**BONUS: Draw a picture of what your lava lamp looked like!**

**Reflection worksheet Lava Lamp (3rd-5th):**

- 1. What two liquids did we use in the experiment?**
- A. Water and juice
  - B. Water and oil
  - C. Milk and soda
- 2. Why don't water and oil mix?**
- A. Because they are both liquids
  - B. Because they are made of different molecules and have different densities
  - C. Because they are the same color
- 3. What is density?**
- 4. What causes the colored blobs to move up and down in the bottle?**
- A. The bubbles from the fizzy tablet carry the blobs up, and when the bubbles pop, the blobs sink again.
  - B. The blobs move because the bottle is shaken
  - C. The blobs move because of the light in the room
- 5. What did you find most interesting or surprising about this experiment?**

**Lesson 2: Human Body System**



**Video:** [▶ Human body organs for kids - Circulatory system, digestive system and respiratory...](#)

**+ ▶ Why Do We Have Bones? | COLOSSAL QUESTIONS**

### Science Behind It:

The human body is made up of different systems that work together to help us live, grow, and move. Each system has a special job; some help us breathe, others move our muscles, digest food, or pump blood. In this activity, each group will focus on one major body system, and draw it inside one of your group mates' traced human body. Then, they'll share with the rest of the class what they learned/created!

#### - **Vocab:**

- > Body system: a group of parts in the body that work together to do a specific job
- > Organ: a part of the body that does an important job, like the heart or brain
- > Skeleton: all the bones in your body
- > Muscle: the parts of your body that help you move
- > Circulation: how your blood moves around your body
- > Digestion: how your body breaks down food for energy
- > Circulatory system: carries blood, oxygen, and nutrients all around your body. It includes your heart, blood, and blood vessels (the body's delivery truck)
- > Respiratory system: it helps you breathe in oxygen and breathe out carbon dioxide. This includes your nose and lungs.
- > Digestive system: breaks down the food you eat into nutrients your body can use. This includes your mouth, stomach, and intestines.
- > Skeletal system: gives your body shape and protects important organs. This includes all the bones in your body.

### Supplies:

- Large poster paper
- Washable markers or crayons
- Tape
- Printed diagrams/facts

### Procedure:

1. Introduce the four body systems: circulatory, respiratory, digestive, and skeletal.
2. Divide the class into small groups. Each group gets one body system to focus on. (fact sheet/visual given to help with the drawing process)

3. Lay a large piece of paper on the floor. One student lies down on it. Another group member traces their body outline using a washable marker.
4. Draw the assigned body system inside the outline. Make sure to label major organs.

**Reflection Worksheet: Human Body Systems (1st-2nd):**

- 1. What body system did your group learn about?**
  - A. Circulatory (heart and blood)
  - B. Respiratory (lungs and breathing)
  - C. Digestive (stomach and food)
  - D. Skeletal (bones)
- 2. What is one part of that system you remember (from the one you were assigned)?**
- 3. What does your body system help you do? (the body system you were assigned)**
  - A. Breathe
  - B. Pump blood
  - C. Move food
  - D. Stand tall and protect your organs
- 4. What was your favorite part of this activity?**

**Reflection Worksheet: Human Body Systems (3rd-5th)**

- 1. Which body system did your group work on?**
  - A. Circulatory (heart, blood, vessels)
  - B. Respiratory (lung, nose)
  - C. Digestive (mouth, stomach, intestines)
  - D. Skeletal (bones, skull, and spine)
- 2. What are two important parts of your system? (The system you were assigned)**
- 3. What is the main job of your body system?**
- 4. What did you learn about how your body works?**
  - A. All body systems have important jobs that help us live and grow
  - B. The body only needs one system to work
  - C. Only bones and muscles do anything in the body

### Lesson 3: Crystal Name Activity



**Video:** [YouTube Crystals | Science for Kids](#)

#### Science Behind it:

Crystals form when a solution becomes saturated, meaning it contains as much dissolved material as it can hold. When the solution cools, the extra borax comes out and attaches to surfaces, forming crystals. In this experiment, the borax crystals grow in pipe cleaner letters, showing how solid crystals shape over time.

