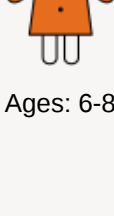


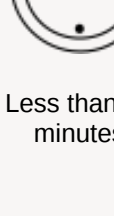
★★★★★

## Spaghetti Tower

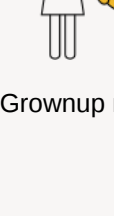
Stem Activities




Ages: 6-8



Less than 30 minutes



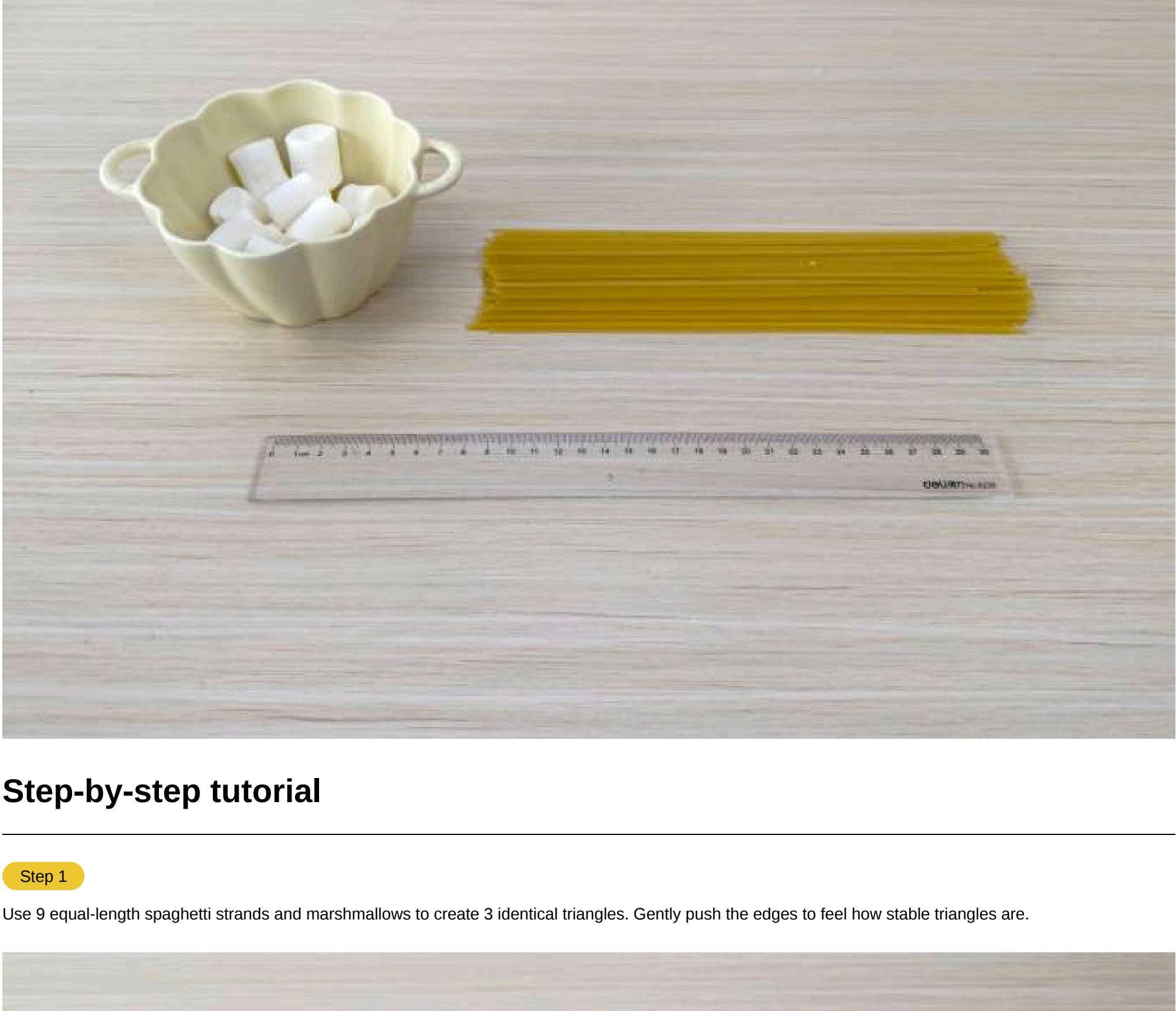
Grownup needed



Skyscrapers can be seen throughout cities - do you know the secret to their stability? In this activity, we'll use spaghetti and marshmallows to model tower construction and explore the key factors affecting tower stability.

