RIGHT AT SCHOOL
The Student Enrichment Company

Right Club Curriculum

Water Wizards

Water Wizards Overview

Focus: Science and Engineering

Unit Description: Water shapes our lives and our planet. Let's dive in to discover the many ways water impacts us, as well as the astonishing world waiting to be explored deep beneath the surface of the ocean.

Essential Questions: Why is water important to us? What are some ways we can use water for recreation? How can we use water to help us do work?

Enduring Understanding: Water is necessary for human survival, but it does a lot more than keep us hydrated. Water can be used for everything from exercise and recreation to fueling machinery for simple tasks. We'll investigate some of the ways water affects our lives and why it is so important to our survival.

Standards Addressed:

- **MATH** Students will construct rational arguments and critique the reasoning of others.
- **MATH** Students will use appropriate tools and units when measuring.
- **MATH** Students will work with precision.
- **LANGUAGE ARTS** Students participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
- **LANGUAGE ARTS** Students will present information using supporting evidence such that listeners can follow the line of reasoning.
- **SCIENCE** Students will develop abilities to do scientific inquiry.
- **SCIENCE** Students will develop an understanding of physical science and motion of objects.
- **SCIENCE** Students will develop an understanding of the process of technological design.
- **PHYSICAL EDUCATION** Students will participate in regular physical activity.
- **PHYSICAL EDUCATION** Students will display appropriate sportsmanship and teamwork while participating in physical competition.
- **VISUAL ARTS** Students will use a variety of materials and techniques to create art.
- **SOCIAL-EMOTIONAL LEARNING** Students will develop the ability to make constructive choices about personal behavior and social interactions based on ethical standards, safety concerns, and social norms.

Daily Activities

1) **What's the Matter?** – Water is an amazing substance that's always changing. We'll find out how as we try to avoid temperature changes in a fast-paced and fun game of tag.

2) **Slippin' & Slidin'** – Going to a waterpark is lots of fun, but so is creating our own! We'll become aqua-engineers to create the water slides of our dreams. Look out below!

3) **Life Savers** – Water safety is an important matter. To stay safe, people need the right equipment. Luckily, Right Club students are here to save the day! We'll create personal floatation devices in this exciting engineering challenge.

4) **Indoor Water Skiing –** Water skiing requires a large body of water, skies, and a boat...OR you can use a whole lot of creativity instead. We'll learn the basics from the safety of dry land in this wacky version of the classic watersport.

5) **For the Birds** – One famous artist not only changed the art industry through the use of watery paint, but also the world of science. We'll step into the shoes of John James Audubon to find out how he combined watercolor art and science to help people better understand the natural world around them.

6) **Wonder Wheel** – Water is a powerful force that can do some amazing things if you know how to harness it. We'll explore how water can be used with simple machines to get them to do work for us.

7) **Flippin' Out!** – Water bottle flipping has become a viral sensation. We'll discover how to use science to become bottle flipping champions and put our skills to the test in a round robin tournament of fantastic flippers.

8) **Set Sail** – Prepare to set sail. We'll discover the history of wind-powered boating and create our own sensational sailboats as we prepare for an unforgettable boating drag race.

9) **Sailboat Regatta** – Gather your crew for an exciting boat race! We go head-to-head against our friends to see which ship is the fastest on the seven seas!

10) **Wet & Wild Field Day** – We'll step outside for a water-themed field day with active and fun events like the Water Balloon Shotput and Drip Drop Double Dutch.

S&S Supplies Needed

Activity	Item #	Description	Amount
Slippin' & Slidin'	EC1355	Aluminum foil	**1 per program**
For the Birds	PT205	Watercolor set	**1 per 5 students**
	PE2145	Watercolor panels	**1 per 12 students**
Wonder Wheel	SL5492	Plates	**1 per 8 students**
	SL5491	Cups	**1 per 12 students**
Wet & Wild Field Day	W13055	Sponges	**1 per program**

Items From Home

Activity	Description	Amount
Life Savers	Canned goods	**1 per 4 students**
Indoor Water Skiing	Beach or bath towels	**1 per 3 students**

Items to be Collected Througout Unit

Activity	Description	Amount
Flippin' Out!	Water bottles w/ tops	**1 per student**

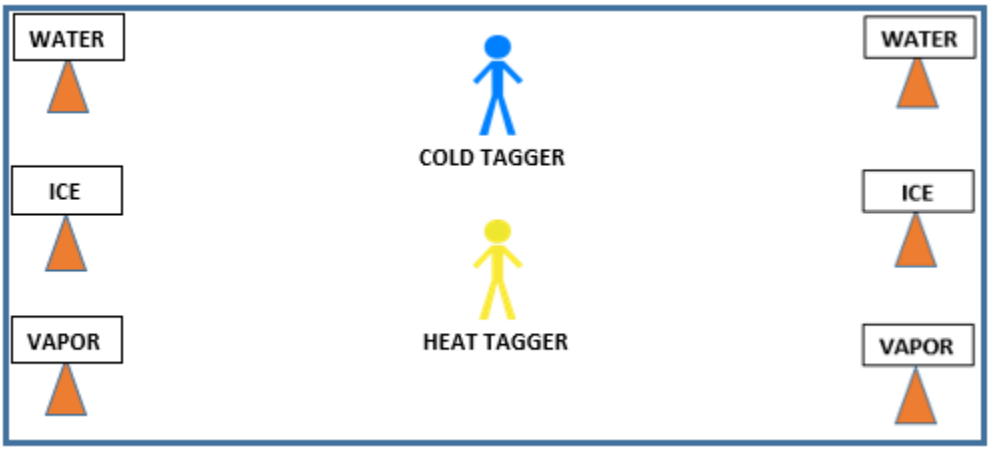
Right Club Supplies Needed

- Cones
- Ping pong balls
- Pencils
- Paper
- Paper towels
- Tape
- Noodle sections
- Craft sticks
- Jump ropes
- String/yarn
- Chenille stems
- Rubber bands
- Plastic storage containers

1) What's the Matter?

Supplies: cones, large open space.

Preparation: Make 2 sets of signs that read WATER, ICE, and VAPOR. Set up play area cones and signs as shown in diagram below.



Learning Objective: Students will practice gross-motor function, teamwork, and sportsmanship, while exploring how matter changes states.

