HOW TO BUILD A

MODEL CATAPULT

By: Nick Baker, Ridham Zalawadia, Bradley Hewitt

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CAUTION:

1) Rubber band slips could cause damage.

2) Pencil lead could be hazardous to sensitive areas such as eyes, mouth.

3) Use only with adult supervision.

4) Do not shoot projectiles at any person or animal.

NOTE:

1) Model quality may vary depending on age.

2) It is recommended to work on the model with an adult if the builder is under 10 years of age.

3) Unless otherwise specified, fasten rubber bands in a figure 8 manner, wrapping the band diagonally around sticks/pencils. Twist the rubber band after each diagonal pass to tighten the connection. Continue wrapping the band until the connection between members is sufficient.

REQUIREMENTS:

Pencils of equal length	11
High tension rubber bands	14
Plastic spoon	01
Ice cream sticks	02

STEPS:

Fig. 1

1) Take 3 pencils. Place 2 at the bottom and one on top as shown in Fig. 1.

Fig. 2

2) Insert an ice cream stick between the bottom two pencils and the top pencils. Ensure that the stick is near one end of the pencils as shown in Fig. 2.

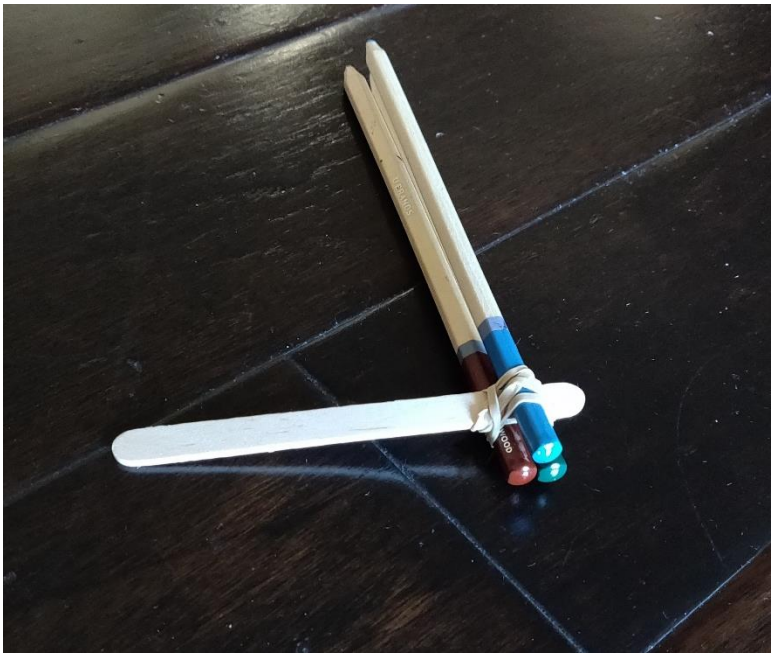

Fig. 3

3) Fasten one rubber band to connect the stick to the pencils (Refer to the notes for more detail on rubber band tying).

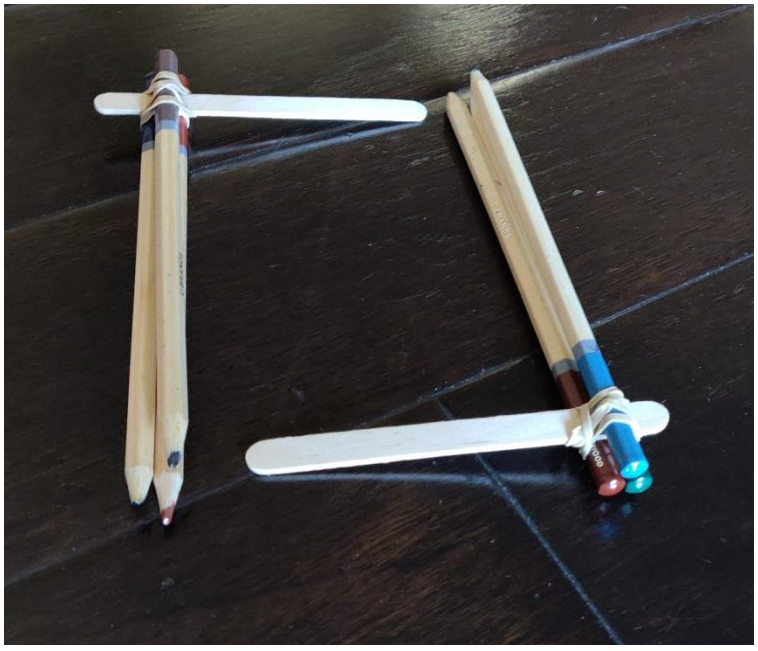

Fig. 4

4) Repeat steps one through three to create another component per Fig. 3.

