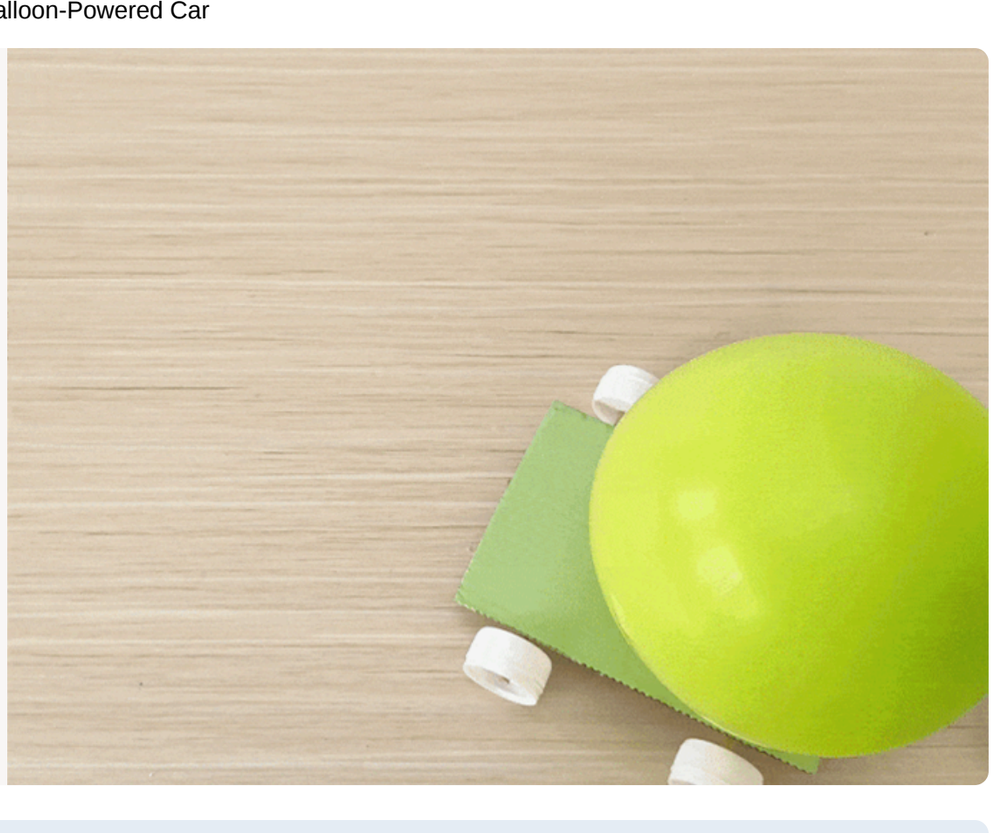
Balloon-Powered Car

Stem Activities

Ages: 6-8

Less than 30 minutes

Grownup needed



Create a car powered by a balloon using recycled materials. You can make several and race them against each other to test which factors affect your car's speed and travel distance.