## Materials Needed

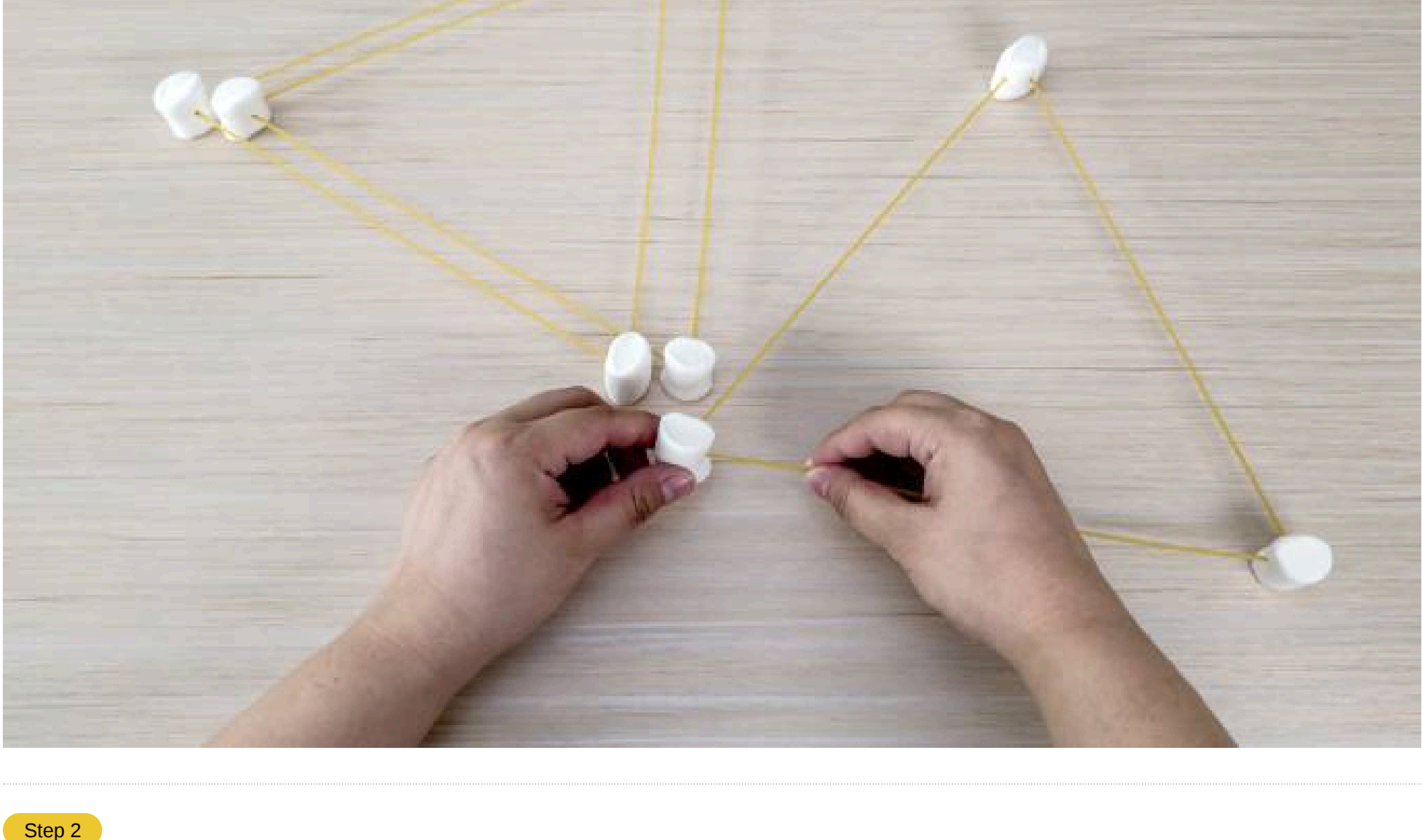
Marshmallows  
Spaghetti  
Ruler



## Step-by-step tutorial

### Step 1

Use 9 equal-length spaghetti strands and marshmallows to create 3 identical triangles. Gently push the edges to feel how stable triangles are.