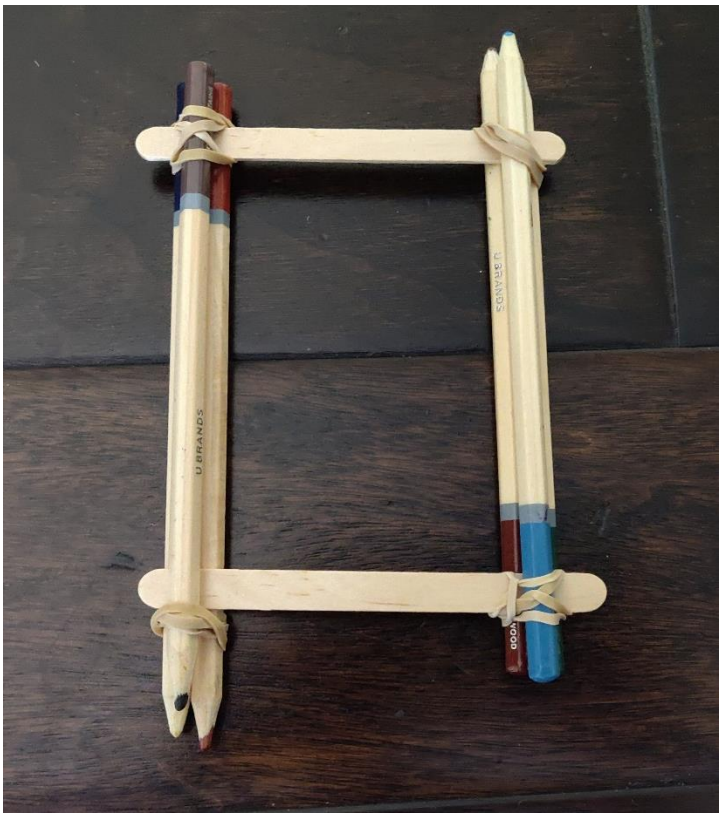

Fig. 5

5) Use two rubber bands to connect the components in Fig. 4 at each node.

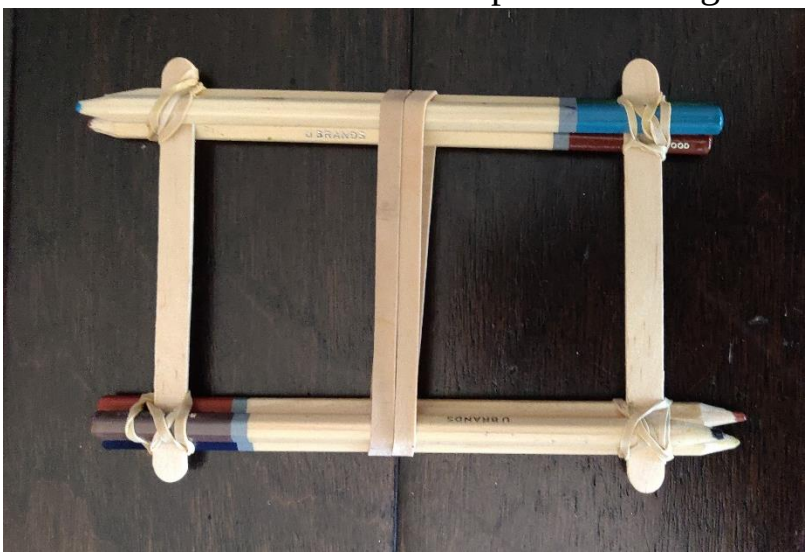

Fig. 6

6) Place two rubber bands around the middle of the rectangle per Fig. 6.

