



BECKER'S

Science Center Activity Guide



The following activities can be used with the components of the [BECKER'S Science Center #BSS193110](#). The activities require some of the tools included in the kit along with additional supplies as noted in each activity materials list. As children explore the materials and concepts through hands-on experimentation, they develop foundational scientific reasoning skills, including:

- Scientific inquiry
- Reasoning and problem solving



Magnet Racers

Materials:

- 6 Magnet Wands
- 3 Toy Cars, non-metal
- 3 Zip Ties (Rubber bands or twist ties can also be used)

Vocabulary:

- **Magnet:** Something (usually rock or metal) that can pull certain types of metal to itself
- **Attract:** To pull closer
- **Repel:** To push away

Before the Activity:

Lay a magnet wand on the top of each car and attach with a zip tie, rubber band, or twist tie. Make sure it's nice and tight, but the car should still roll freely. Be sure to have the 3 extra wands set aside.

Activity:

- Show the cars with the magnets attached and ask your students to make observations.
- Challenge your students to make the cars move without touching them. Did it work?
- Now pass out the extra magnet wands and ask the students to try to move the cars. Invite students to experiment with the wands- flip them over, move them closer and farther away from the cars, use the large flat edge and the short end of the wand, spin the wand, etc.
- Invite the students to describe what happened when they used the magnet wands. Use the new vocabulary words to engage students in conversation. Does it feel like you are repelling or attracting the car? What else could you attract with your wand?

Extension:

Use masking tape to make a simple track on a tabletop or carpet and have students use what they learned to make the cars go around a track.



Raise the Boat

Materials:

- Water Table or Large Plastic Bin
- 2 Bowls (roughly the same size and big enough to float the plastic boat without the boat touching the sides)
- 2-3 Sponges
- Water
- Plastic Boat
- River Rocks
- Pipettes
- Water Pump

Vocabulary:

- **Float:** To rest on or move along at the top of water without sinking
- **Displacement:** When an object is added to the water, it pushes water out to make room for itself
- **Buoyancy:** The force (in this case from the water) that pushes up against a floating object

Before the Activity:

Fill Bowl #1 about 1/3 full of water and float the boat in it. Place it in the empty water table or bin.

Fill Bowl # 2 with water and place it next to Bowl # 1.

Activity:

- Challenge the students to get the boat out of its bowl without touching the boat or the bowl it is in. Go over all the tools they can use- the water from Bowl # 2, the water pump and pipettes, sponges, and the river rocks.
- If the students get stuck, here are some questions that might get them thinking about solutions:
 - If the water under the boat got higher, would the boat get higher too?
 - How could we make the water under the boat higher?
 - What will happen if we add the rocks to the water?
- When the challenge is completed, ask the students to describe the steps they took to get the boat out of the bowl. Introduce the vocabulary during this discussion- the rocks displaced the water, the boat was buoyant and floated, etc.

Extension:

Make the challenge more difficult by reducing the amount of water in Bowl 2 and adding other materials to help displace the water and raise the boat like cups of sand, rice, or marbles.

Fun Fact: A newborn baby is 78% water, but the average adult is about 60% water!





Build a Shell

Materials:

- Shells (one per student)
- Magnifying Glasses
- 6-8 Plastic or Paper Plates
- Small Beanbag or Soft Ball

Vocabulary:

- **Mollusk:** An animal without bones that has a soft body and often a hard shell on the outside.
- **Univalve:** Mollusks with usually spiral shells that are a single piece
- **Bivalve:** Mollusks with two-piece shells that are mostly flat and joined by a hinge

Activity

- Encourage students to use their magnifying glasses to look closely at the shells. Talk about how these shells belonged to animals called mollusks.
- Pretend that the beanbag is the body of a mollusk. Place the bean bag on a plate and cover it with a second plate and allow the students to add more plate layers to the top or bottoms to make the "shell."
- Is the soft body of the mollusk more protected when it is in the shell?

Extension: Work together to build a univalve or spiral shell mollusk. Place the beanbag inside a plastic cup, place the cup upside down on the table, and allow the students to stack additional cups on top, building a "shell" layer by layer.



Shadow Tree

Materials:

- Tree Slices (1 per student)
- Desk Lamp (or strong flashlight)
- Tongs
- Large Paper (11" x 18" or larger)
- Markers or Crayons

Vocabulary:

- **Pith:** The center of a tree branch or trunk
- **Growth ring:** Each circle in the tree slice
- **Bark:** The outside layer of the tree

Activity

- Place a tree slice in the center of the paper and position the desk lamp directly above it. Trace the slice. This will be the pith of your shadow tree.
- Now, your shadow tree is growing. Use the tongs to raise the slice up towards the lamp and trace the new shadow. That's the first growth ring. Can your students find the first growth ring on their tree slice?
- Continue this process to make your shadow tree grow. Raise the slice, trace the shadow. Experiment with only growing a little bit- move the slice up only a small amount. How does that change the size of the growth ring?
- When you get to the last ring, ask the student if the outsides of their tree slices are smooth or bumpy. Add a bumpy bark edge to your shadow tree.

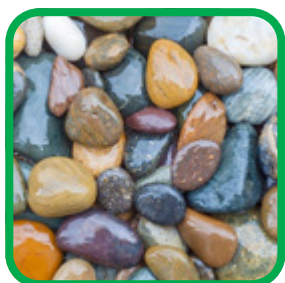
Extension: You can also do this activity outside on very sunny day. It works best around noon when the sun is directly above you. Grab the chalk and build a large tree (or even a forest) right on the blacktop of the playground.



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Birds Rock

Materials:

- River Rocks (from Science Center)
- Magnifying Glasses
- Rocks found outside (these should be rough, not smooth like the river rocks)
- Dried Leaves (fresh leaves will work, too)

Vocabulary:

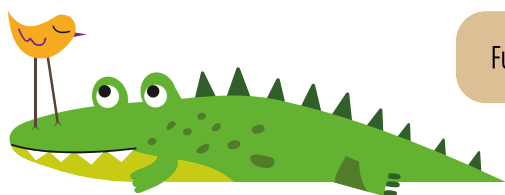
- **Camouflage:** Blending in to hide
- **Gizzard:** A muscular part of a bird's stomach for grinding food with grit and small stones
- **Grit:** Very tiny pieces of rock, sand, and mineral that work in a bird's gizzard to break down food

Activity:

- Explain that birds use rocks in many different ways, and that they will pretend to be birds today.
- Some birds (like penguins) give each other rocks and pebbles as gifts. Allow each student to choose a rock and give it to another student. Use the magnifying glasses to look closely at the rock they've been given.
- Some birds (like killdeer) make a nest out of rocks. Choose one rock to be the birds "egg." Killdeer eggs are blotched with brown and black markings. Students can mark up their rocks to look like bird eggs. Challenge the students to work together to make a nest out of rocks for their eggs. Why might a bird make a nest out of rocks? (It's great camouflage- the eggs that are laid are the same colors as the rocks!)
- Some birds (like chickens) will swallow small stones and sand to help grind up their food in their gizzard. Allow students to choose any two rocks and use the rocks to grind up the leaves. Which works better- the smooth river rocks or rough rocks?

Extension:

Other animals use rocks, too! Chimpanzees have been observed using stone hammers to break open food. Grab some golf tees and hammer them into foam using the river rocks as your own chimpanzee hammer.



Fun Fact: Crocodiles swallow stones to help them digest their food, too!

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For [Becker's Science Center #BSS193110](#)

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Comments or questions?
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