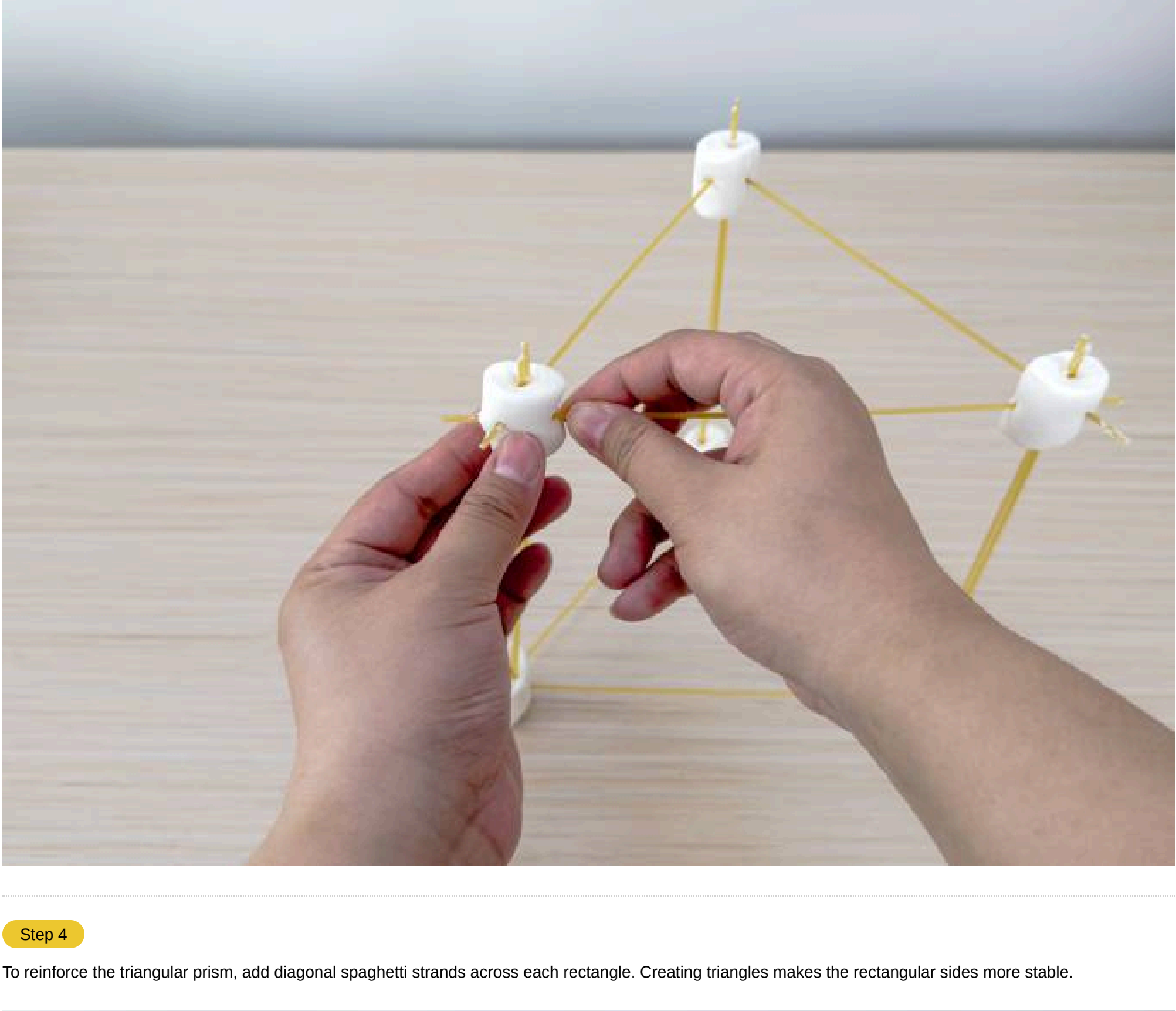
### Step 2

Connect the triangles using pairs of spaghetti strands to create a triangular prism. Try to use equal-length pieces (measure with your ruler).