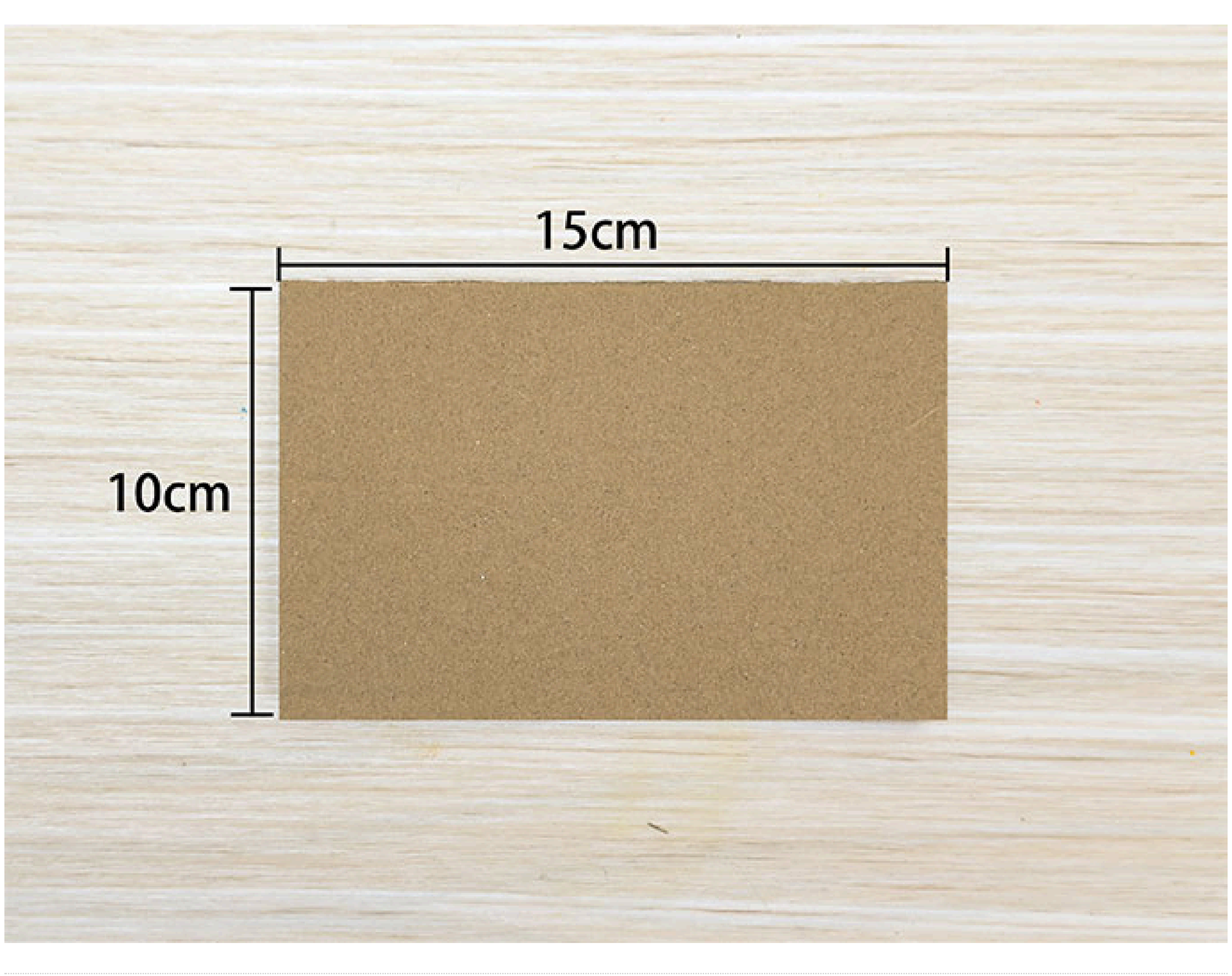
Materials Needed

Cardboard
4 bottle caps
pencil
wooden sticks
tape
balloon
plasticine
paint palette
paint
paintbrush
3-4 straws
ruler
scissors

Step-by-step tutorial

Step 1

Cut the cardboard into a 15cm x 10cm rectangle.

