



Howtosome was ready to respond to shifting at-home trends

- ★Largest and oldest online collection of hands-on STEM activities
- ★Established resource for educators (museum, K12, homeschoolers) looking for free digital materials

Science museums, children’s museums, natural history museums, and other informal learning institutions inspire a curiosity for learning through authentic and enjoyable experiences. **During the last few years, our community mobilized to support these experiences with learning materials uniquely suited for caregivers and children at home.**

Through funding from the **Institute of Museum and Library Services**, Howtosome brought together over a dozen NISE Network museum partners across the U.S. to document their shared practices with a new **At-Home Activities Framework** focused on learning at home. We have used this framework to curate the new collection on this page that showcases the best hands-on STEAM activities for learners at home. Whether you are looking for something fun and educational to do with your young learners over the weekend or you’re looking for accessible activities for your online camp to try at home, these activities will be sure to meet your needs and leave your learners wanting more.

Howtosome At-Home Activities Team





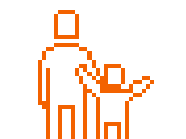




Children’s Creativity Museum, San Francisco, CA
Lawrence Hall of Science, Berkeley, CA
Boston Children’s Museum, Boston, MA
Carnegie Science Center, Pittsburgh, PA
Center of Science and Industry (COSI), Columbus, OH
Children’s Science Center Lab, Fairfax, VA
Discovery Museum, Acton, MA
Explora, Albuquerque, NM
Exploration Place, Wichita, KS
Florida Museum of Natural History, Gainesville, FL
Marbles Kids Museum, Raleigh, NC
Museum of Life and Science, Durham, NC
Sciencenter, Ithaca, NY
Paulmichael Maxfield & Cassie Byrd - Advisors

What did we do?

1. Reviewed and commented on a draft at-home activities framework after discussing **exemplar activities** and each museums’ experiences.
2. Filled out a **Cataloging Plan** for each museum showing how activities fit the evolving framework along with revisions to make them **more at-home ready**.
3. Worked in cohorts to review each other’s Cataloging Plans and finalize additions to the new **At-Home Activities Collection**.
4. Finalized the new **At-Home Activities Framework** and cataloged additions into the collection.

At-Home Activities Framework

A guide for tailoring hands-on activities for at-home learners and caregivers.

 <p>The activity has an exceptionally effective and easy-to-use guide</p> <p>Add a short introductory question and/or description, complete materials list, safety notices, and STEM background information, in plain language.</p> <p>Label basic activity characteristics such as target age range and time required.</p> <p>Include specific step-by-step instructions with pictures. Learners and caregivers should not have to read between the lines when using instructions.</p> <p>Divide into clearly labeled sections so information is easy to find.</p> <p>Consider adding a video walk-through of activity and photos of all necessary materials.</p> <p>Consider an ending section for extension activities or suggestions on how to age-up or age-down the activity when appropriate.</p> <p>Consider adaptations to make the activity guide accessible to as many learners and caregivers as possible (e.g., larger font sizes, high-contrast colors, instructions with minimal wording, multiple languages).</p>	 <p>The activity uses common, low-cost household materials</p> <p>Use common items found around the home or recycled materials.</p> <p>Do not require expensive materials or those that can’t be sourced locally.</p> <p>Consider including a list of alternative items that can be used if learners do not have access to the listed materials.</p> <p>Avoid food waste if possible.</p>	 <p>The activity encourages caregivers and learners to work together in a meaningful way</p> <p>Include prompts on how the caregiver can interact with the activity and work together with their learner.</p> <p>Add simple questions for caregivers to ask learners when appropriate.</p> <p>Consider relevance and creativity as entry points for caregiver participation.</p>	 <p>The activity is related to the everyday lives of learners</p> <p>Include ties to observable scientific phenomena (e.g., shadows, ripples in water, vibrations, sounds from musical instruments) or daily activities (e.g., playing, riding in a car or bus, eating, learning) that are accessible to the target age range.</p> <p>Use connections that motivate children (e.g., animals, favorite characters, food, sensory items, games).</p> <p>Consider using a story or storybook to frame the activity.</p> <p>Within activity steps and outcomes, create opportunities for learners to practice patience, sharing, working together, and helping others.</p>
 <p>The activity engages the learner’s senses</p> <p>Include sensory elements such as vibrant colors, rich sounds, interesting textures, fragrant smells, and tasty treats.</p> <p>Consider adding information about loud noises, flashing lights, and other potentially extreme stimuli for learners with sensitivities.</p> <p>Consider adaptations for learners with sensory disabilities.</p>	 <p>The activity lets learners practice and express their creativity</p> <p>Include steps or recommendations for learners to express themselves and add their own ideas.</p> <p>Include open-ended questions that encourage learners to try multiple solutions.</p> <p>Consider adding creative pathways for learners and caregivers to repeat or grow the activity.</p>	 <p>howtosome.</p>	