Fig. 7

7) Place two pencils on top of each other as shown in Fig. 7

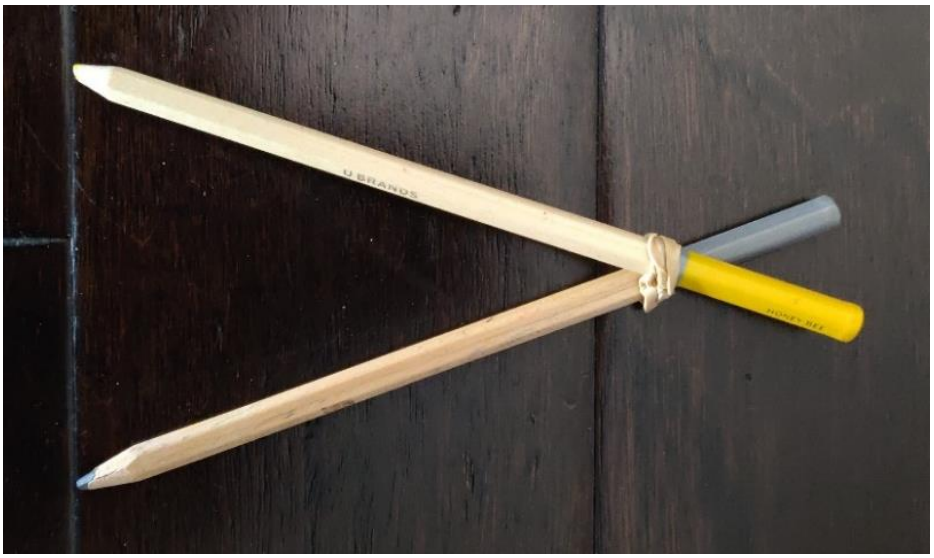

Fig. 8

8) Use one rubber band to fasten the pencils together, using Fig. 8 as a guideline. Do not worry about the bottom spacing, as this will be fixed later.

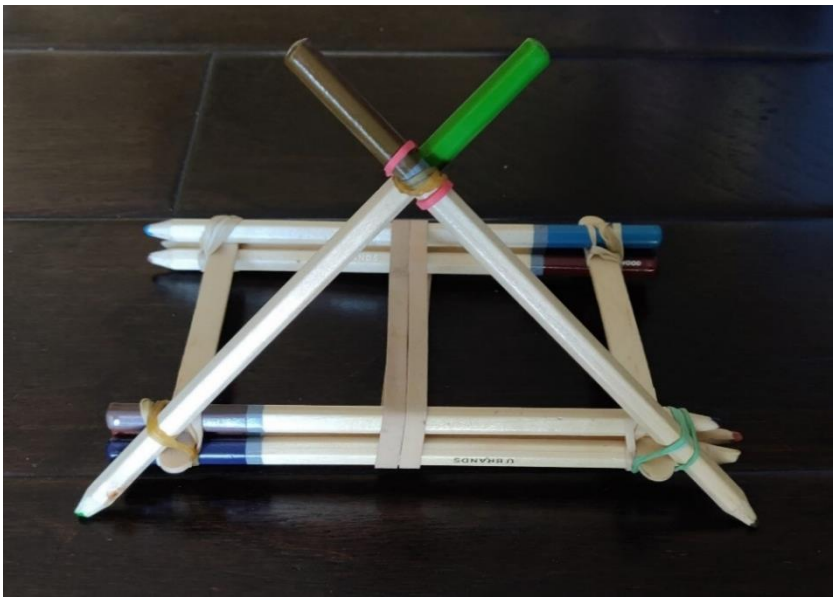

Fig. 9

9) Connect the triangular component (Fig. 8) to the rectangular base (Fig. 5) using two rubber bands. Use Fig. 9 as a guideline.