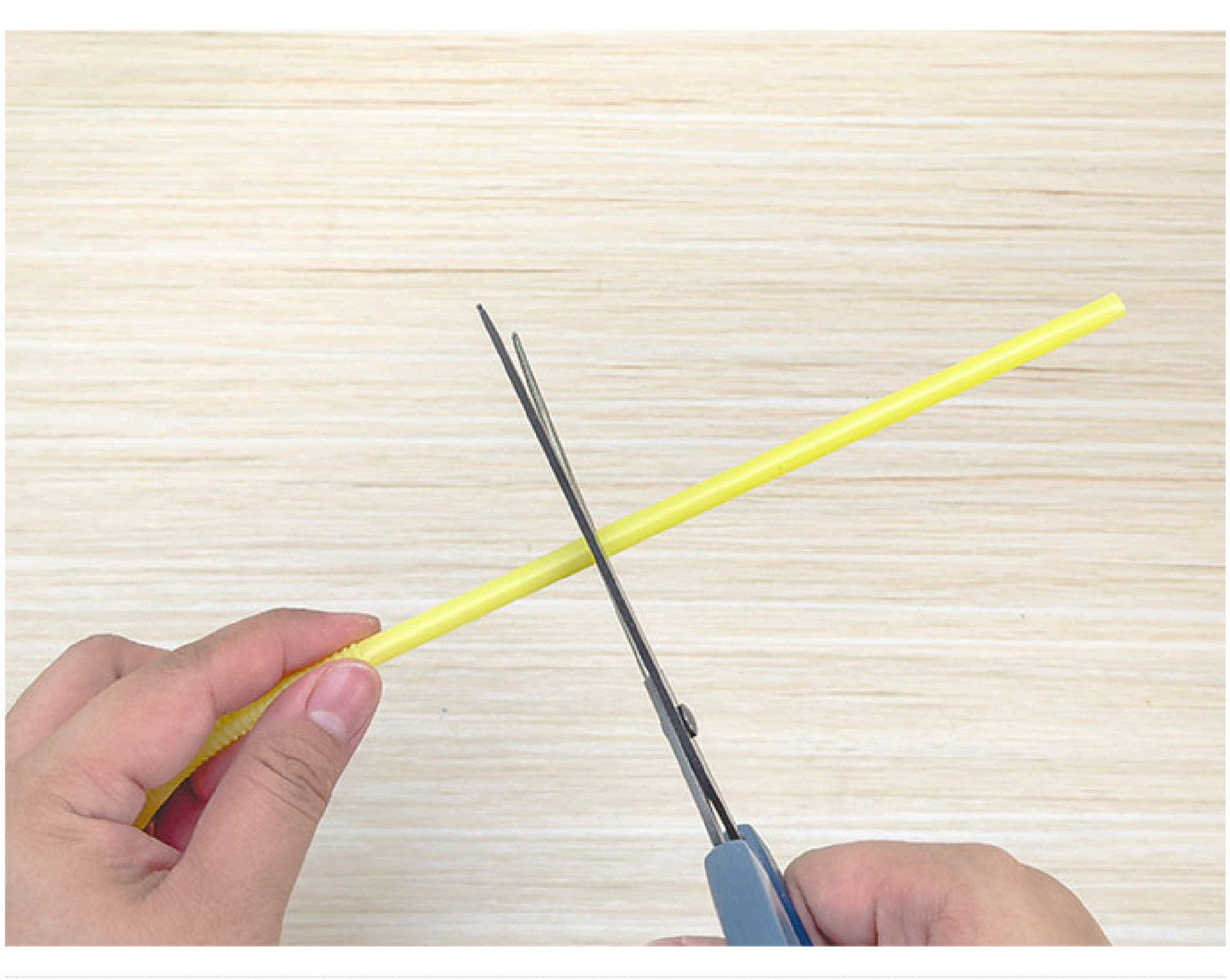


Step 2

Using paint and paintbrush, paint the rectangular cardboard in your favourite colours. Wait patiently for the paint to dry.

Step 3

Using scissors, cut two 10cm lengths from the straws.