#### - Vocab:

- > Crystal: a solid with a special shape because of how its particles are arranged
- > Solution: a mix where something (like borax) is dissolved in a liquid
- > Saturation: when a liquid has dissolved as much of a substance as it can hold
- > Dissolve: to mix something into a liquid until you can't see it anymore
- > Evaporation: when liquid slowly turns into gas and goes into the air

#### Supplies:

- Pipe cleaners
- Twine or yarn
- Pencil or wooden skewers
- Scissors
- Glasses or a plastic container (one for each color)
- Borax
- Food coloring
- Liquid measuring instruments
- Heat-safe mixing bowl

#### Procedure:

1. Use pipe cleaners and use them to form the letters of their names
2. Each letter should be small enough to fit the size of the suspending container and not touch any sides of the container
3. Use the yarn to tie each letter on a wooden skewer. This will be used to suspend the letters in the container
4. Heat a large bowl of water (hot enough to dissolve borax)
5. Mix 3 tablespoons of borax per 1 cup of hot water
6. Use a spoon to dissolve borax in water
7. Add food coloring to each container
8. Dip the letters into the containers
9. Leave the container somewhere safe and wait for at least 3-4 hours

**Reflection Worksheet: Crystal Name Activity (1st-2nd)**

- 1. What did you use to make the letters of your name?**
  - A. Straws
  - B. Pipe cleaners
  - C. Popsicle sticks
- 2. What did you see happen to your letters after they were in the water?**
  - A. Nothing changed
  - B. They got soft
  - C. Crystals grew on them
- 3. What made the crystals grow?**
  - A. Coloring
  - B. Borax and water
  - C. Scissors
- 4. What was your favorite part of this activity?**

**Reflection Worksheet: Crystal Name Activity (3rd-5th):**

- 1. What materials did you use to create your crystal letters?**
  - A. Pipe cleaners, yarn, and glue
  - B. Pipe cleaners, yarn, and borax solution
  - C. String, paper, and tape
- 2. What is a solution?**
  - A. A group of objects
  - B. A mix of water and solid where the solid disappears
  - C. A liquid that turns into a gas
- 3. What happened when the borax solution cooled down?**
  - A. The water changed color
  - B. The crystals started to form on the pipe cleaners
  - C. The letters melted
- 4. Why is hot water important for this experiment?**
  - A. It helps the borax melt and stay melted
  - B. It keeps the pipe cleaner soft
  - C. It makes the crystals colorful

### Lesson 3: Cloud Formation



**Video:** [Types of Cloud | Why clouds are usually white? | Special Clouds | Clouds Video fo...](#)

#### Science Behind It:

Clouds form when water vapor in the air cools down and condenses into tiny water droplets or ice crystals. Different cloud shapes and heights tell us about the weather. Some clouds mean storms, while others mean clear skies. By learning to recognize cloud types, we can better understand weather changes.

#### - Vocab:

- > Condensation: When water vapor in the air cools down and turns into tiny drops
- > Water vapor: water in the form of a gas. It happens when water gets warm and turns into steam, like when you see fog or mist
- > Precipitation: rain, snow, or hail that falls from clouds
- > Cloud: a group of tiny water droplets or ice crystals floating in the sky
- > Altitude: how high something is in the sky or above ground
- > Cirrus clouds: thin, wispy clouds high in the sky; usually mean pleasant weather
- > Cumulus clouds: fluffy, white clouds with flat bottoms; often seen on sunny days
- > Stratus clouds: low, gray clouds that cover the sky like a blanket, can bring light rain
- > Cumulonimbus clouds: big, tall storm clouds; can bring thunder, lightning, and heavy rain
- > Stratocumulus clouds: these grey and white patchy clouds may have a dark honeycomb look that says a storm may be coming.
- > Nimbus clouds: thick, dark gray clouds that can bring steady rain or snow

#### Supplies:

- Cotton balls
- Glue

- Scissors
- White paper or construction paper
- Markers
- Reference images
- crayons/colored pencils

**Procedure:**

1. Introduce the different kinds of clouds:
2. Write the cloud types on a white label with a black marker and stick them on a piece of paper to hold them in place.
3. You're then going to want to create the clouds using the cotton balls. Remember that for this activity, you're going to create clouds for cirrus, cumulus, stratus, cumulonimbus, stratocumulus, and nimbus clouds.
4. Stretch out the cotton balls or bunch them up to create the shape of certain clouds.
5. Once they're done, all that you have to do is take the cotton and glue it in place on the paper under each cloud type

**Reflection Worksheet: Cloud Formation (1st-2nd):**

- 1. What did you use to make the clouds?**
  - A. Paper
  - B. Cotton balls
  - C. Paint
- 2. Which cloud was fluffy and white?**
  - A. Cirrus
  - B. Cumulus
  - C. Stratus
- 3. What kind of weather do storm clouds bring?**
  - A. Sunny days
  - B. Rain and lightning
  - C. Snow and cold
- 4. Draw your favorite cloud you made in class!**

