

## Obstacle Courses

This activity lends itself to science and engineering, as well as mathematics. You and your child can create small indoor obstacle courses for stuffed animals, or larger indoor or outdoor obstacle courses for children and grownups.

### Planning and Creating Obstacle Courses

Invite your child to be an **engineer** and design and build an obstacle course for a favorite stuffed animal. Explain that they need to build something that will be fun and challenging, but also strong, sturdy, and safe!

For an indoor course, collect a few items to start with, such as empty boxes, books, paper towel tubes, towels, blocks, and rocks or sticks from outside. With your guidance, your child can also use furniture, such as chairs, tables, etc.

1. Make a simple sketch of one or two obstacle course features, such as a bridge or a ramp.
2. Then demonstrate how you might build the feature(s) (e.g., a large book or ruler stretched across two chairs for a bridge, or a paper towel tube propped against a book for a ramp). As you work...
  - *Talk* about what you are doing using science and engineering words such as “balance,” “heavy,” “light,” “tilt,” “steady,” “tip,” “steep,” “strong,” etc. Also use words related to shapes and shape features, such as “straight,” “long,” “triangle,” “rectangle,” etc.
  - *Model perseverance and problem-solving* by trying things that don’t work at first (maybe your bridge is too heavy and falls, or maybe your ramp doesn’t stay propped up), and then trying new ideas and solutions. Be sure to *think out loud* to show your child how even though your first ideas didn’t work, you tried other ideas that did work.
3. Invite your child to take the lead in designing and building an obstacle course. Some children will enjoy starting with a drawing; others may want to dive right into building. As they work, engage and encourage them with problem solving using prompts such as: “How can we make this steadier?” “How long does this need to be?” “Why do you think that keeps falling?” “Do you think a different shape or material might work better?” Also describe what you notice using terms such as those mentioned above. See the next page for ideas for incorporating math as you use the obstacle course!





## Obstacle Course Math

Incorporate math and math language as children use their completed obstacle courses. Below are some examples:

- Use ordinal numbers (first, second, third, etc.) to describe each step in the course. You and your child might want to work together to make a numbered list to describe the steps.
- Use spatial language (above, below, through, under, next to, etc.) to describe how to move through the course. This might be part of your numbered list, or your child might make a map or drawing of the course and label the parts with numbers and spatial language.
- Use measurement language (wide, skinny, longer, shorter, tall, etc.) to describe features of the course. These concepts can also be incorporated into a map or drawing of the course. If your child is interested and ready, you might even help your child measure parts of the course and label the map or drawing with those measurements.
- Prompt your child to look for shapes in the course. For example, a ramp propped against a book will create a triangle, and a bridge across two chairs may make a rectangle with the floor as its fourth side.
- Count out loud to measure how long it takes to move through the whole course (or parts of it). Children can practice writing numbers if you help them record the time it takes for different runs. They can compare numbers as they look at different results: “Which was fastest?” “Which was slowest?” Children will also enjoy using the stopwatch on a phone to time the course and record the times.

If you are interested, please share photos, drawings, and videos of your obstacle courses on the “**UChicago Ready, Set, STEM!**” Facebook group in the Topic: **Obstacle Courses**.

Find more activities like this at: <http://www.ucreadyssetstem.com>  
*Ready, Set, STEM is developed at the University of Chicago and  
sponsored by The Boeing Company*