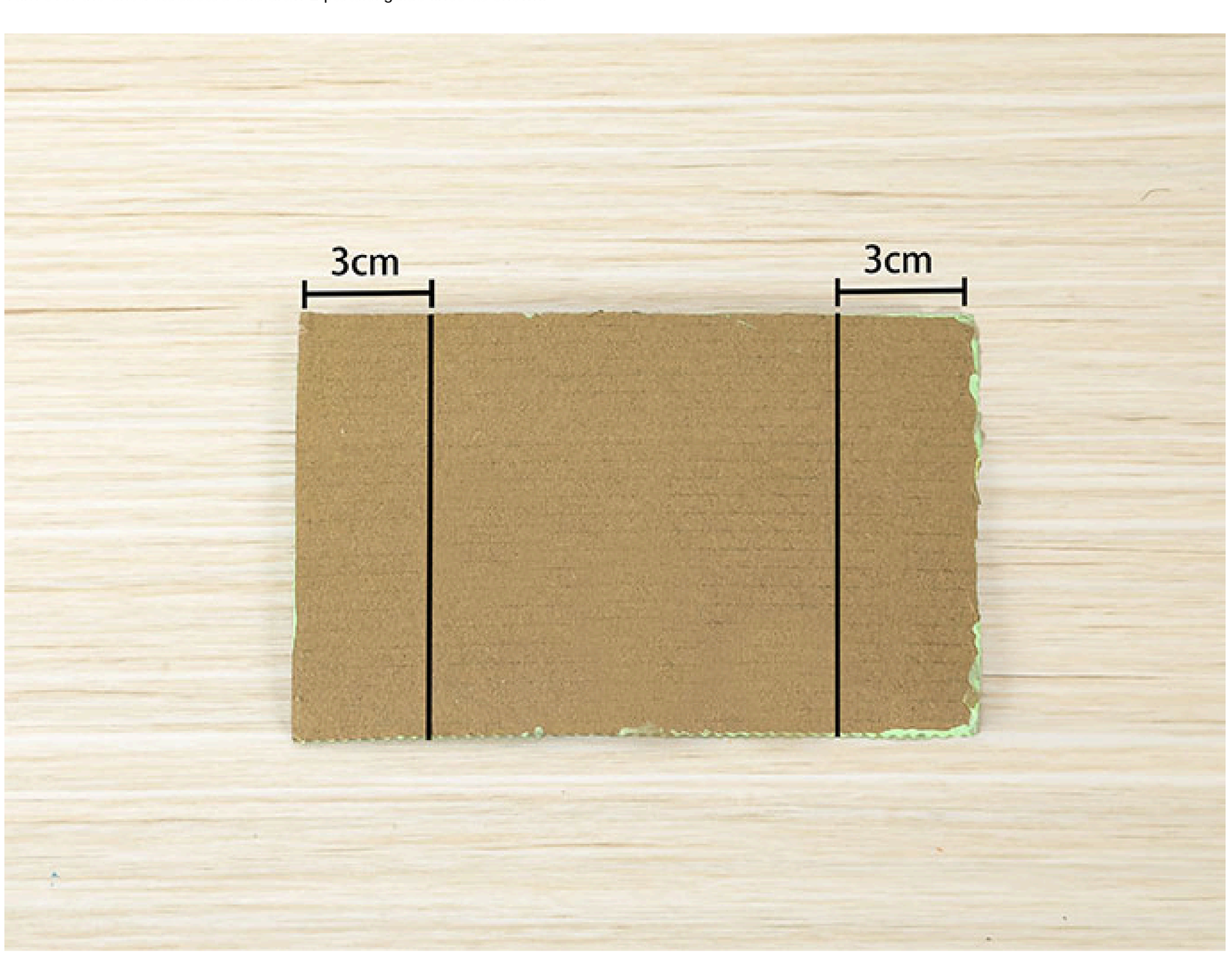


Step 4

Cut two 15cm lengths from the wooden sticks.