Warm-Up:

- *Water covers about 71% of the Earth's surface. We couldn't live without it. What are some things we use water for?*
- *During our new unit, Water Wizards, we are going to discover some of the many ways our lives are touched by water!* Read Daily Activities page with students to preview the unit and build excitement!
- *Water can be found in many forms. What do we call water in* ***solid*** *form?* (Ice) ***Gas****?* (Vapor) ***Liquid****?* (Water)
- *Water, ice, and vapor may look very different and have different qualities, but they are made of the same stuff. What causes water to turn to ice?* (colder temperatures, removing energy) *What causes water to turn into vapor?* (increased heat, adding energy)
- *Changing temperatures can cause water to shift to a different* ***state of matter****.* ***State of matter*** *means whether something is a* ***solid****,* ***liquid****, or* ***gas****.* Show Pics for Kids.
- Use the chart on Pics for Kids to review how temperature affects each **state of matter**.
- *Let's see for ourselves by playing a game!*

Unit-Long Project Note:

Remind students that they have the option of developing and participating in a unit-long, student-driven project that ties to the theme. This is what makes every day a Daily Double! (Add free art, and you've got a Triple Play!) Ideas for this project can include, but are not limited to, the following:

- Create a water filtration device using household items.
- Create a group art project that brings awareness to the dangers of water pollution.
- Invent a new toy for the beach or pool.

These are just a few ideas to get you started. Ideally, this project is developed by the students, reflecting their interests.

Activity (Take It Outdoors!):

1. *Today's activity is a tag game called What's the Matter – you know, like the matter of state: solid, gas, or liquid. There will be two taggers – a heat tagger and a cold tagger.* Choose two volunteers and assign as heat and cold.

2. *Everyone else will be assigned to either water, ice, or vapor teams. You will stand by your team's sign.* Assign remaining students and have them stand by their sign.
3. *If I call your team's name, your goal is to run to the other side of the field to your team's sign without getting tagged by cold or heat.*
4. *If you do get tagged, either heat or cold, you have to figure out what* ***state of matter*** *you now become and go to that team by their sign. For instance, if you are liquid and get tagged by cold, you become ice and go join that team at their sign. Now you try: if you are liquid and get tagged by heat, you become…*(vapor). *That's right, and then you join that team. So you have to remember what team you're on AND figure out how heat or cold affect you if you get tagged.*
5. *If your* ***state of matter*** *would not change due to heat or cold, you will remain with your team. For example, if ice gets tagged by cold, they remain ice, so they just stay with the ice team.*
6. Have students line up on the same side by their sign. Remind the group which tagger is heat and which is cold. Demonstrate how to play with a quick walk-through. Have students tell you where they should go once they get tagged. Confirm answer with the rest of the group.
7. *Ok, we're ready to begin "What's the Matter!" If you get stuck and need my help figuring out what to do when you get tagged, just stay where you are and raise your hand.*
8. Call one of the states of matter (water, ice, or vapor) to force that team to race to the other side. Play multiple rounds, switching taggers out regularly.
9. For added fun, switch up the ways students are allowed to move. Skipping, galloping, and walking backwards can all be used!

Wrap It Up:

- *What was heat able to change?* (ice to water, water to vapor) *What did cold change?* (water to ice, vapor to water)
- *What was heat unable to change?* (vapor) *What was cold unable to change?* (ice)

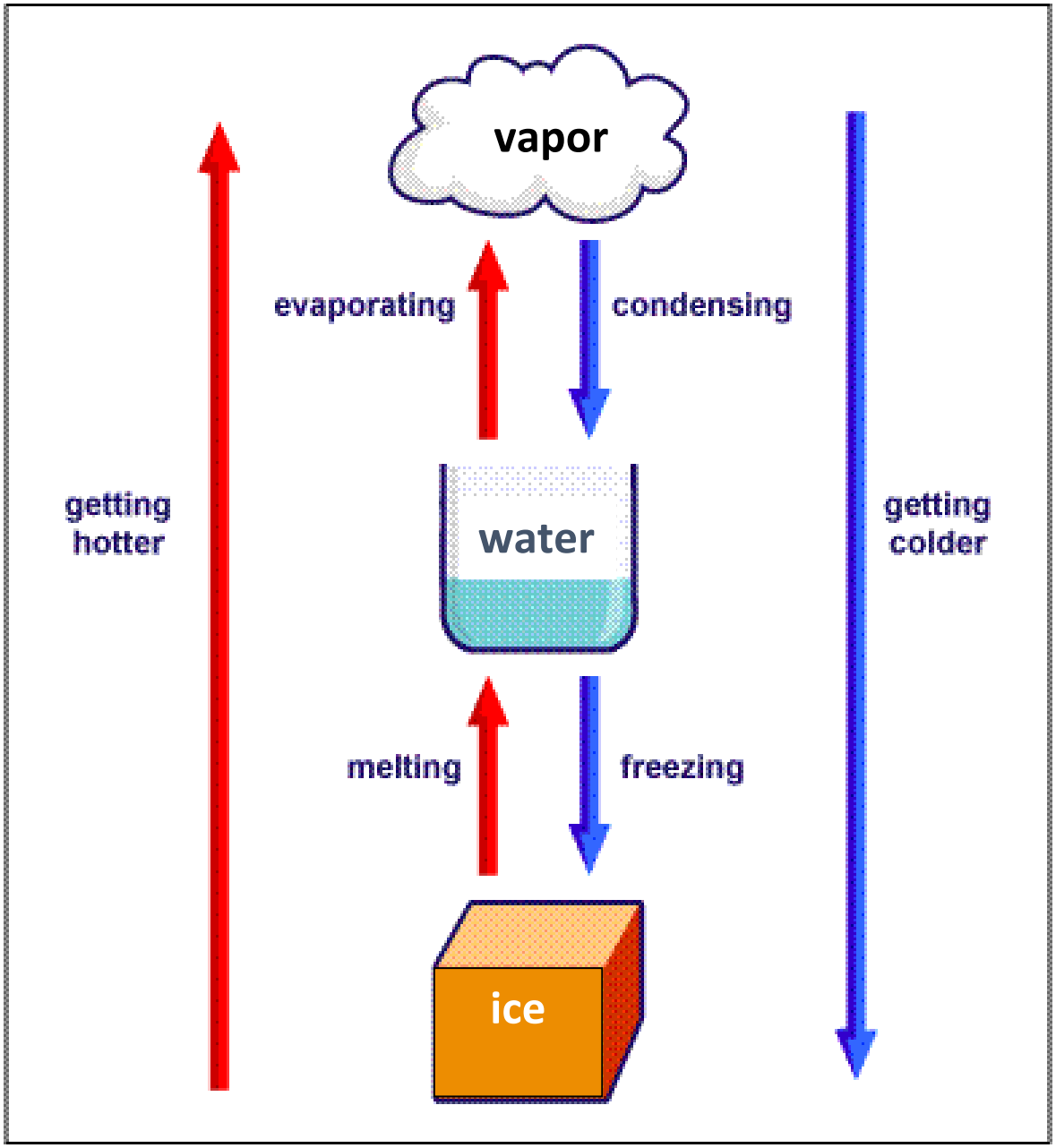
Take It Away:

- *Where can you find evidence of water changing from one* ***state of matter*** *to another around your home? How does this affect our lives?*
- *Later in this unit, we have a fun activity involving water bottles. We'll need one for each person participating in the activity. If you have any used water bottles with tops, we'll start collecting them tomorrow!*

Lead In:

- *Tomorrow, we will investigate one of the ways engineers can use water to create a wet and wild good time!*

Pics for Kids



A slight temperature change can cause BIG changes!
Use the chart above to determine what happens when:

- *Water gets hotter (vapor)*
- *Water gets colder (ice)*
- *Ice gets hotter (water)*
- *Ice gets colder (no change)*
- *Vapor gets hotter (no change)*
- *Vapor gets colder (liquid)*

2) Water Slide

Supplies: paper, pencil, ping pong balls, aluminum foil, water, towels/paper towels, various building supplies (tape, craft sticks, cups, plates, rubber bands, etc.)

