

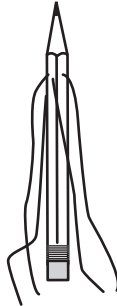
CHAPTER
5 **Project**
Balancing Act

Activity 1: Making a Stand *Use after Lesson 5-1*

You can make a pencil stand up vertically using only four strings for support. Once you've done this activity, you will use the pencil as a stand to balance a triangle in Activity 2.

Work with a partner.

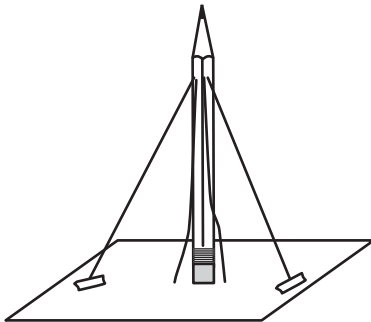
1. Begin with a sharpened pencil. Tape four long strings to the pencil near its point. The ends of the strings should be equally spaced around the pencil and should be the same distance from the point.



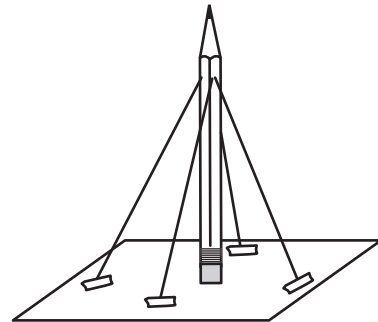
2. Pull the strings taut and cut them so that they are all the same length. They should extend about one inch beyond the end of the pencil.



3. Have one person stand the pencil upright on a piece of cardboard by extending two of the strings on opposite sides. Make sure the strings are taut. Now the other person should tape the strings in place on the cardboard.



4. Repeat Step 3 with the remaining two strings. Once you and your partner are done, the pencil should stand up by itself.



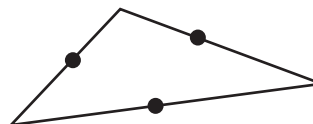
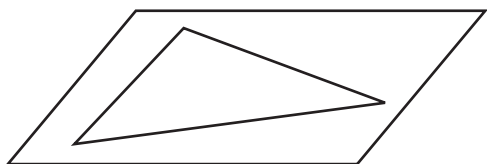
5. Given that the four strings are the same length, explain how you know that the pencil is perpendicular to the cardboard.

CHAPTER
5 **Project**
Balancing Act continued

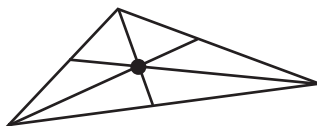
Activity 2: A Balanced Triangle Use after Lesson 5-3

The *centroid* of a figure is the point at which the figure will balance. In this activity, you will find the centroid of a triangle and balance it on the stand you made in Activity 1.

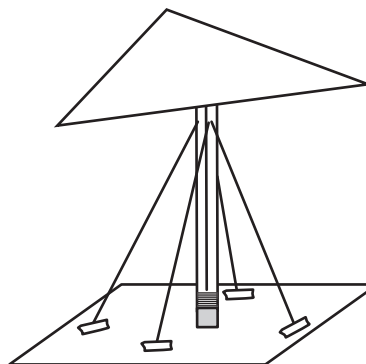
1. Use a ruler to draw a large triangle on a piece of cardboard. (*Hint: Draw a triangle with side lengths of at least 6 inches.*)
2. Cut out the triangle. Carefully locate and mark the midpoint of each side.



3. Draw the medians of the triangle. Their point of intersection is the centroid. Make a dot at the centroid.



4. Turn over the triangle and place the centroid on the tip of the pencil. If the triangle doesn't balance easily, use a pen to make a small impression in the cardboard at the centroid.



5. Repeat the activity with at least two different types of triangles (scalene, equilateral, right, or isosceles). Do all of the triangles balance at their centroid?

6. For the triangles you tested, was the centroid always located in the interior of the triangle? Why does this make sense?