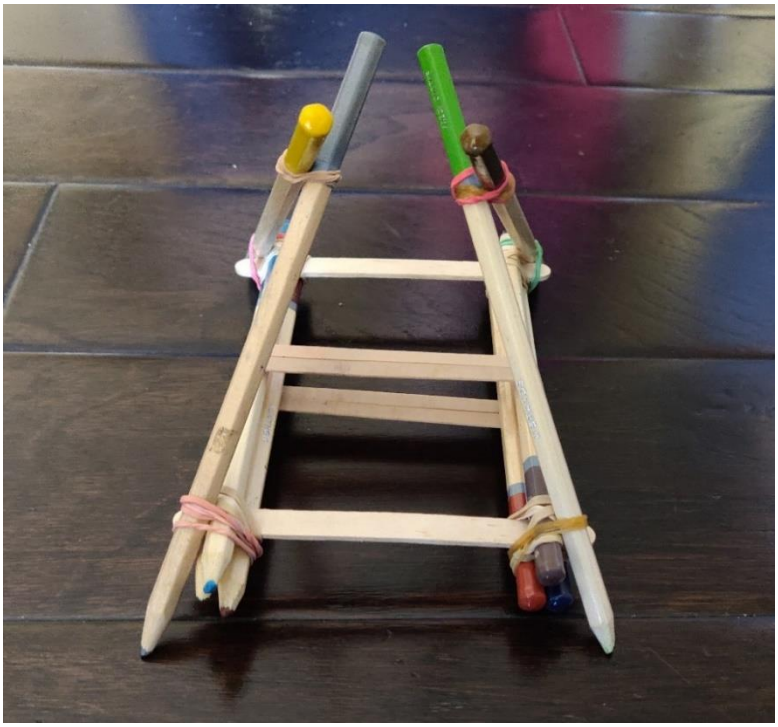

Fig. 10

10) Repeat steps six through nine to create a structure per Fig. 10.

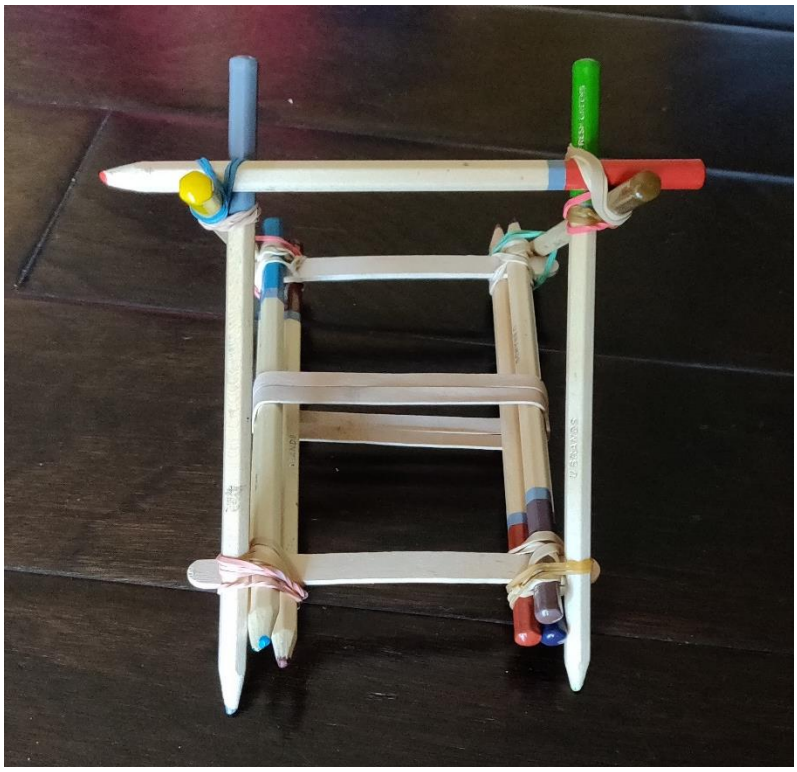

Fig. 11

11) Use a pencil and two rubber bands to connect point A and B with the pencil. This is used to stabilize the structure so that the sides do not collapse inward.

12) Keep a spoon ready for the next step.