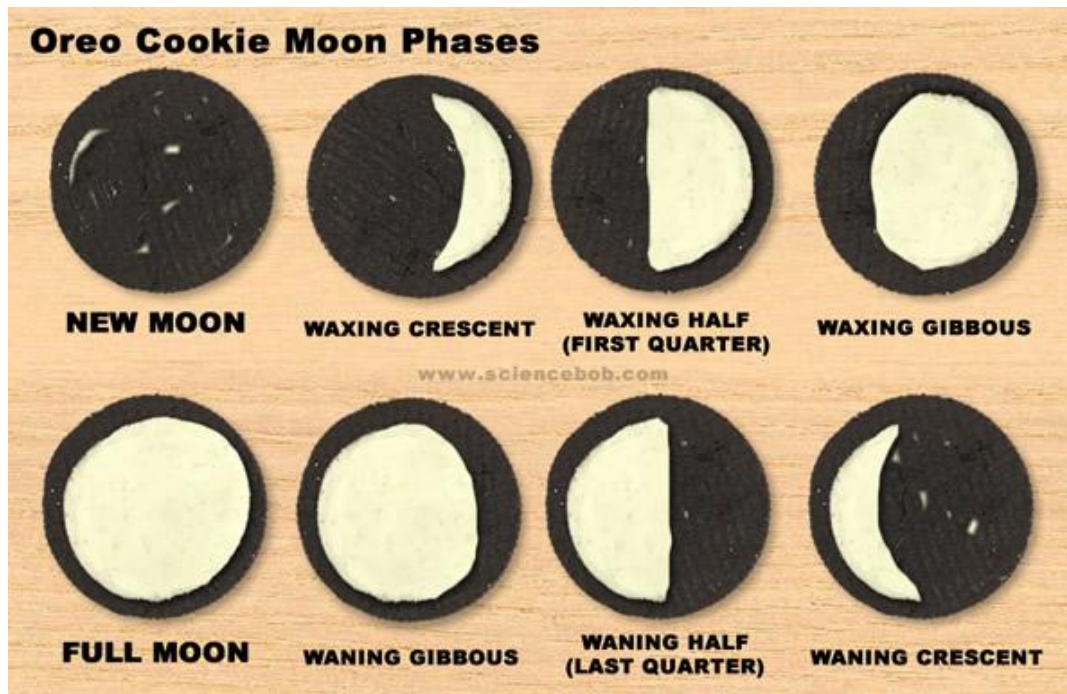
**Reflection Worksheet: Cloud Formation (3rd-5th)**

- 1. Name two types of clouds you learned about today:**
- 2. Describe what cirrus clouds look like and what kind of weather they usually bring.**
- 3. Which cloud type brings thunderstorms and heavy rain?**
  - A. Stratus

- B. Cumulonimbus
- C. Cirrus

#### 4. How do clouds form?

### Lesson 5: Phases of the Moon with Oreos



Video: [▶ The Phases of the Moon for Kids](#)

#### Science Behind It:

The moon doesn't make its own light; it reflects light from the sun. As the moon orbits the Earth, we see different parts of its lit half. These changing shapes are called the phases of the moon. The moon goes through a full cycle about every 29 days, which is called a lunar month. By using Oreos, we can model the different phases and see how the moon appears to change over time, even though the moon itself is always the same!

- **Vocab:**
  - > Moon phase: the shape of the lit part of the moon that we can see from Earth
  - > Orbit: The path the moon takes around the Earth
  - > Waxing: when the moon looks like it's getting bigger
  - > Waning: when the moon looks like it's getting smaller
  - > New moon: the moon is between the Earth and the sun; we can't see it because the lit side is facing away from us
  - > Waxing crescent: a small served sliver of the moon becomes visible on the right side
  - > Waxing half (first quarter): half the moon is visible on the right side
  - > Waxing gibbous: more than half of the moon is visible, still growing
  - > Full moon: the whole face of the moon is lit up and visible

- > Waning gibbous: more than half is still visible, but it is starting to shrink
- > Waning half (last quarter): half the moon is visible on the left side
- > Waning crescent: just a small curve is visible again, this time on the left side.

**Supplies:**

- Oreos
- Paper plate or sheet of paper
- Marker
- A knife or other tool to scrape the cream

**Procedure:**

1. Carefully remove the top of each of the Oreos to reveal the cream layer
2. You can then scrape away the cream to show the different moon phases.
3. Arrange the cookies on the plate in the order of the phases, labeling each phase with the marker.

