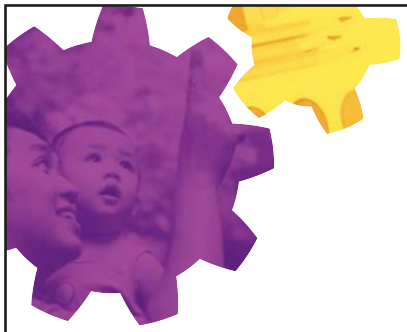


BOSTON CHILDREN'S MUSEUM

Construction Zone: Building a Paper Bridge

Engage children in learning about math through hands-on building and construction concepts.

START

- The goal of this activity is to create a bridge from one side of your container to the other that will support at least one of the weights.
- Introduce this activity by asking Would anyone like to build a bridge out of paper to cross the top of one of the containers and hold up one of the weights?
- For younger children, you can introduce the activity as a story: This zebra wants to walk over to your side of the table, but he's stuck on my side of the lake. Can you help me build a bridge to get him across?
- Give each child one paper strip and invite the child to construct a bridge that will go over the top of the container. Ask each child to choose a weight, place it on the bridge, and see if the bridge holds.

NEXT STEPS

- If the bridge collapses after placing one weight on it, suggest that the children experiment with other weights or try rebuilding their bridges. You can ask Why do you think the bridge collapsed? What could you do differently?
- If the children are having trouble creating their bridges, suggest modifications such as folding, crumpling, or ripping their paper. Ask them to think about whether drawing on the paper would make a difference in the structure.
- Encourage the children to understand that lots of different kinds of bridges will work, and there is no one right way to do this activity.
- Ask the children to talk about bridges they have seen or driven over. Do you remember what the bridges look like? What shapes did you see in them? Do you have a favorite bridge? Let the children share their own stories about bridges in their lives as a way of connecting their personal experience with the activity, making it a more valuable learning moment for them. They will learn about other children's lives and experiences as well.
- For very young children, it's fine if they just want to crumple the paper or play with the animals.
- For older children, challenge them to build a bridge with certain attributes such as one that has an arch, one that stands entirely inside the tub, or one that has railings.

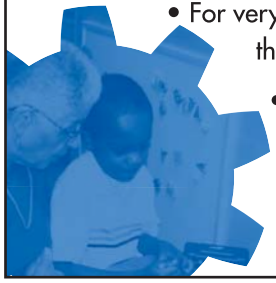
(continued on side 2)

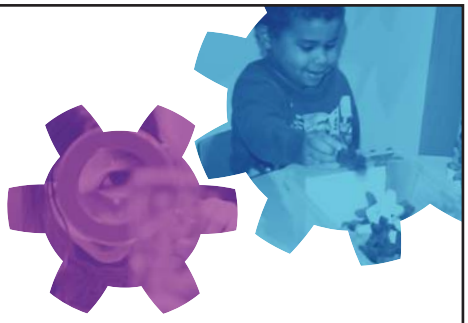
MATERIALS

- Paper, 8½ x 11″ sheets cut into thirds lengthwise to make 8½ x 3″ strips
- Empty storage containers or small buckets that are less than 8″ across the top
- Small weights, such as plastic animals, dice, or small magnets

Learning Guideline:
Physical Science: Experiment with a variety of objects to determine when the objects can stand and ways that objects can be balanced.

Tip Sheets:
Build, Share



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FINISH UP

- Encourage each child to talk about his or her creation and the experience of building it. Did anything surprise you? Frustrate you? Did you try more than one style of paper design or experiment with different weights?
- Have the children tell the "story" of their creations. Ask them to talk about any special significance to the weight that they chose or whether the bridge was a path to a special place.
- You can also record the children's names and the number of weights they put on their bridges on a whiteboard or flip chart.
- Make sure you throw away bridges that are left behind. Children who see examples are less likely to use their own creativity than those who see a blank slate.

EXPAND YOUR ACTIVITY

- Use blocks, vehicles, or plastic people or animals to encourage children to explore building through Dramatic Play, setting up imaginary scenarios and making up narratives as they play with the props.
- Use building materials such as blocks of all types, cardboard boxes, plastic people, or recycled items to encourage children to explore different kinds of building on their own.
- Ask questions that focus on what rather than why, such as What happens when you add another weight? What happens when you add more folds to the paper?

TAKE IT HOME

- Families can adapt this activity by experimenting with many types and sizes of paper (newspaper, wrapping paper, construction paper), using a variety of household items to try out as weights (corks, small toys, buttons, bottle caps), and using larger or smaller containers for the bridge to cross.
- Try making other types of bridges using materials from around your home and yard, such as twigs, string, aluminum foil, or rocks.
- Point out bridges as you walk or drive around with your children. Talk about the experience of building your own bridges. Think about the materials the bridges you see are made of, what shapes they include, and what kinds of vehicles or people use them.

BOOKS

- *A Day in the Life of a Builder* by Linda Hayward
- *The Three Little Javelinas* by Susan Lowell

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BRAIN BUILDING IN PROGRESS

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