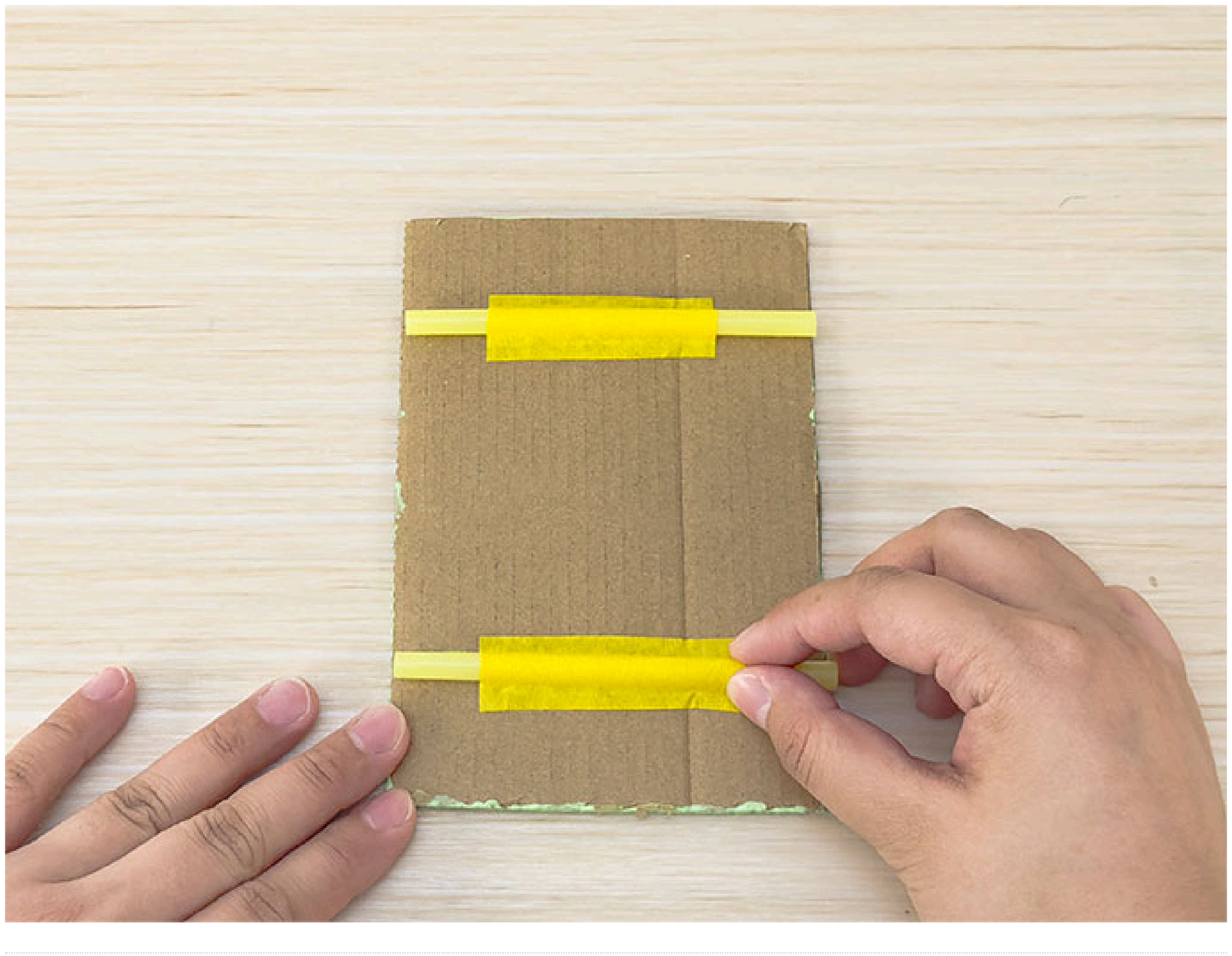
Step 5

Turn over the dried cardboard and draw 2 parallel guide lines as shown.



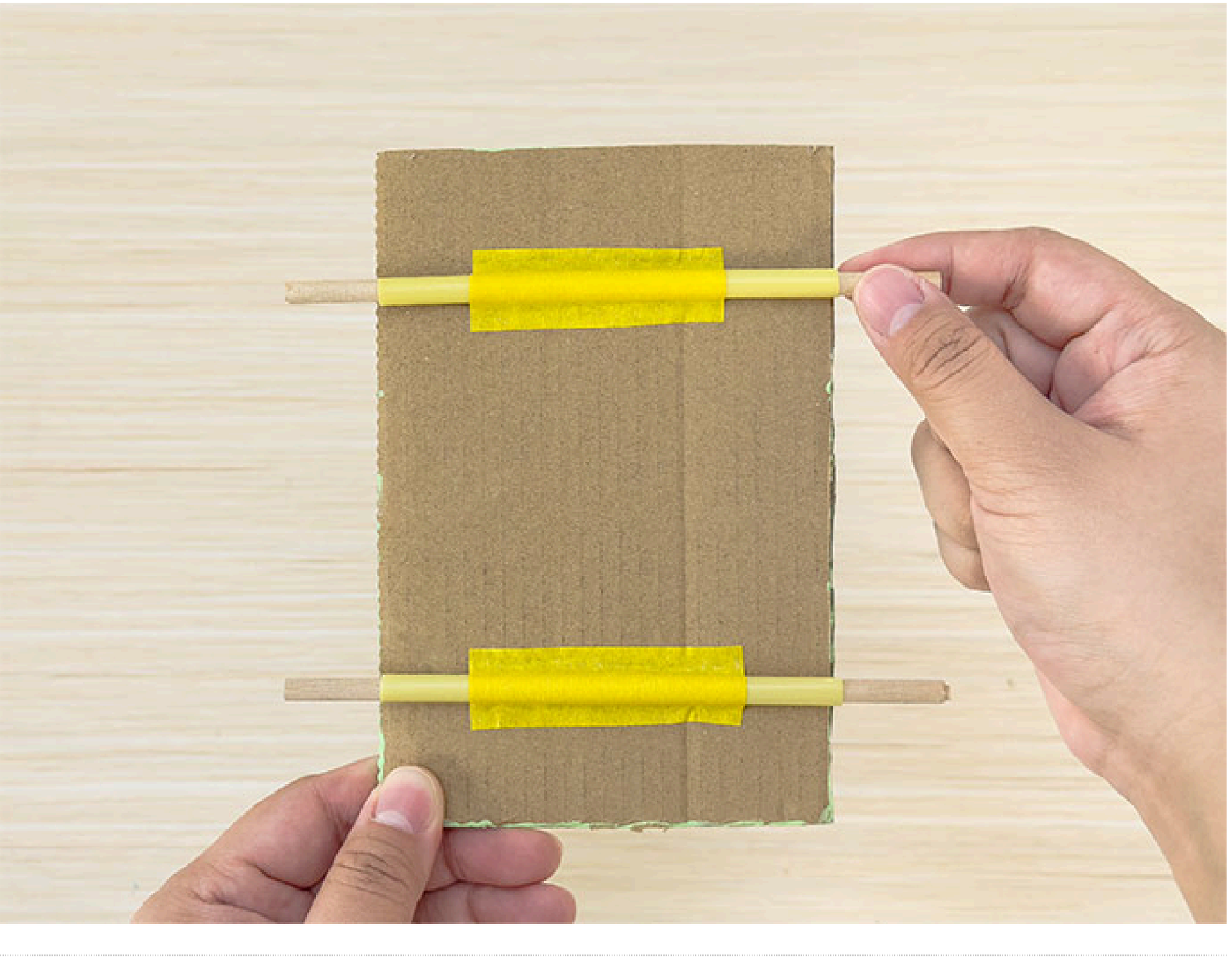
Step 6

Take the 2 10cm straws and secure them on the drawn guide lines using tape.