### **Reflection Worksheet: Moon Phases with Oreos (1st-2nd)**

- 1. Why does the moon look like it changes shape in the sky?**
  - A. It grows and shrinks
  - B. It moves around the Earth, and sunlight hits it differently
  - C. It hides behind the clouds
- 2. What do we call the moon when we can't see it at all?**
  - A. Full Moon
  - B. New Moon
  - C. Crescent Moon
- 3. What does waxing mean?**
  - A. The moon is getting smaller
  - B. The moon is getting bigger
  - C. The moon is jumping
- 4. What helped us remember the shapes of the moon today?**
  - A. Oreo cookies
  - B. Paper moons
  - C. Balloons

### **Reflection Worksheet: Moon Phases with Oreos (3rd-5th)**

- 1. Why do we see different phases of the moon from Earth?**
  - A. The moon changes shape
  - B. The moon moves around Earth and we see different parts lit by the sun
  - C. Clouds cover it
- 2. What causes the moon to shine**
  - A. It makes its own light
  - B. Stars reflect off it
  - C. It reflects light from the sun
- 3. Match the phase with its correct description:**

Draw a line to connect them.

Moon Phase

Description

|                            |                                          |
|----------------------------|------------------------------------------|
| New Moon                   | A. Half the moon is lit on the left side |
| Full Moon                  | B. We can't see the moon at all          |
| Waxing Crescent            | C. A small curved light is on the right  |
| Waning Half (Last Quarter) | D. The whole face of the moon is lit     |

## Lesson 6: Walking Water



**Video:** [📺 Walking Water Rainbow!](#)

### Science Behind it:

This experiment demonstrates capillary action, how water can move through narrow spaces, without being poured. It is the same process plants use to draw water from their roots up to their leaves! When the water travels through the paper towels from one cup to another, the colored water begins to mix in the empty cups. The movement happens because water molecules stick to the paper towel (adhesion) and each other (cohesion).

#### - **Vocab:**

- > Capillary action: the ability of water to move through narrow spaces, like the fibers of a paper towel, due to the forces of cohesion, adhesion, and surface tension.
- > Adhesion: this is the attraction between different molecules, like water molecules sticking to the walls of a tube or a material
- > Cohesion: this is the attraction between like molecules, like water molecules sticking to each other
- > Surface tension: a barrier formed on the surface of water caused by a force called cohesion

### Supplies:

- Small plastic cups
- Paper towels
- Food coloring
- Water

### Procedure:

1. Place 7 cups in a row and pour water in the 1st, 3rd, 5th, and 7th cups. They should be 3/4s full.
2. Add red food coloring to the 1st cup and the 7th cup
3. Add yellow food coloring to the 3rd cup
4. Add blue food coloring to the 5th cup

5. Take a paper towel and fold it in half lengthwise twice, then fold it horizontally to create a slight bend. (make seven of these)
6. Trim the paper towel if necessary so that there is not so much paper towel sticking up in the air between each cup.
7. Place the folded paper towel in the 1st cup and place the other half in the cup next to it. Repeat this for each cup.
8. Watch the reaction!

**Reflection Worksheet: Walking Water (1st-2nd)**

1. **What did you see? Draw what the cups looked like at the start and after some time had passed.**

**Before:**

**After:**

2. **What happened to the water in the cups?**

- A. It stayed the same
- B. It moved from one cup to another
- C. It disappeared

3. **Why do you think the water moved?**

- A. Because the paper towels pushed it.
- B. Because it was pulled by magnets
- C. Because the paper towel soaked it up and carried it.

### **Reflection Worksheet: Walking Water (3rd-5th)**

**1. What is capillary action?**

- A. Water moving through tiny spaces in materials
- B. Water is boiling in a pot
- C. Water freezing into ice

**2. What happened to the water during the experiment?**

- A. It stayed in the same cups
- B. It moved through the paper towels into other cups
- C. It disappeared

**3. How is this experiment like how water moves in plants?**

- A. Water moves through tiny spaces in the plant's roots and stems
- B. Plants drink water like we drink water with a straw.
- C. Plants move water by shaking

**4. What causes the water to move up the paper towel in this experiment?**

- A. The water is pulled up because the paper towel soaks it like a sponge (capillary action)
- B. The water moves because the cups are tilted
- C. The water moves because it is pushed by the wind

## Lesson 7: Slime



**Video:**  **What Makes SLIME? The Science of Slime**

### Science Behind It:

Slime is a non-Newtonian fluid, which means it can act like both a solid and a liquid. When glue (a type of polymer) mixes with a borax solution, a chemical reaction occurs. The borax helps the long glue molecules link together, forming a stretchy, gooey material we call slime!