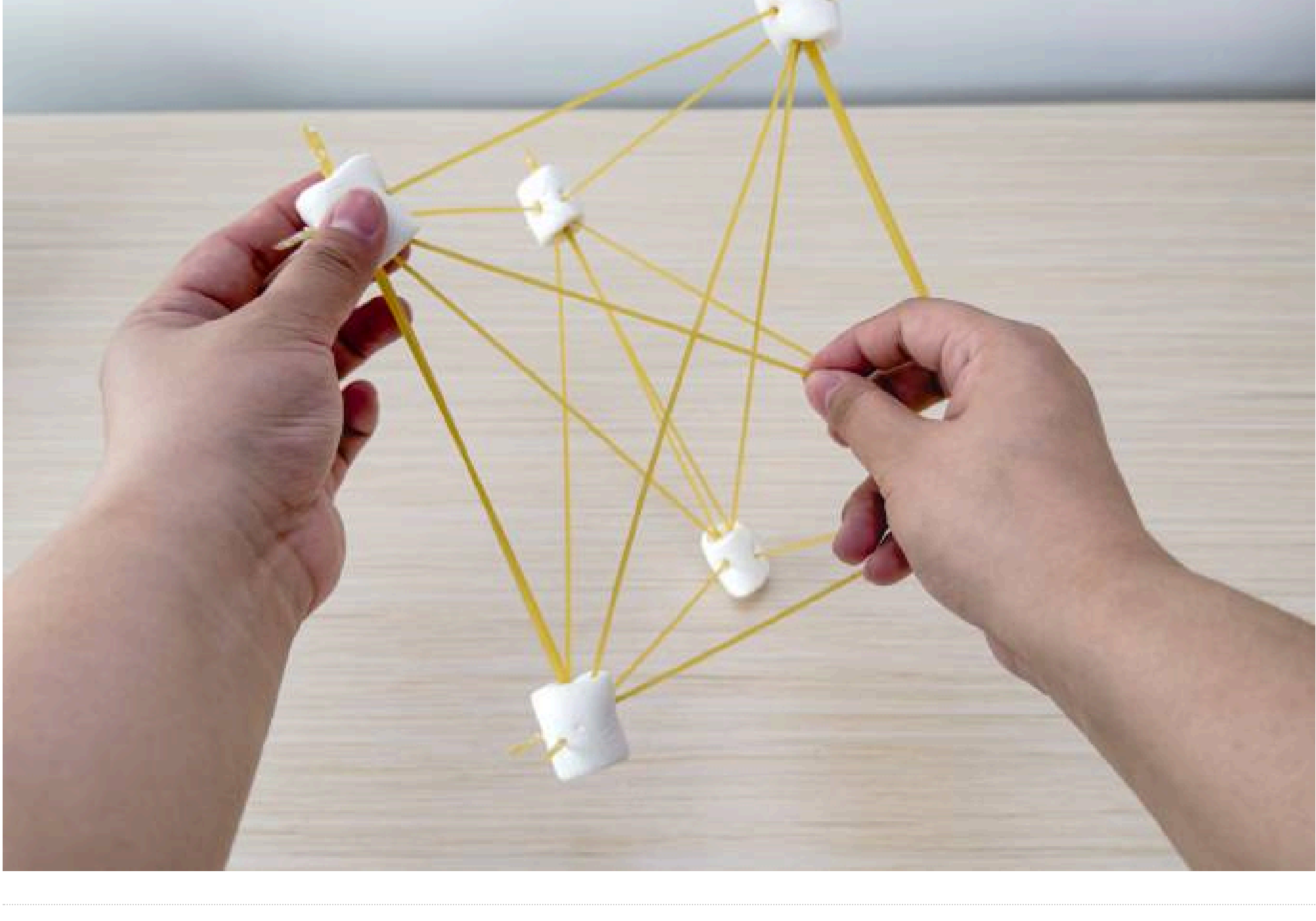
### Step 3

At this point, the rectangular sides are unstable. To strengthen the tower, push the spaghetti further through the marshmallows to reduce the prism's volume, making it more stable.