Step 7

Place each wooden stick through the secured straws.



Step 8

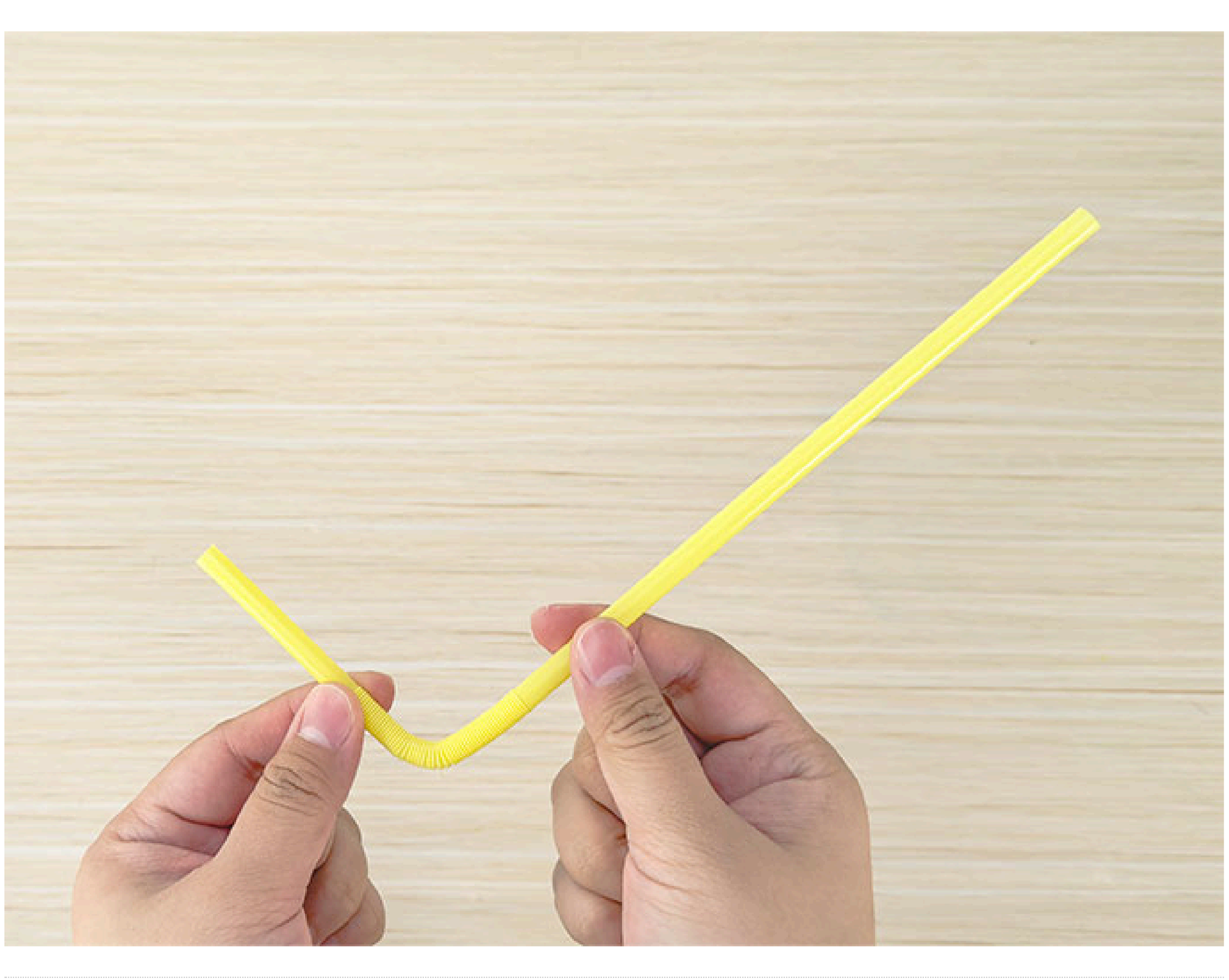
Next, place plasticine under the bottle caps and use a sharpened pencil to make a hole in the centre of each cap. Make all 4 wheel caps this way.