Preparation: Set out materials.

Learning Objective: Students will explore the Engineering Design Process, teamwork, and the ways energy can change form, such as changing from potential to kinetic.

Warm-Up:

- Show students first page of Pics for Kids. *What are these? Water slides are one way we use water for recreation. Has anyone ever been to a water park? What were the rides like?*
- *When we sit at the top of the slide, our bodies have **potential energy,** which is stored energy. The higher up we are, the more **potential energy** we have. Once we start moving, that **potential energy** turns to **kinetic energy**, or the energy of motion.*
- *Why is it important for water slide engineers to understand how **potential** and **kinetic energy** work?* (They want to create a slide that is both safe and fun.)
- *Today, we are going to create our own water slides that turn **potential energy** into **kinetic energy**!*

Activity (Take It Outdoors!):

1. *In just a moment, I'm going to put you into groups. Your goal will be to design and build a water slide that will transport this passenger* (hold up a ping pong ball) *all the way to the bottom. You can use any of the materials provided, but you only get one cup of water for each attempt to move your passenger down the slide.*
2. Show second page of Pics for Kids. *Be careful of the height and steepness of your slide, because we want to make sure our passenger makes it to the bottom safely.*
3. Put students into groups of 3-4. Pass out paper and pencil. Allow groups to plan and diagram their water slide for 5-10 minutes.
4. Once students are ready, allow them to build and test. Their slide should transport the ball to the bottom safely, using only one cup of water.
5. Once complete, challenge students to build their slides even bigger or demonstrate for their peers.
6. Note: We want to see your students' incredible creations! Email pictures of photo-released kids showing off their creations to photos@rightatschool.com!

Wrap It Up:

- *Did anyone test their slide and find out the ball didn't make it all the way down? How did you adjust your design? How did this change the **potential** and **kinetic energy**?*
- *Did anyone test their slide and find out the ball flew off the slide? How did you adjust it? How did this change the **potential** and **kinetic energy**?*

Take It Away:

- *What are some other things engineers might design that require an understanding of **potential** and **kinetic energy**?* (roller coasters, skateboard ramps, zip lines, etc.)
- *Don't forget to bring water bottles with tops in for another fun activity coming up!*

Lead In:

- *Tomorrow, we'll look at one of Earth's most dangerous events and find things we can do to stay safe!*

Pics for Kids

Water slides come in all shapes and sizes. What will your water slide look like?

Pics for Kids

Create your own water slide with a ping pong ball passenger at the top. It must reach the bottom using the flow from only one cup of water. Be sure your passenger doesn't fall out!

3) Life Savers

Supplies: plastic storage containers, water, 1 canned food per 4 students (if unavailable, bottles of glue or other materials can be substituted), various building materials (cups, straws, rubber bands, paper clips, craft sticks, tape, balloons, plastic bags, glue, corks, foam pieces, string, foil, etc.)

Preparation: Fill storage containers with water. Set out materials.

Learning Objective: Students will practice using **Engineering Design Process**, teamwork, and scientific knowledge to solve real-world problems.

Warm-Up:

- *Has anyone ever been on a boat before? What did you have to wear?* (personal flotation device/life vest) *Why?* (safety, to prevent drowning)
- *Humans have used various methods of staying afloat for centuries. The modern life jacket, or* ***personal flotation device****, was created by Captain Ward, a Royal National Lifeboat Institution inspector in the United Kingdom, in 1854. It was made of cork and meant to be used in lifeboats during emergencies.*
- ***Personal flotation devices*** *have changed a lot since then.* Show Pics for Kids. *They have since been made to self-inflate, insulate from the cold, and launch distress flares. What other advancements can you think of to help improve safety for those lost at sea?*
- *Today, we are going to design our own* ***personal flotation devices****!*

Activity:

1. *Each group will get a can of food that will serve as the victim you are trying to keep afloat in your storage container, which is your body of water. Your group must create a device that is in one piece and can be attached to the can in 30 seconds or less. This means you cannot just tape a bunch of balloons to the can.*
2. *Some portion of the can must touch the water at all times, so building a boat will not work. Finally, it must remain floating for 45 seconds.*
3. *Use the* ***Engineering Design Process****.* Show diagram on Pics for Kids. Post or draw larger on whiteboard or poster paper if available. Discuss each step.
4. Place students in groups of 3-4. Show them available materials. Allow time for planning before giving them access to materials.
5. Allow students to build and test designs.
6. Once they have built a model that meets the requirements, have them present to the group.
7. If time permits, challenge students to build a design that will support 2 cans.

Wrap It Up:

- *What did you learn from testing your initial design? How did the design change?*
- *If you built a life-sized version of your design, would it support a human being? Why or why not? What would you have to change?*

Take It Away:

- *Besides* ***personal flotation devices****, what are some other things we should do to stay safe at sea or around water?*
- *Thank you to those who have donated water bottles with tops. There's still time to bring yours in!*

Lead In:

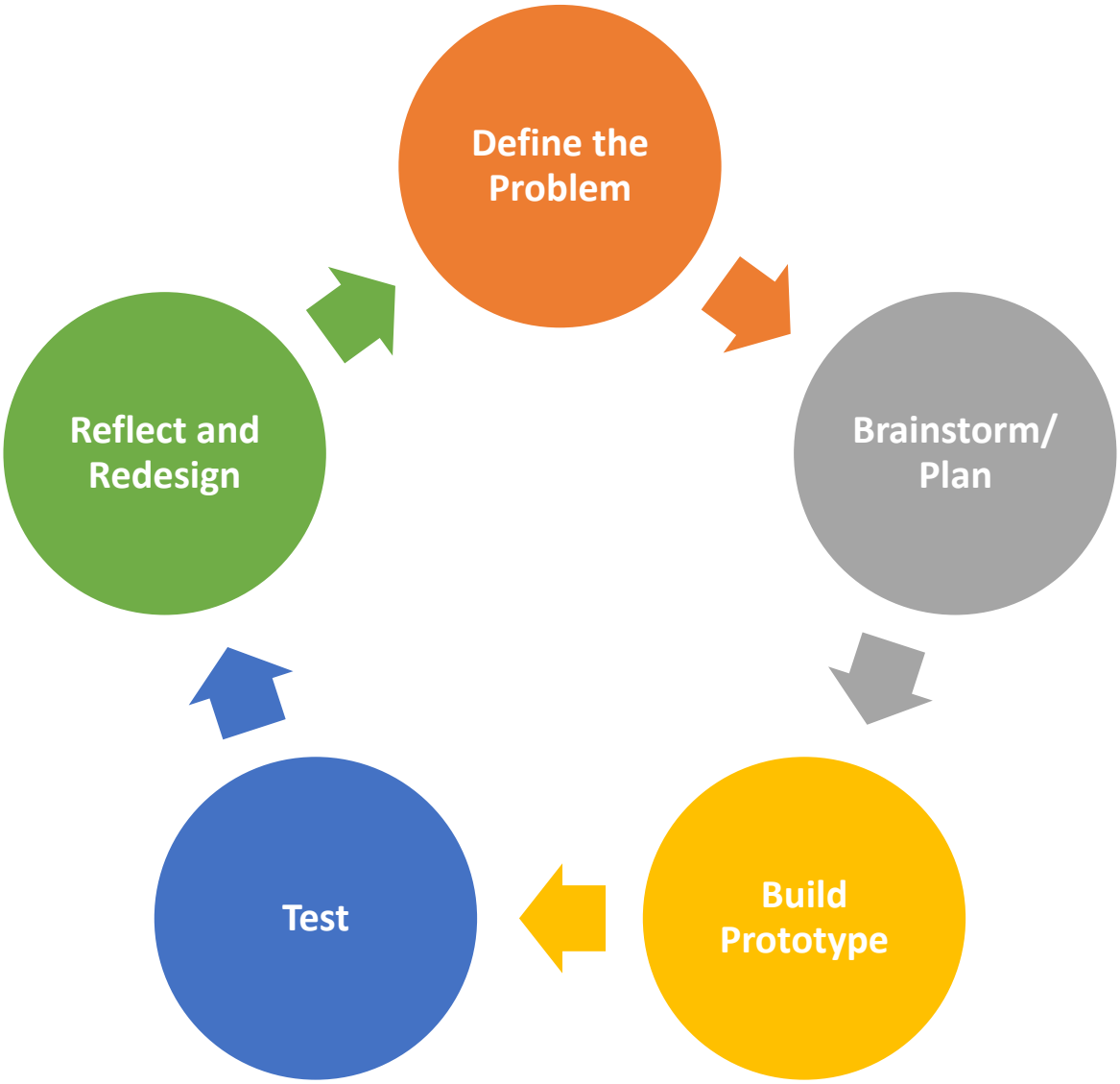
- *Next time, we take one of the world's most popular water sports and try it indoors!*

Pics for Kids

Personal floatation devices have changed a lot over the years.

What will your design look like?

Engineering Design Process

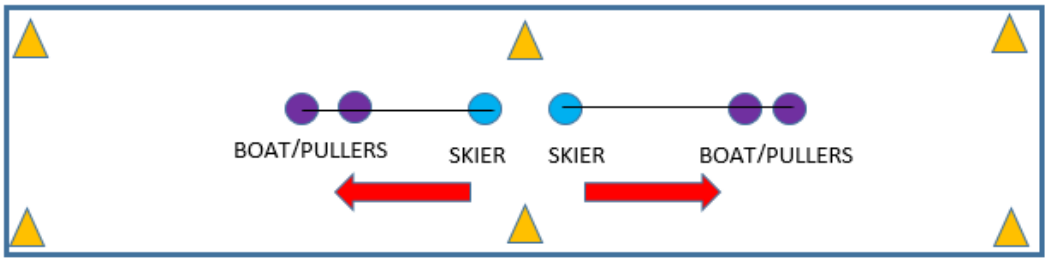


Check out these personal floatation devices students created using the Engineering Design Process!

4) Indoor Water Skiing

Supplies: jump ropes, large indoor tiled space or gym, cones, beach or bath towels (optional)

Preparation: Determine the best location for this activity. It should be a large indoor space with a smooth surface. A gym is ideal, but tiled hallways will also work. If using a gym, there is no set up. Students will race from one baseline to midcourt. If using a hallway, mark a center starting point where each skier will start back to back. Mark off 2 finish lines about 20-30 feet from the starting line in opposite directions. See hallway diagram below. Sweep area prior, if possible.



Learning Objective: Students will develop balance and core strength while participating in a gross motor, competitive group activity.

Warm-Up:

- *There are many sports that require water to play. Can you think of any?* (swimming, diving, surfing, water polo, etc.)
- *One popular water sport is water skiing.* Show students first Pics for Kids. *Water skiing is a sport that has been around since 1922. It involves a person or persons on water skis being pulled across water by a rope connected to a boat.*
- *The first step in learning to ski is to know the proper stance.* Show second, labeled picture on Pics for Kids. *Let's try! Everyone stand up, put your arms out in front of you, like you are holding a line, bend your knees, and lean back slightly. Why is it important to lean back?* (If you don't, you will fall forward.)
- *Now that we've learned how to stand, let's give it a shot with some indoor water skiing!*

Activity:

1. *You will be put into teams of 3 or 4. One person will be the skier holding one end of the rope, the other will be the boat pulling skier holding the same rope. Be sure to pull your skier slowly at first or they will fall over. Your goal is to cross the finish line before the other teams.* Show students start and stop lines.
2. The skier can either participate in socks or standing on a towel. If you have a large group that cannot accommodate all students participating at once, have students help judge who crosses the line first and cheer on their friends.
3. Have students play multiple rounds, giving each a chance to play the role of skier and boat.