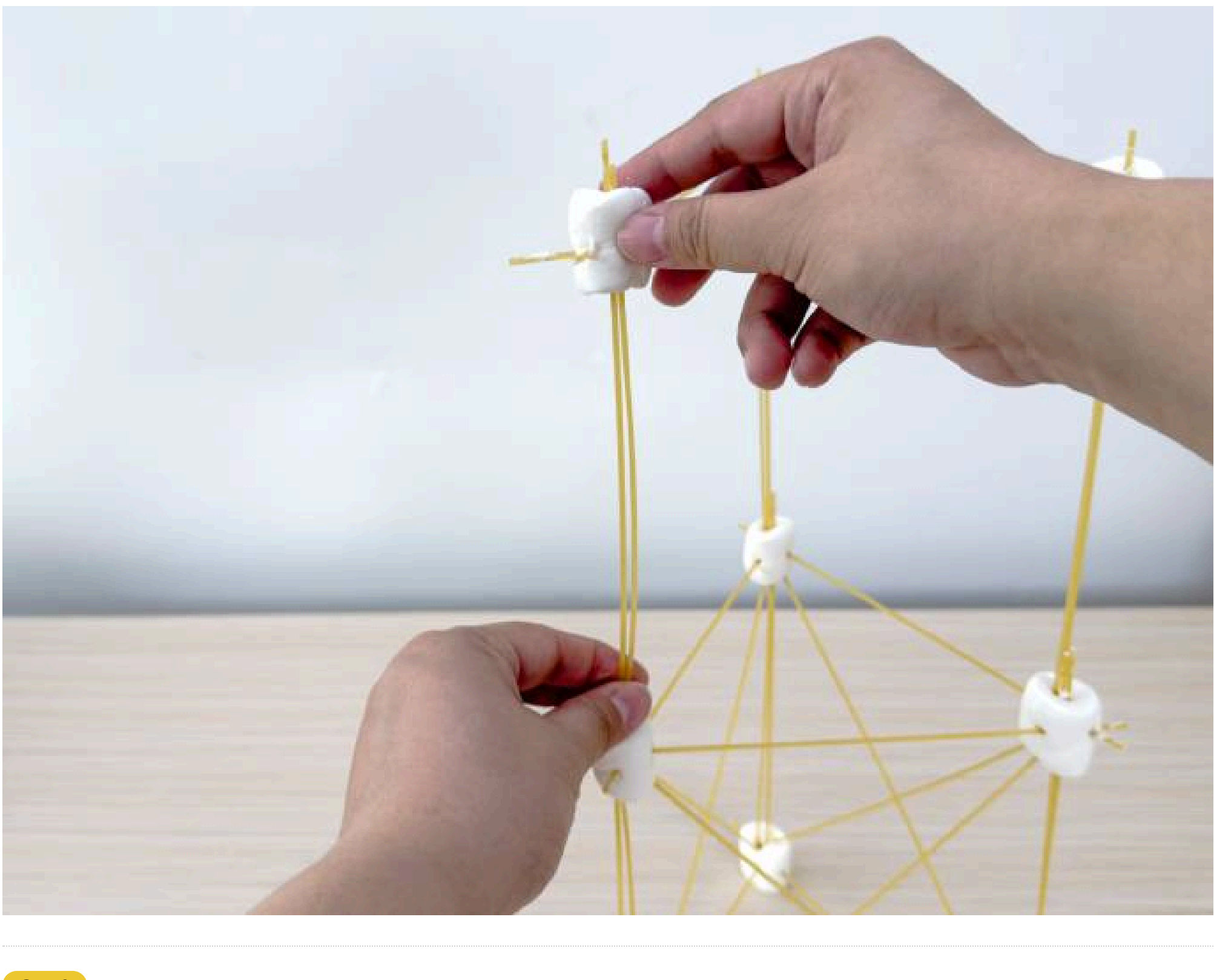
### Step 4

To reinforce the triangular prism, add diagonal spaghetti strands across each rectangle. Creating triangles makes the rectangular sides more stable.