Step 9

Then insert the bottle caps onto the wooden sticks.

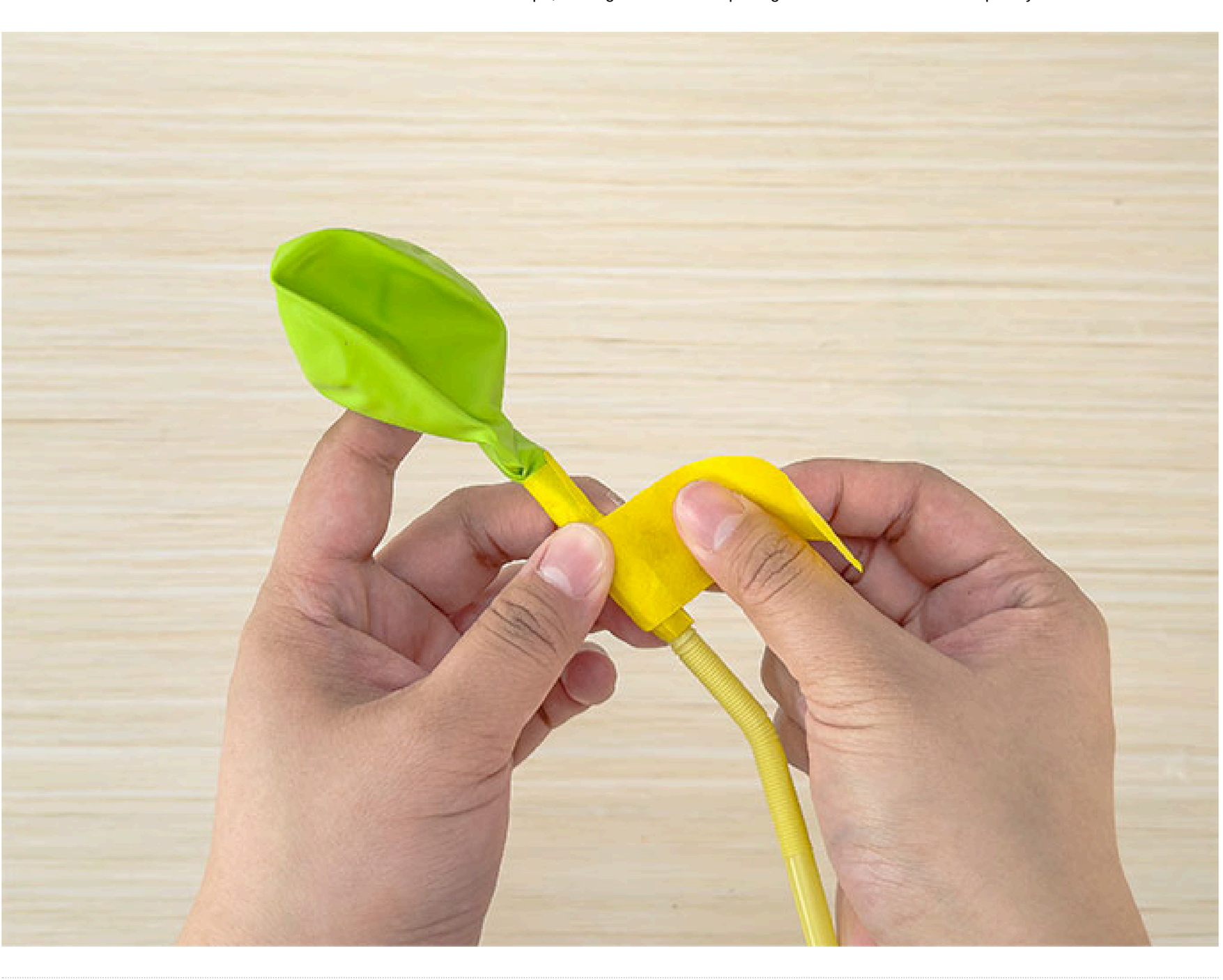
Step 10

Take a straw and bend it.