- **Vocab:**
  - > Polymer: a substance made of long, repeating chains of molecules (like glue)
  - > Chemical reaction: a change that happens when two substances mix and make something new
  - > Non-Newtonian fluid: something that acts like a solid sometimes and a liquid other times. (when pressure is put on slime, it can act as a solid, but when left untouched, it flows like a liquid.)

### Supplies:

- Glue (Elmer's white school glue)
- Bowls
- Mixing utensils
- Liquid measuring cups
- Food coloring
- Shaving cream + glitter (optional)
- Borax
- Warm water

### Procedure:

1. Fill the bowl with glue
2. Add in your food coloring
3. Add glitter or other mix-ins like shaving cream (optional)
4. Heat a large bowl of water (hot enough to dissolve borax)
5. Mix 1 tablespoon of borax per 1 cup of hot water
6. Use a spoon to dissolve borax in water
7. Stir in the borax solution with the glue
8. Once less sticky, start playing with it and watch it form!

**Reflection Worksheet: Slime (1st-2nd):**

- 1. What happened to the glue when we added the borax solution?**
  - A. It stayed the same
  - B. It turned into slime
  - C. It disappeared
- 2. What is a polymer?**
  - A. A color
  - B. A long, stretchy chain that helps make slime
  - C. A type of glue
- 3. What did your slime feel like?**
  - A. Sticky
  - B. Stretchy
  - C. Soft
  - D. All of the above
- 4. What was your favorite part of making slime?**

**Reflection Worksheet: Slime (3rd-5th)**

- 1. Why do you think slime is called a “non-Newtonian fluid”?**
  - A. Because it can bounce
  - B. Because it acts like a liquid and a solid
  - C. Because it's made of glue
- 2. What type of change happened when you made slime?**
  - A. Physical change
  - B. Chemical reaction
  - C. No change at all
- 3. What is a polymer?**
  - A. A sparkly object
  - B. A long chain of molecules that can stretch and bend
  - C. A type of color
- 4. Explain what happened when you added the borax solution to the glue**

## Lesson 8: Ice Fishing



**Video:** [📺 Ice Fishing Fun Science Experiment For Kids](#)

### Science Behind It:

This experiment shows how salt lowers the freezing point of water by melting the ice slightly where the salt touches. When the string is placed on the ice and salt is sprinkled on top, the ice melts a little and then quickly refreezes, trapping the string. This causes the ice to stick to the string, allowing you to “fish” the ice out of the water

#### - **Vocab:**

- > Freezing point: the temperature at which water turns into ice
- > Refreezing: when melted water turns back into ice

### Supplies:

- Small bowl/tray
- A glass of water
- String (yarn)
- Salt

### Procedure:

1. Fill the cup or tray up with water and place it in the freezer. You can also use ice cubes from your freezer and skip this step.
2. When the water is frozen, remove the ice from the cup or tray
3. Take a bowl/plate of water that is thinly spread on the bottom and slightly wet your string.
4. Dump your ice on that plate, taking the string from underneath and laying it across the ice cubes.
5. Place one end of the string from the fishing pole (string) on top of the ice cube and sprinkle salt on the ice where the string is touching.
6. After about 10 seconds, carefully lift the ice cube out of the bowl/plate with the string. You caught a fish (ice)!

### **Reflection Worksheet: Ice Fishing (1st-2nd)**

- 1. What did you do first in the experiment?**
  - A. Put salt on the ice
  - B. Freeze the water to make ice
  - C. Pull the string
- 2. What did the salt do to the ice?**
  - A. It made the ice melt a little
  - B. It made the ice bigger
  - C. It made the ice disappear
- 3. How did the string help you catch the ice?**
  - A. The string stuck to the ice because of the salt
  - B. The string pushed the ice away
  - C. The string made the ice cold
- 4. What happened when you lifted the string?**
  - A. The ice came up with the string
  - B. The ice stayed in the water
  - C. The string broke