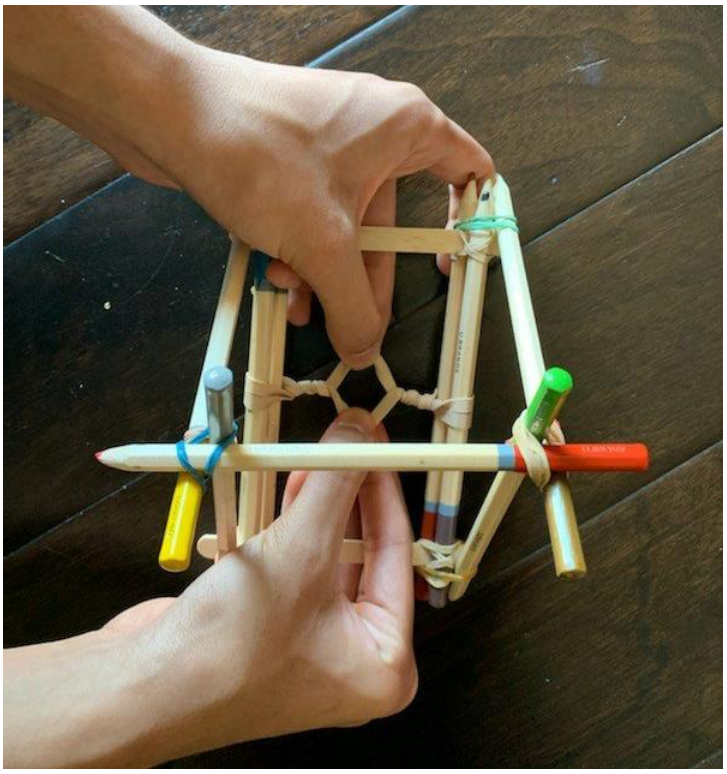

Fig. 12

13) Twist the two rubber bands in the base square in either a clockwise or counterclockwise direction. Stretch the bands to create a hole for the spoon, as shown in Fig. 12.

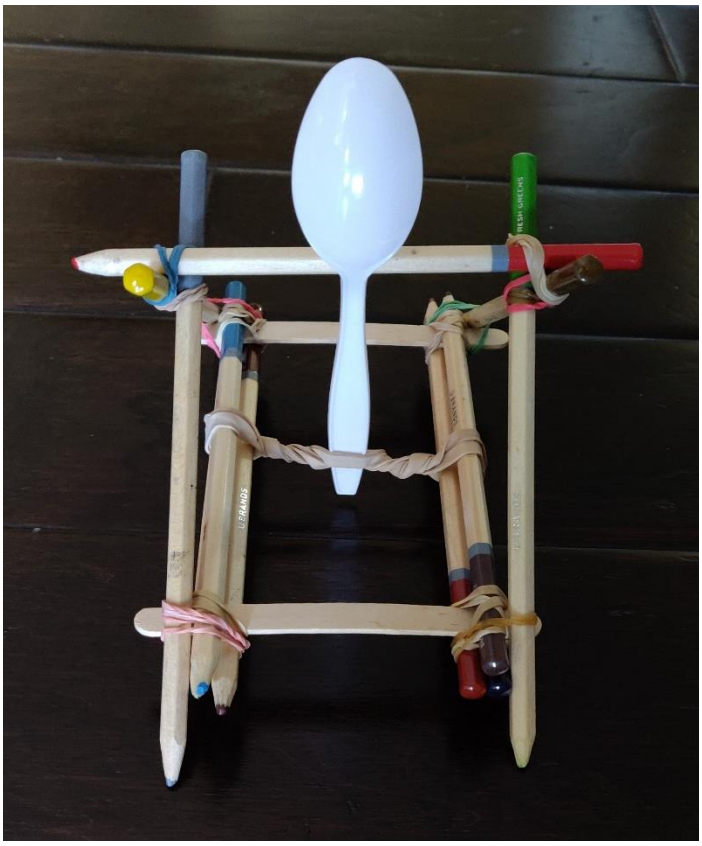

Fig. 13

14) Place the spoon inside the hole created in step 13. The spoon should be oriented such that it rests against the pencil on the top. Use Fig. 13 as a guideline.

Fig. 14

15) Place a projectile onto the spoon and pull the spoon towards the base of the structure. The spoon should launch the projectile and return to equilibrium. The Model is now complete.