

Roll on Through

Design, build, and test a ramp using cardboard and other household materials. Create a pathway for round objects to roll down the cardboard ramp. Incorporate the floor, stairs, countertops, or furniture into the ramp design. This activity helps children develop flexible thinking skills.



Materials Required

- Cardboard tubes and pieces of cardboard
- Paper
- Pencil
- Masking tape
- Scissors for cutting cardboard
- Floor, stairs, counter top, furniture or other household items that will support the design
- Objects to test on the ramps and pathways such as buttons, round beads, tennis balls, and ping-pong balls

Instructions

1. Find a surface to build a cardboard ramp or pathway. Example: counter top, stairs, floor, etc. Select an item to test on the pathway.
2. Sketch out a design plan or just jump right into building the cardboard pathway. Consider these design challenges:
3. Create a pathway that does not touch the floor.
4. Design a pathway using only tubes.
5. Create a pathway that curves.
6. Find a way to move an object through a path from one side of the room to the other.
7. Use tubes, cardboard, different surfaces and other materials to make pathways for the selected object to move through. Feel free to cut or bend cardboard pieces to change the pathway.
8. Test out how different objects move through the pathway, either at the end or as you build.

Additional Tips

Try these add-on activities:

- Work with a partner and try to link your pathways together.
- Create another pathway alongside the original one and roll objects simultaneously. Which object finished first? Why do you think it finished first?
- Experiment with what happens when changing the angles of the pieces in the pathway.
- Make a video of an object rolling through your pathway and set it to music.

Links to Creativity

This activity asks children to use flexible thinking skills to create a path for round objects to roll down a cardboard pathway. Any crease or misaligned angle created by joining cardboard tubes may cause a problem for rolling objects. Children will have to come up with a creative solution to resolve the problem.

Supporting research includes:

Deák, G. O. (2003). The development of cognitive flexibility and language abilities. *Advances in Child Development and Behavior*, 31, 273-328.

Parnes, S. J., & Meadow, A. (1960). Evaluation of persistence of effects produced by a creative problem-solving course. *Psychological Reports*, 7(2), 357-361.

Contributor

This activity was contributed by the Center for Childhood Creativity at the Bay Area Discovery Museum. For more information and resources see CenterforChildhoodCreativity.org.

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SCOPE OF ACTIVITY

- Ages: 10–14 Years, 2–5 Years, 6–9 Years
- Topics: Making, Building, & Tinkering, Science
- Difficulty: Moderate Difficulty
- Duration: 15 Minutes–2 Hours
- Participants: 1 Participant, 2–4 Participants

CREATIVITY SKILLS USED

- Decision Making
- Flexibility
- Imagination & Originality