

JACOB'S LADDER



Courtesy of Fairport Robotics



WHAT YOU'LL NEED



HOW DOES IT WORK?

Hold your Jacob's Ladder by one end. Tilt your wrist back and fourth. It looks like the pieces fall all the way down the ladder! But that's not what is really happening. Instead, each piece of the ladder is flipping over. This is a pattern.

A **pattern** is something that happens the same way over and over again. Patterns repeat! You can use patterns to make predictions.

A **prediction** is a best guess about the future.

What do you think would happen if you colored or painted one side of your Jacob's Ladder blue, and the other side red? Can you make a **prediction** based on the **pattern**?



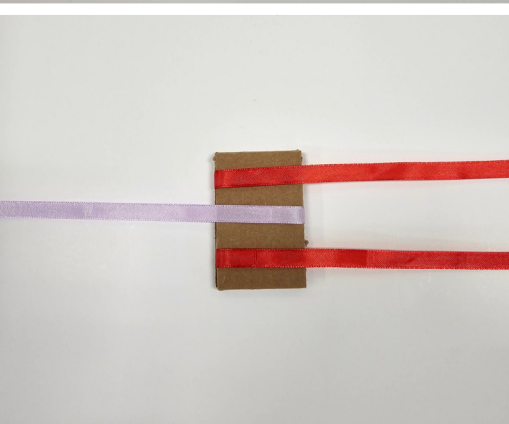
STEP 1

Number your rectangles 1 through 12. Add glue on top of rectangle 1. Then glue the three ribbons to rectangle 1. Two ribbons should hang off one side and one should hang off the other, just like the picture. Be sure the ribbons hang over the long sides!



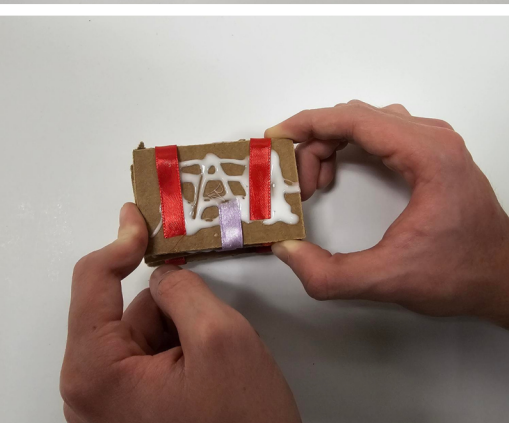
STEP 2

Place rectangle 2 on top of rectangle 1. It should look like the second picture. Next, fold your ribbons across rectangle 2. **DO NOT** add any glue on top of rectangle 2. Place rectangle 3 on top of rectangle 2. Remember, **NO GLUE!**



STEP 3

Repeat the steps you've already done for the rest of your rectangles. You should add glue on top of rectangles 3, 5, 7, 9, and 11. Those are odd numbers! Your even number rectangles shouldn't have glue on top of them. Those are rectangles 4, 6, 8, 10, and 12.



STEP 4

Before adding glue for rectangle 11, see if your ribbons are too long. They shouldn't hang over the edge of your rectangle. If they are too long, you can cut the edges a bit shorter. Glue the ends of your ribbons to rectangle 11, like the picture! Then put rectangle 12 on top.



STEP 5

Now, let the glue dry. Put something heavy on top of your Jacob's Ladder for this step. This will make sure everything sticks together! Ask an adult what you should use. Our Junkbot friend Jack sat on top of our Jacob's Ladder while it dried!

STEP 6

Let the glue dry for at least an hour. After it dries, you can play with your Jacob's Ladder! Hold one end and then tilt it. Watch what happens!