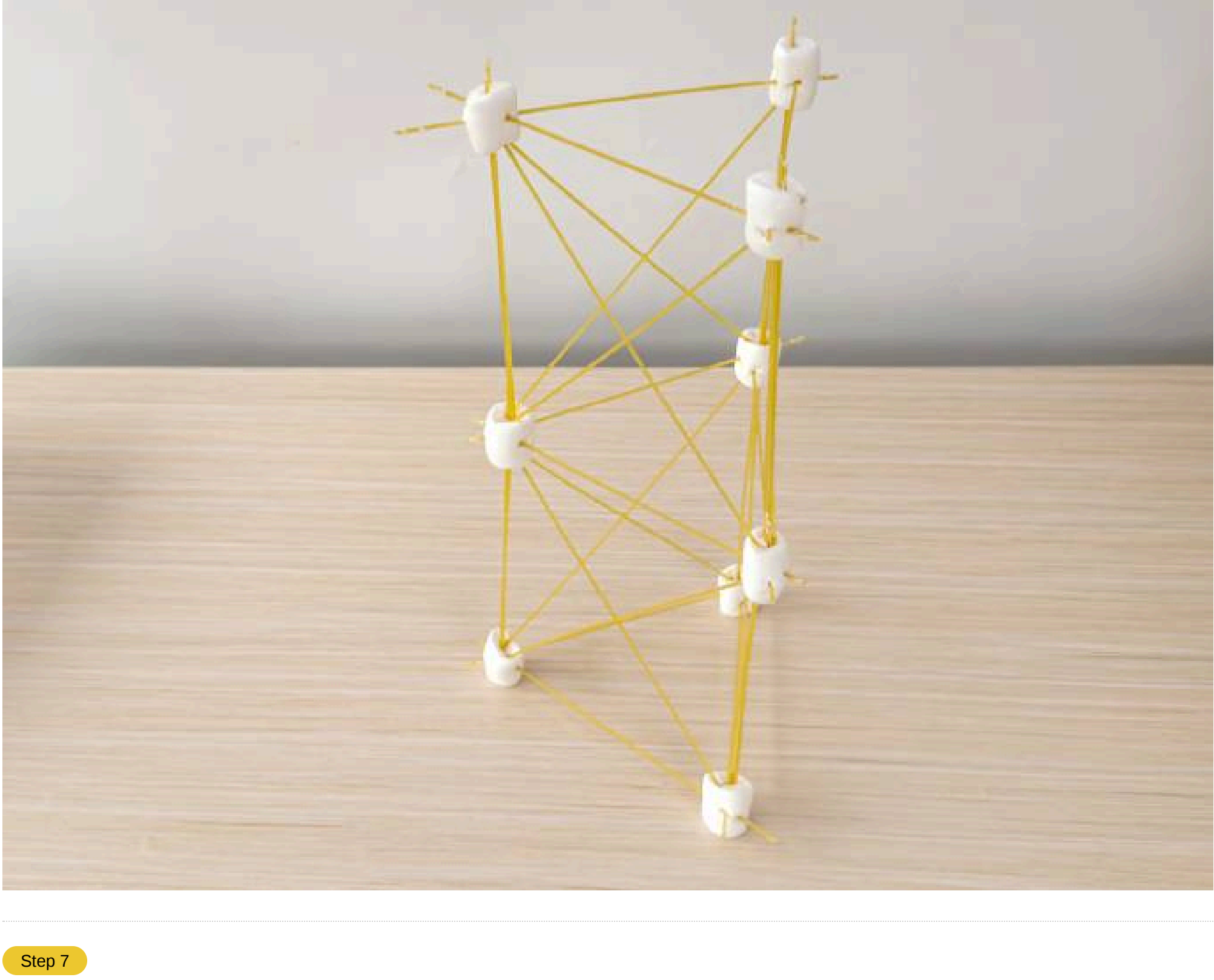
### Step 5

Take another triangle from step 1, push the spaghetti through the marshmallows to reduce its area for better stability. Connect it to the top of your prism using pairs of spaghetti strands as in step 3.



### Step 6

Add diagonal supports to the second layer following step 4's method to make your tower even more stable!



### Step 7

For the tower top, create a triangle the same size as the second layer using three spaghetti strands and three marshmallows.