Wrap It Up:

- *What muscles did you feel being used as the skier? What about as the boat?*
- *How could you develop these muscles to help you be a better skier?*
- *What role did balance play in your success?*

Take It Away:

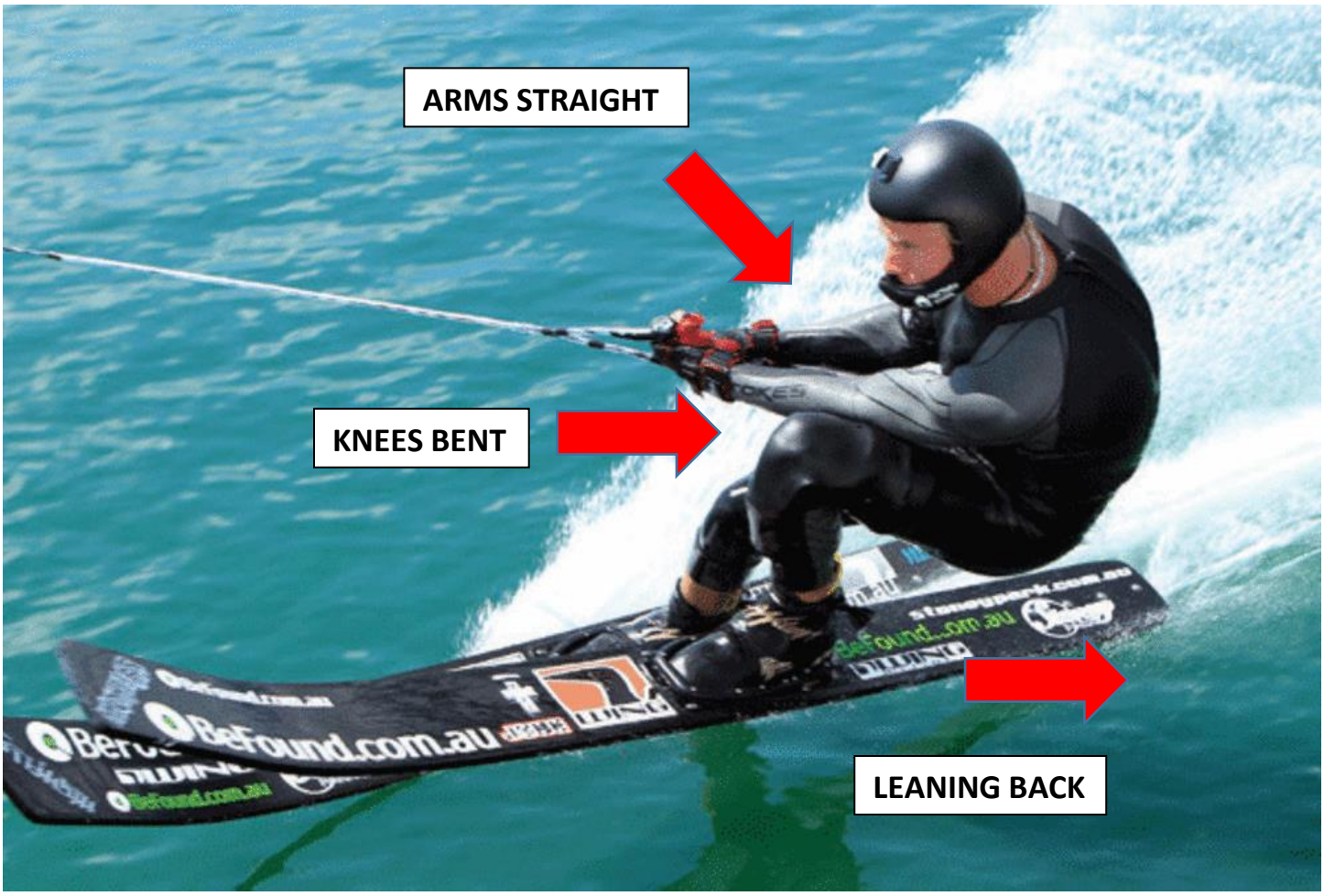
- *In this activity, we made an outdoor sport into an indoor sport by making a few adjustments. What other sports could you do this to? How would you adjust them?*
- *Even if you've already brought water bottles with tops in, you can still bring more!*

Lead In:

- *Tomorrow, we find out about a scientist who used water to create art!*

Pics for Kids

Notice how this skiier keeps his knees bent and leans back.



Check out how the pros do it!

5) For the Birds

Supplies: watercolor paint sets (1 per 4 students), watercolor panel (1 per student), table cover, brushes, cups, water, pencils

Preparation: Cover tables. Set out paints, brushes, and cups of water.

Learning Objective: Students will explore nature and watercolor painting, while learning how John James Audubon documented different species of birds using his artistic abilities.

Warm-Up:

- *Watercolor paint is one way that water can be used in art. One artist famous for his watercolor paintings is John James Audubon. He used his artistic skill and love of nature to document 497 species of birds. This was a great accomplishment that helped scientists learn more about these animals.* Show Pics for Kids.
- *Audubon is best known for his book* <u>*The Birds of America*</u> *(1827-1839) that shows detailed paintings of birds in their natural environment. He even identified 25 new species that were unknown to science at the time.*
- *A collection of this type seems like a simple idea. Why hadn't anyone already created such a book?* (cameras were relatively new and difficult to use and transport, few artists with necessary knowledge of birds, travel difficulty, etc.)
- *Today, we are going to follow in John James Audubon's footsteps by using watercolors to document nature.*

Activity (Take It Outdoors!):

1. *First, we are going to go outside to see if we can spot any birds to sketch. If you see other animals, insects, or plants that inspire you, you can choose to sketch those instead. Once you have decided on your subject, do a quick, light sketch with your pencil. We will fill it in with watercolors when we come back inside.*
2. *Be sure you also sketch the surrounding area. By including the environment the birds lived in, Audubon helped scientists learn more about the birds and how they lived.*
3. Take students outside to find their subject and sketch. Return inside.
4. *When you paint with the watercolors, you want them slightly damp. If it gets too wet, the paint will be runny and hard to control. Also, be sure to clean the brush completely in a cup of water before using a new color, or the colors will get all mixed up.*
5. Allow students to paint over their sketches with watercolors. Set to dry.

Wrap It Up:

- *Who would like to share their artwork? Why did you choose the subject that you did?*
- *What would a scientist learn from your art about your subject and how it lives?*

Take It Away:

- *How has technology changed the way we study the natural world since Audubon's time?*
- *Two more days to bring in water bottles with tops!*

Lead In:

- *Next, we will look at one way we can harness the power of water to do work for us!*

Pics for Kids

Audubon painted various birds in their natural environments.

What birds are found near you?

6) Water Wheel

Supplies: masking tape, 2 paper plates per group, 4-5 cups per group, yarn, pitcher or large container, water, various building materials (chenille stems, craft sticks, rubber bands, paper clips, etc.)

Preparation: Set out materials. Print Pics for Kids. Create your own water wheel using the directions on Pics for Kids.

Learning Objective: Students will explore energy and engineering design by creating machines that converts flowing or falling water into useful forms of energy.