### **Reflection Worksheet: Ice Fishing (3rd-5th):**

1. What happens to the ice when salt is sprinkled on it?
  - A. The ice melts a little because salt lowers the freezing point of water
  - B. The ice gets colder and harder
  - C. The ice disappears right away
2. Why does the string stick to the ice after sprinkling salt?
  - A. The ice melts slightly where the salt touches, then refreezes and traps the string.
  - B. The string melts the ice
  - C. The string gets sticky on its own
3. What is the freezing point of water?
  - A. The temperature at which water turns into ice
  - B. The temperature at which ice turns into water
  - C. The temperature at which water boils
4. What would happen if you didn't use salt in this experiment?
  - A. The string would not stick to the ice because it wouldn't melt and refreeze
  - B. The string would catch the ice faster
  - C. The ice would melt completely

## Lesson 9: Skittles Color Spread



**Video:** [▶ Why Do Skittles Do This In Water?](#)

### Science Behind It

This experiment demonstrates how sugar and food coloring dissolve in water. Warm water helps dissolve the colored sugar coating on the Skittles faster. As the sugar dissolves, it moves from areas of high concentration (near the skittles) to low concentration (the rest of the plate), creating a colorful spread. This is an example of diffusion, the movement of particles from high to low concentration

#### - **Vocab**

- > Dissolve: when a solid breaks down and mixes completely with a liquid
- > Diffusion: the movement of particles from an area of high concentration to low concentration, spreading out until they are evenly distributed
- > Concentration: how much of something is in a certain amount of a liquid
- > Solvent: a liquid that dissolves a solid

### Supplies:

- Skittles
- Warm water
- White plate

### Procedure:

1. Place the Skittles along the edge of the plate
2. Carefully pour warm water on the plate, making sure that the bottom of the skittles is covered
3. Watch as the colors spread

**Reflection Worksheet: Skittles Color Spread (1st-2nd)**

- 1. What did you see happen when the water touched the Skittles?**
  - A. The colors stayed in place
  - B. The colors spread out
  - C. The Skittles got bigger
- 2. What part of the Skittle was spreading in the water?**
  - A. The hard shell
  - B. The color and sugar
  - C. The inside of the Skittle
- 3. Why did the colors stop when they touched each other?**
  - A. Because they ran out of room
  - B. Because they mixed too fast

- C. Because they bounced off the plate
- 4. What was your favorite part of the experiment?**

**Reflection Worksheet: Skittle Color Spread (3rd-5th)**

- 1. What caused the colors on the Skittles to spread out?**
  - A. The warm water dissolved the sugar and food coloring
  - B. The plate spun around
  - C. The Skittles melted in the air
- 2. What is the word for when something breaks down in water and spreads out?**
  - A. Freezing
  - B. Dissolving
  - C. Coloring
- 3. What is the name for how the color moves from where there's a lot of it to where there's less?**
  - A. Evaporation
  - B. Melting
  - C. Diffusion
- 4. Why did the colors stop when they touched each other?**
  - A. They ran out of sugar
  - B. The plate cooled down
  - C. The sugar levels were the same, and the colors didn't mix

## Lesson 10: Dish Soap Boat Race:



**Video:** [YouTube Science at Home: Dish Soap Boat Racing](#)

### Science Behind It:

The experiment demonstrates how surface tension works and how soap changes it. Water molecules stick together tightly on the surface, creating a kind of “skin.” When the dish soap is added to the water, it breaks the surface tension behind the boat. This creates an imbalance that pushes the boat forward.

#### - **Vocab:**

- > Surface tension: The “skin” on the surface of water is caused by water molecules sticking together
- > Force: A push or pull that makes something move
- > Molecule: The tiny parts that make up everything, including water.
- > Reaction: What happens when two things cause a change, like soap touching water

### Supplies:

- A shallow dish or tray (baking dish)
- Water
- Liquid dish soap
- Cardboard
- Cotton swab

### Procedure:

1. Fill a shallow dish or tray with water, ensuring the water level is not too high
2. Create a small, lightweight boat shape (triangle with some sort of opening to apply soap) from the cardboard
3. Before placing the boat in the water, take a cotton swab to apply a somewhat thick amount of liquid soap to the little opening you created on the back of the boat.
4. Place the boat into the tray of water
5. The boat should start to move forward due to the change in surface tension
6. Now that you have tried one design, make any improvements to it and write it down in the data sheet

| Boat # | Draw Your Boat | How Did You Change Your Boat? | Did It Move?<br>(✓/X) | Was it Fast or Slow? |
|--------|----------------|-------------------------------|-----------------------|----------------------|
| 1      |                |                               |                       |                      |
| 2      |                |                               |                       |                      |
| 3      |                |                               |                       |                      |