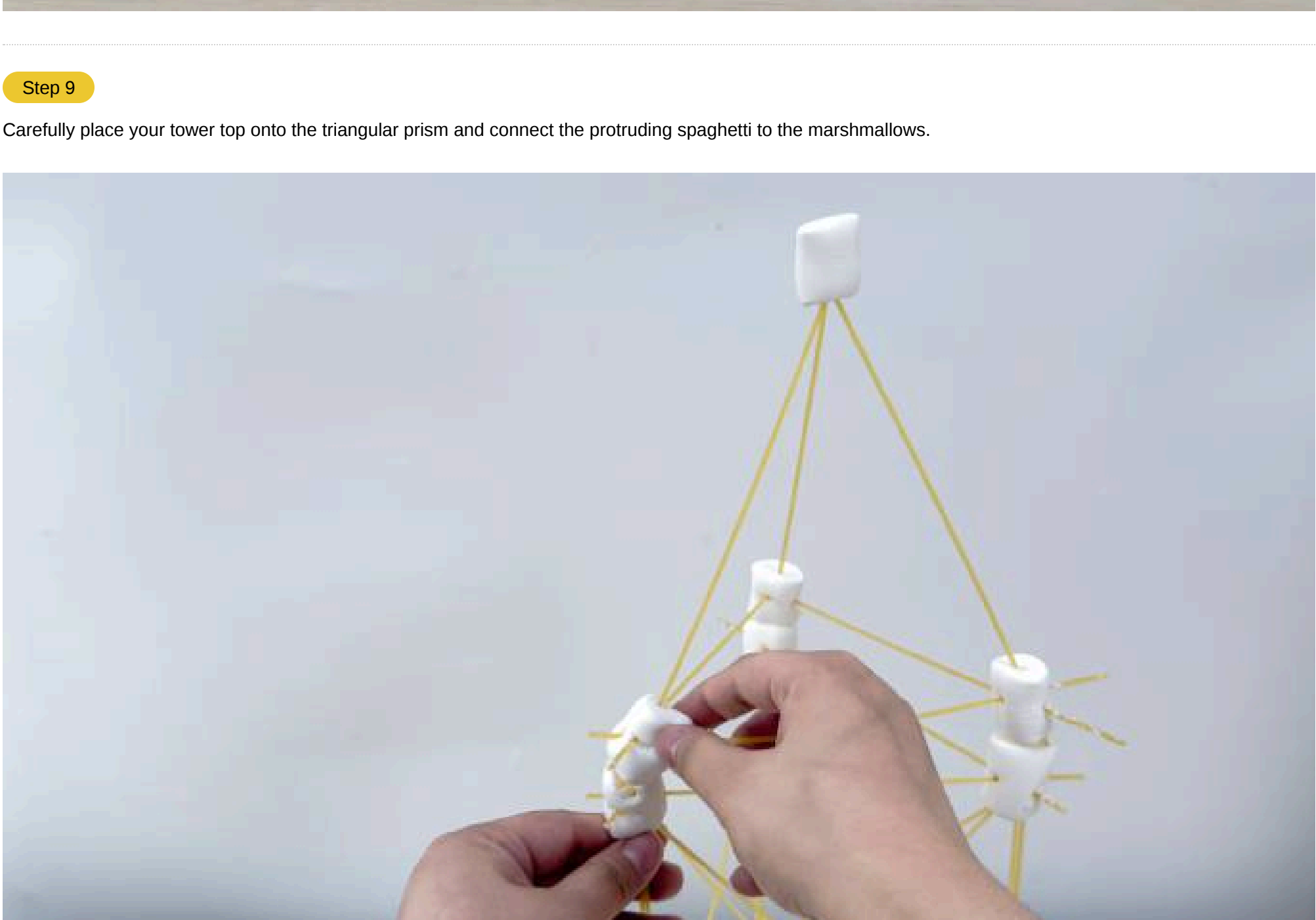
### Step 8

Take three more spaghetti strands and one marshmallow. Insert the strands vertically into the triangle's marshmallows, then bring their other ends together into the remaining marshmallow to form the peak.