Warm-Up:

- *Today, our Water Wizardry continues! So far we've seen water can do amazing things, but did you know we can use it to create useful forms of energy?* Show Pics for Kids. *Does anyone know what these machines are? What are they used for? How do they work?*
- *These are water wheels. They are used to convert the natural flow of water into useful forms of energy. They are connected to a series of gears and other machinery. The water moves the wheels, which moves the gears, which moves the machinery. They can be used to do a variety of simple tasks, like grinding down wood and grain or power other machines.*
- *What advantages would a machine like this have over the use of electricity?* (It's renewable and doesn't pollute or do damage to the environment.)
- *We are going to create our own water wheels and experiment with them to see we can get them to do.*

Activity (Take It Outdoors!):

1. Show students example water wheel made during Preparation. Discuss how it was built and how it works.
2. Split students into groups of 3 to construct a water wheel, as described on Pics for Kids.
3. *Now we are going to see what we can do with them. Your first goal is to find a way to convert the movement of water into a something useful. Use the Engineering Design Process to use your water wheel to pick up a pencil. You may use any building materials we have available*.
4. One potential solution to this challenge is to add something thick, like another cup, to the yarn that will act as a spool. Attach another piece of yarn to this spool, so that the yarn will wrap itself around the spool when the wheel is turned, picking up the pencil.
5. Once students have accomplished this, challenge them to pick up heavier objects (book, toy, etc.). *What else can you do with your new machine?* Allow students to continue to experiment, finding new uses for their water wheel.

Wrap It Up:

- *What tasks were you able to accomplish with your water wheel? What other tasks do you think you could accomplish with more time?*
- *What could you do with a full-sized water wheel with a flowing river or stream?*

Take It Away:

- *What are some other natural, renewable resources we can convert to energy?* (solar, wind, etc.)
- *How does this help our Earth? How does it help us?*

Lead In:

- *Tomorrow, we have an activity you'll "flip out" over! So bring in any last water bottles with tops.*

Pics for Kids

Do you know what these machines are?
How do they work?

Water Wheel Instructions

1. Tape plates together.

2. Poke a hole through the center.

3. Tape cups around the center, facing the same direction.

4. Thread the wheel with yarn though the center. Have two students hold either side of the yarn. Pour water from a pitcher from above to move the wheel.

7) Flippin' Out!

Supplies: water bottles (at least 1 per student), paper, pencil, data sheet (see Pics for Kids)

Preparation: Print one data sheet for each student. Print one game board for every 2 students. Tape game boards to table a few feet apart. Set out materials.

Learning Objective: Students will discover **data collection** and **controlled experimentation** can help find the optimal method of accomplishing a task.

Warm-Up:

- *There are always surprising new ways people invent to have fun with water. Has anyone seen YouTube videos of water bottle flipping? Has anyone tried it themselves? Flipping water bottles has become a viral sensation!*
- *The concept is simple. Someone stands with a partially filled water bottle in their hand a few feet away from a table. They softly underhand toss it in the air with the goal of getting it to land on the table standing up.*
- *Let's give it a shot.* Give each student a water bottle. *You get 2 tries. Go! What worked well? What does not?*
- *Now try one more time, but this time, stand on one foot while you do it. Keep everything else exactly the same.* Give students a minute to try. *Was it easier or harder on one foot? You just did a controlled experiment!* ***Controlled experimentation*** *means that each time you try flipping your bottle, you only change one thing at a time.*
- *For example, you only changed the number of feet you stood on, but kept the way you flipped it exactly the same. What other factors could we experiment with?*
- *Today, we are going to learn the basics of bottle flipping and play a bottle flipping game!*

Activity:

1. *Before we begin our game, we need to figure out the best method of bottle flipping.*
2. Show students data sheet. Explain how to record data.
3. *Before we begin, let's make some predictions. Who thinks a full bottle will land upright most often? Half full? Quarter full? Empty? Why?* Record results.
4. Have students test bottles using various amounts of water and record results on Water Bottle Flipping Data sheet. *According to your data, what amount of water gives you the best chance of landing upright?* Discuss.
5. *Now we are going to play a game using our new skills. There are game boards taped to tables around the room. You and a partner will go to one game board and take turns flipping your bottles.*
6. *You get 10 points for every bottle that lands standing up. If it lands upright in one of the circles, you get that many points in addition to the 10 points. You can keep score on the back of your data sheet.*
7. *After each person has flipped 5 times, the person with the most points moves to another game board with a different player waiting for a partner. The other person stays where they are. Then, you play your new opponent.*
8. Allow students to play game.

HELPING ALL STUDENTS SUCCEED!

- Challenge older students to calculate success rates. Success Rate = Number of Successful Attempts/Total Number of Attempts
- Pair younger students with older students to help with record keeping.

Wrap It Up:

- *Besides water level, what other factors could you test to see if it improves your bottle flipping abilities?* (different size/shape bottles, left hand/right hand, multiple flips, standing/sitting, etc.)

Take It Away:

- *What other skills could you improve by* ***controlled experimentation*** *and* ***data collection****?*

Lead In:

- *Tomorrow, we have our greatest water design challenge on the seven seas!*

Water Bottle Flipping Data

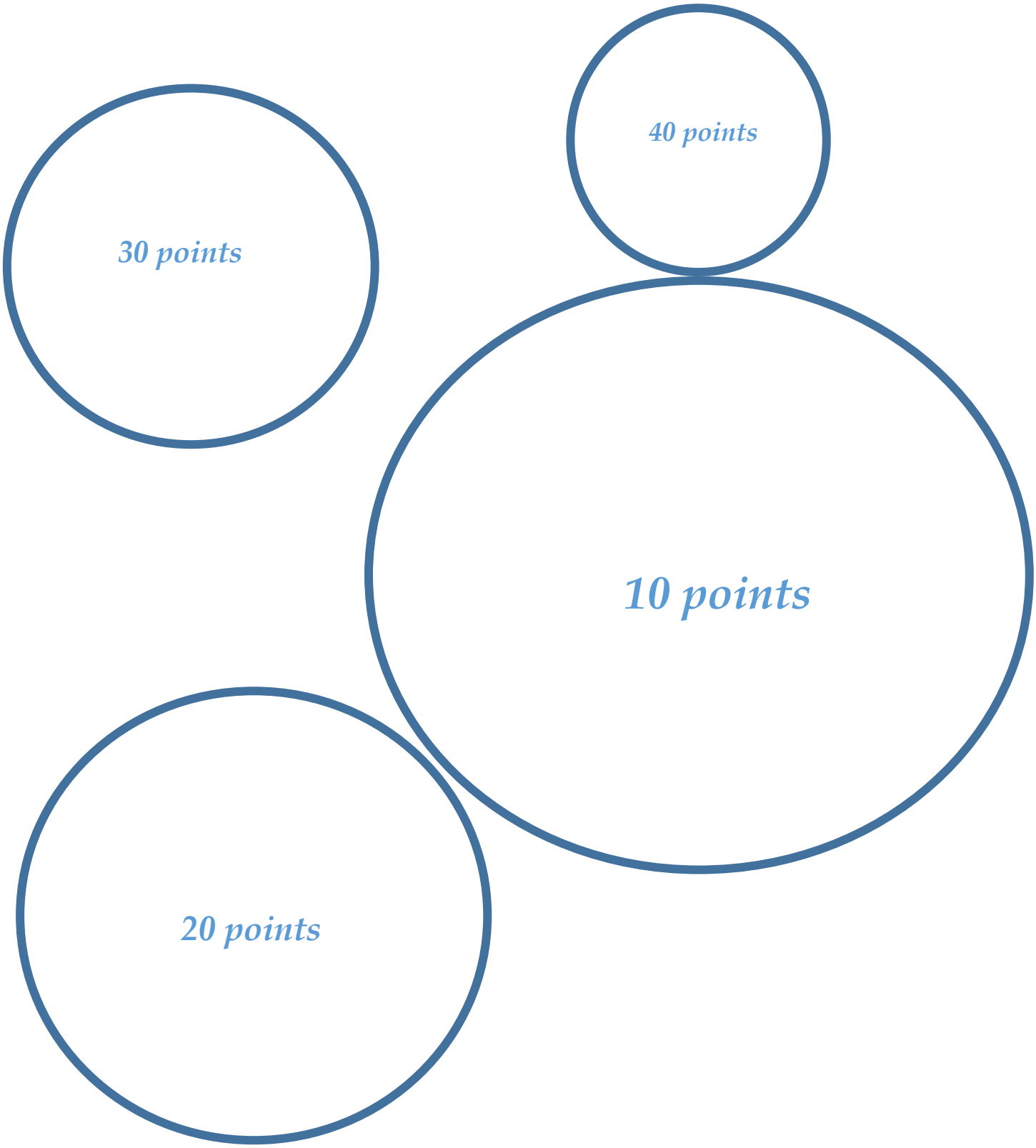
Amount of Water	Picture	Number of Successful Attempts	Number of Unsuccessful Attempts
Full			
¾			
½			
¼			
Empty			

With which amount of water did you have the most success?

Game Board

Upright landing = 10 points

Upright and touching circle = 10 + circle points



8) Set Sail

Supplies: aluminum foil, water, noodle sections, various building materials (craft sticks, ping pong balls, chenille stems, construction paper, foam pieces, tape, straws, etc.)

Preparation: Create trenches by tearing off one 4-foot-long piece of aluminum foil per 3-4 students. Fold sides up as shown in picture below. Fill with water. Set out building materials.

Learning Objective: Students will explore collaborative design, physics, and renewable energy by creating sailboats.

Warm-Up:

- *Has anyone been on a sailboat before? What do you remember about your experience?*
- *Before modern forms of transportation were invented, one of the most efficient ways of crossing large bodies of water by harnessing the power of the wind. Today, many people still enjoy sailing for recreation.*
- *Sailboats come in all shapes and sizes.* Show first Pics for Kids. *What differences do you notice? Why do you think they are so different?* (They do different jobs - some built for speed, some for maneuverability, different size ships, etc.)
- *Today, we will become Water Wizards by creating our own sailboats. Tomorrow, we will have a sailboat race!*

Activity (Take It Outdoors!):

1. *You will be put into groups of 3 or 4. Each group will have to use the available items to build your own sailboat. The boats will go into these trenches.* Point to foil trenches. *When the race starts, your team will get behind the boat and fan or blow into the sail to create the wind that will push the boat to the end of the trench.*
2. *First, you'll have to come up with a building plan. Take a look at the available materials, decide what you want to use, and make a sketch of your design. Here are a few examples of student-designed boats.* Show students examples on second Pics for Kids.
3. *Once you have a plan, you'll start building. You don't have to stick to your original plan. Test out your design to find out what works and what does not. Try out a variety of different sails, like we saw in Pics for Kids. Adjust as needed.*

4. Put students into groups. Show available materials. Give time to plan, test, and adjust their designs.
5. Store boats and aluminum foil trenches for tomorrow's activity.

Wrap It Up:

- *What did you learn from testing your design? How did your design change from this new knowledge?*
- *What do you still need to do before the big race tomorrow?*

Take It Away:

- *If you were to meet a sailboat captain, what questions would you have for them?*

Lead In:

- *Tomorrow, we set sail for the big race!*

Pics for Kids

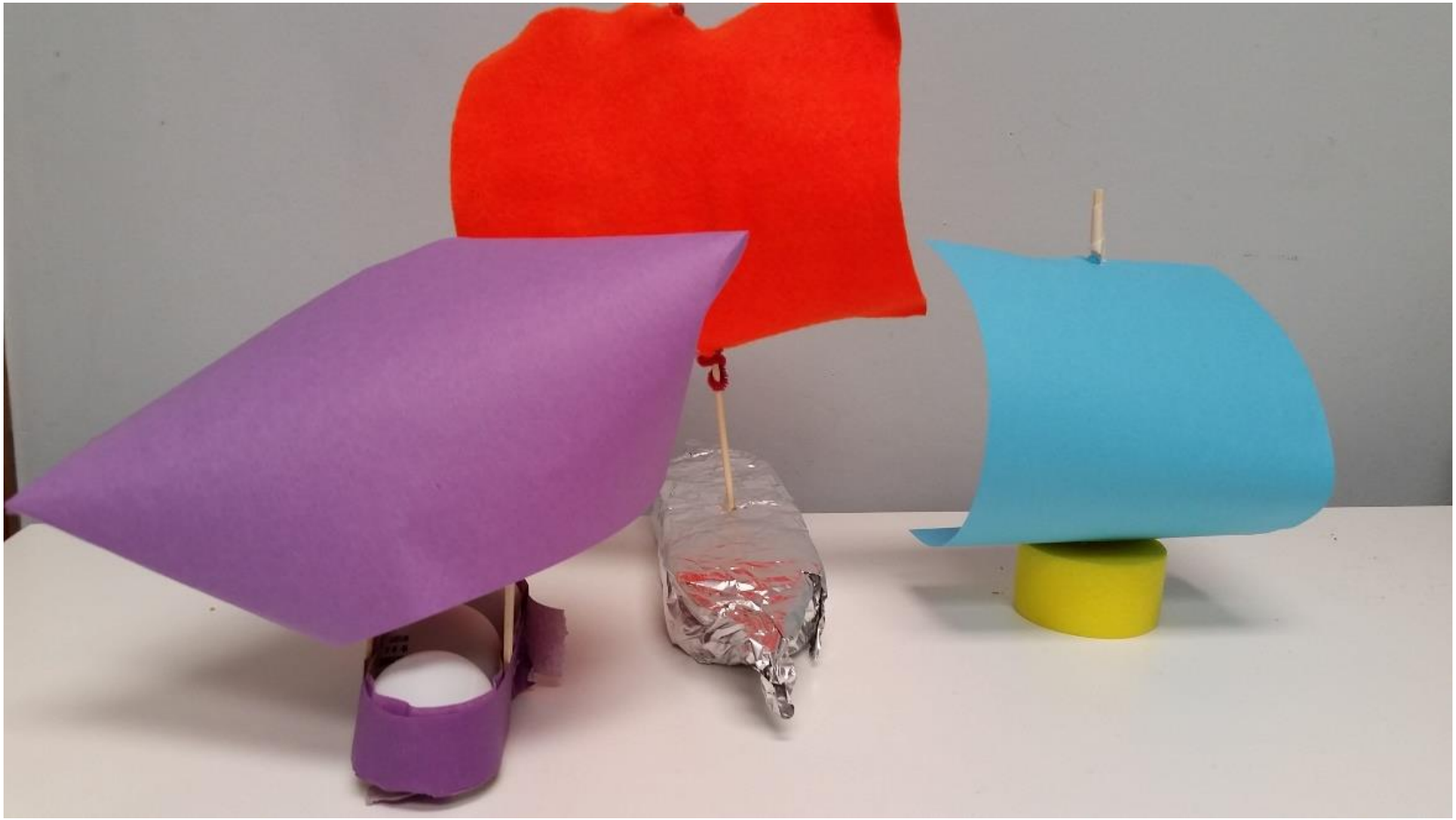
Sailboats come in all shapes and sizes!