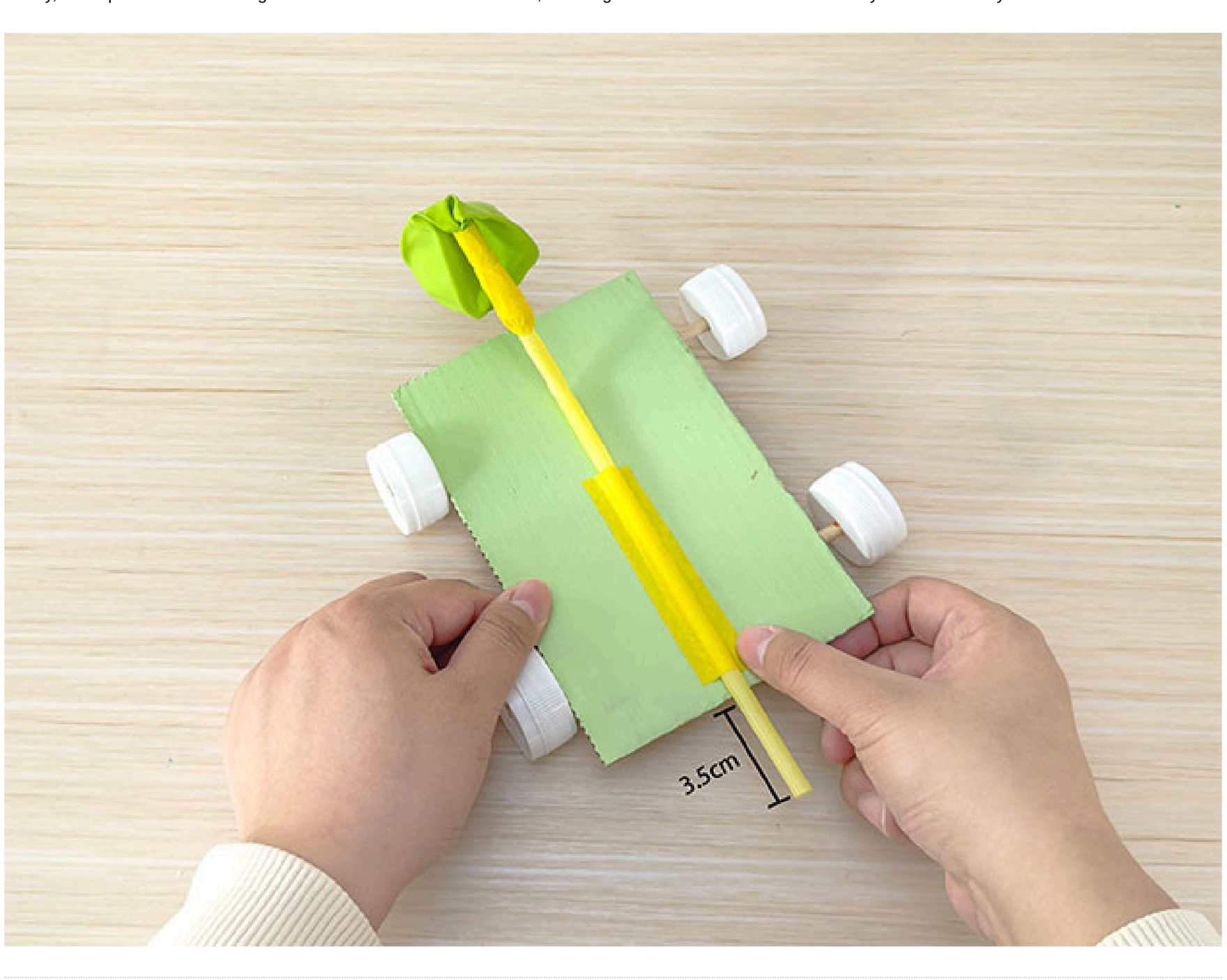
Step 11

Insert the shorter end of the straw into the balloon and secure it with tape, sealing the balloon's opening. Ensure the balloon is completely sealed.



Step 12

Finally, use tape to secure the longer end of the straw to the cardboard, ensuring the straw's end extends 3.5cm beyond the car body.



Step 13

Now, blow up the balloon through the straw and pinch the straw to prevent air from escaping. Place your balloon car on a table or floor. Let go! See how far your balloon car can travel.

The Science Behind It:

When you inflate the balloon, it stores potential energy (both in the stretched rubber and the compressed air inside). When you release the balloon, this stored potential energy converts into kinetic energy - the energy of motion. We can also explain this through mechanics: when the balloon deflates, the escaping air is pushed out from the back of the balloon; in turn, the air pushes the car forward. This is Newton's Third Law of Motion in action - for every action force, there is an equal and opposite reaction force.