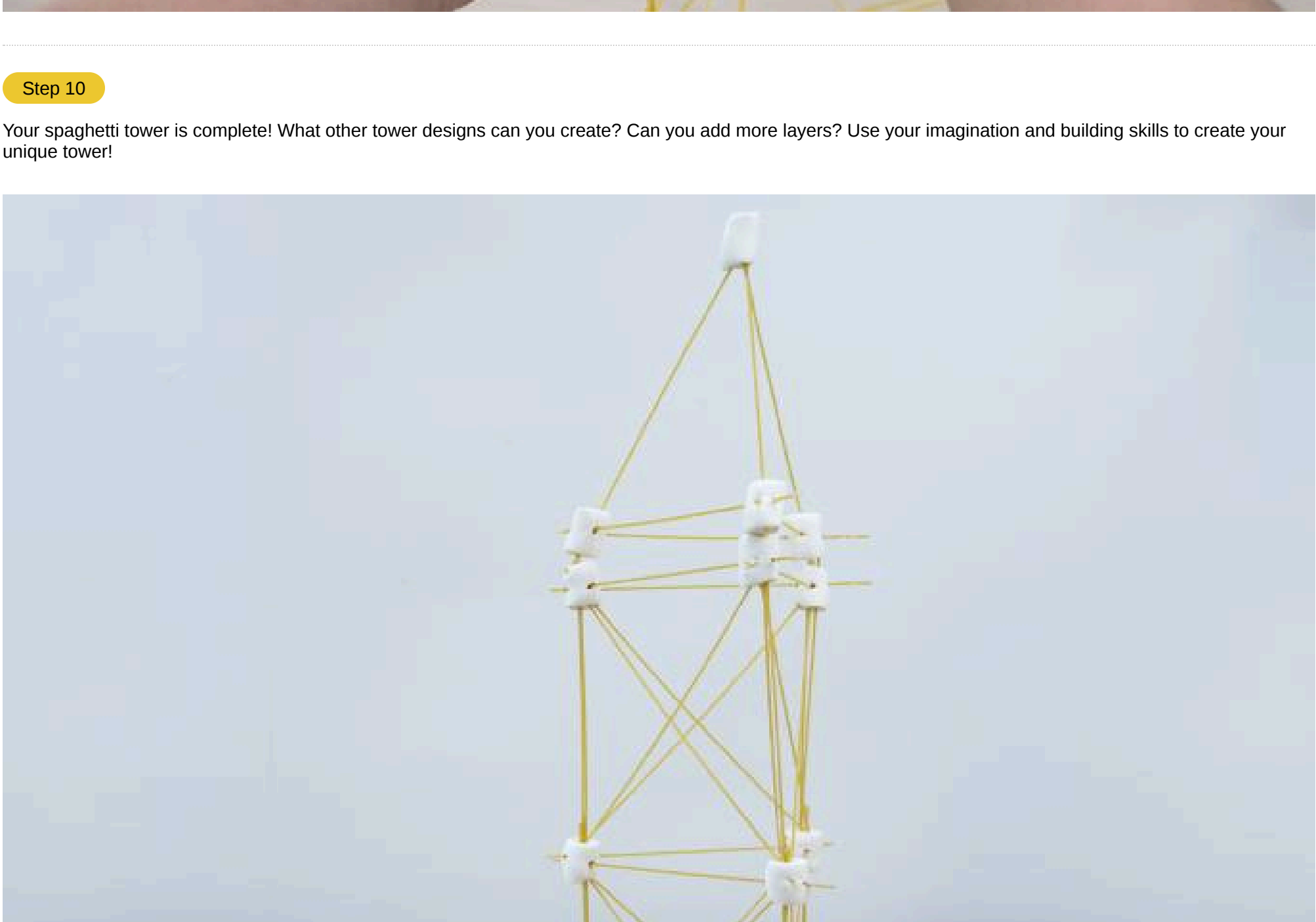
### Step 9

Carefully place your tower top onto the triangular prism and connect the protruding spaghetti to the marshmallows.



### Step 10

Your spaghetti tower is complete! What other tower designs can you create? Can you add more layers? Use your imagination and building skills to create your unique tower!



## The Science Behind It:

Triangles are key to tower stability. They maintain their shape, providing excellent structural integrity. The tower's base must also be wide enough because all objects have a "centre of gravity". For stability, this point must remain within the base. If an object tilts too much and its centre of gravity moves outside the base area, it will collapse.