At-Home Activities Collection

Updated for 2022



Download the At-Home Activities Framework and visit the new collection with over 300 activities.

Save a Snowman



What’s the challenge? Olaf loves summer! However, summer is a dangerous season for a snowman. Can you design something to keep him from melting?

What you need:

- 2 ice cubes
- 2 small plastic storage containers
- Handful of cotton balls
- Masking tape roll
- 3 - 10x10" sheets of tin foil
- 1 - 10x10" dish square

What to do:

- Gather your materials.
- In one container, create a design for a cooler to keep the ice cube from melting. Inside the container, use the cotton balls, tape, tin foil and cloth to insulate one of the ice cubes.
- The second ice cube will not be insulated.
- Supplies cannot be placed outside the container.
- Place one ice cube inside each container and close the containers.
- Place outside in a shaded area.
- Check on the ice cubes in 1-2 hours to see if your insulated snowman survived better than the uninsulated one!



Save a Snowman (Continued)

Notes for adults:



- Encourage learners to come up with a plan of what materials will work best first.
- Don’t be discouraged if the ice cube melts; go back to the design plan and try again!
- After the 1-2 hours, ask the learners what the differences were between the insulated container and noninsulated container.

STEM connection:

- Insulation means creating a barrier between a hot and cold object. It reduces the temperature by reflecting the heat or decreasing the transfer of heat from one object to another.
- Engineers use the properties of insulation to design things like coolers and thermoses.
- When building houses, engineers and contractors use insulation to keep homes and buildings warm.

Take it further:

- Try using a different material to see if it insulates the ice cube better.
- Ask yourself:
 - Why would this material be better or worse at keeping the ice cube cold?



FLORIDA MUSEUM

Age: 5-11 yrs **Time Required:** 15-30 min

Oscillating Woodpecker

Make a kinetic toy!

Materials:

- Woodpecker template (print or trace)
- A straw or small piece of paper and pencil to make a straw
- Scissors
- Rubber band
- Tape or glue
- Crayons

Try this!

Step 1: Color the woodpecker template (use photos of real woodpeckers to get ideas).

Step 2: Fold woodpecker template sheet in half, so that you have one woodpecker on each side.

Step 3: Cut along the edge of the woodpecker design template.

Step 4: Find a piece of straw or make your own using a small piece of paper and a pencil as a guide (it shouldn’t be too long or wide).

Step 5: Tape the straw to the center piece, between both woodpeckers.

Step 6: Cut the rubber band and thread it through the straw piece.

Step 7: Fold woodpeckers and add tape or glue along the edge of the design to keep them closed together.

Step 8: To make the woodpeckers oscillate down you just need to hold both ends of the rubber band using both hands to stretch the rubber band. Once the woodpecker reaches the bottom flip your hands to make it go down again! You might have to adjust how much you stretch your rubber band depending how thick it is, usually thinner rubber bands are better.

Tips: You can add a bead or a paper clip at the ends of the rubber bands to make sure your woodpecker doesn’t fall out.




CARNEGIE SCIENCE CENTER

Bubble Wrap Prints

Age range: 4-8
Time required: 15 minutes
Cost of materials: \$5-10

In this activity, learners will use bubble wrap to print patterns on paper. Bubble wrap is great at protecting packages during shipping, but what happens to that bubble wrap when you’re done with it? Before you pop it, you can paint it!




COSI connects

GRADES 4-8

ACTIVITY: Cookie Paleontology

Learn about paleontology and archaeology as you excavate raisins and chocolate chips from cookies.

VIDEO
[Cookie Paleontology](#)



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