Pics for Kids

How are these sails different from the other examples?

What advantage might this give the sailor?

Pics for Kids



Here are a few examples of student made sailboats.
What will your design look like?

9) Sailboat Regatta

Supplies: aluminum foil, water, noodle sections, various building materials (craft sticks, ping pong balls, chenille stems, construction paper, foam pieces, tape, straws, etc.)

Preparation: Set out aluminum foil trenches from yesterday's activity. Fill with water. Set out building materials and boats from yesterday's activity.

Learning Objective: Students will experiment with using wind power to move an object.

Warm-Up:

- *Yesterday, we saw that there were lots of different types of sailboats with lots of different types of sails. How did you decide which type to use for your boat?*
- *We also had many different types of materials to use to build your boat. How did you decide? What were some of the pros and cons of each?*
- *We'll have about 15 minutes to put the finishing touches on our boats before the big race. If you're happy with your design, you can build a second boat with different features. Let's get to work!*

Unit-Long Project Note:

- Remind students working on the unit-long project that they will be presenting their project to the group tomorrow. Allow them the opportunity to plan how they would like to do that.

Activity (Take It Outdoors!):

1. Allow each group time to make adjustments and practice moving their boats down the trench using air as their only power.
2. After sufficient time has passed, have students start their boats at the back of trench.
3. *When I say, "Go," you can blow, fan, or do whatever else you can to create the wind that will push your boat to the end of the course. Ready, set, GO!*
4. Have students race twice. Discuss what worked and what didn't. Allow 5 minutes for adjustments before one final race.

Wrap It Up:

- *What were some common challenges that most teams had? What did you do to overcome those challenges?*
- *What did you learn from seeing other groups' designs perform?*

Take It Away:

- *Wind power used by sailboats is a great example of clean, renewable energy. What else could we power with wind?*

Lead In:

- *Time to get outside and get moving! Next time we meet, we have a bunch of wet and wild games for an unforgettable field day! Be ready to get messy!*

10) Wet and Wild Field Day

Supplies: water, buckets, balloons, double dutch jump ropes, cups, meter stick, sponge **NOTE:** Latex-free schools can substitute water balloons with water-filled Ziplock bags.

Preparation: Fill balloons with water (1 per student + a few extras). Print Pics for Kids. Cut out directions for each station. Set up stations as described in directions on Pics for Kids. Post directions at each station.

Learning Objective: Students will understand that physical activity provides opportunities for enjoyment, challenge, self-expression, and social interaction.

Warm-Up:

- *Today, we wrap up Water Wizards with a bunch of wacky water games! Each game will be a team game. What are some things to keep in mind when we are playing competitive team games?* (teamwork, good sportsmanship, cheer everyone on, be positive, etc.)
- *What does good sportsmanship look like?*
- *Sounds like we are ready to have some wet and wild fun. Let's go!*

Unit-Long Project Presentation:

- Invite students that worked on the unit-long project an opportunity to present to the group.

Activity (Take It Outdoors!):

1. This activity **MUST** be done outdoors. If weather or other circumstances prevent this, reschedule this for another day.
2. Take students outside and walk them through each station, explaining what to do at each stop.
3. Split students into teams of 3. Place half the teams at Drip Drop Double Dutch station and the other half at Water Balloon Shotput. Have students try both events, switching once one is completed.
4. Organize students into two teams for the Super Sloppy Sponge Relay.
5. Once each event has been completed, have students help clean up. Be sure to pick up all the little balloon pieces.

Wrap It Up:

- *How were you a good teammate today?*
- *How did you show good sportsmanship?*

Take It Away:

- *Throughout Water Wizards, we've found that water is very important to us and super fun! What are some things we can do to conserve water and keep it free of pollution?*

Lead In:

- *Next time, we look above to find out all the weird and amazing things happening above our heads. We'll discover the secrets of flight and uncover some of the mysteries happening right above us in our next unit – Sky High!*

Drip Drop Double Dutch

Materials: cup, water, jump rope

Description: 2 people spin the jump rope while one person jumps holding a full cup of water. The team with the most water in their cup after 5 jumps wins. **Note**: This activity should only be done outdoors.

Water Balloon Shotput

Materials: water balloons, meter sticks, pencil, score sheet (see next page) **Note:** Latex-free schools can substitute water balloons with water-filled Ziplock bags.

Description: Each member spins twice and throws a water balloon as far as they can. Measure the distance of each throw and record on score sheet. Add each team member's distance together. The team with the greatest total wins. **Note**: This activity should only be done outdoors.

Super Sloppy Sponge Relay

Materials: 2 buckets for each team, 1 sponge for each team, water

Description: Teams stand in a line with a bucket full of water in front of them and an empty bucket behind them. The person in the front of the line soaks up as much water as possible with a sponge and passes it over their head to the person behind them. This continues all the way to the back of the line where the last person squeezes the water into the empty bucket. That person races to the front of the line and repeats the process. Once one team has the player that was originally in the front of the line back to the front, the game is over. The team with the most water in their bucket wins. **Note**: This activity should only be done outdoors.

Water Balloon Shotput Score Sheet

	Player 1	*Player 2*	*Player 3*	*Total*
Team 1				
Team 2				
Team 3				
Team 4				
Team 5				
Team 6				