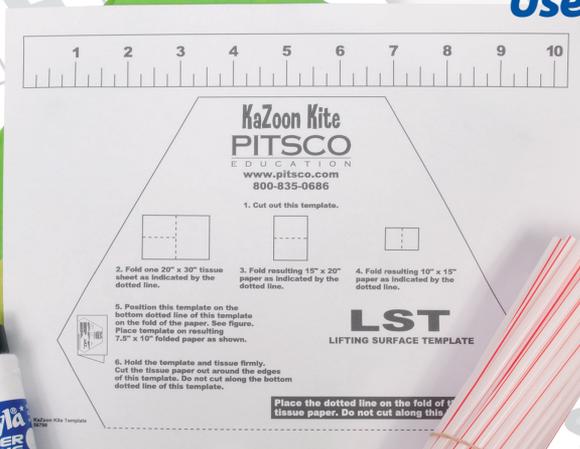


KaZoon Kite Kit

User Guide



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EDUCATION

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Cautionary and Warning Statements

- This kit is designed and intended for educational purposes only.
- Use only under the direct supervision of an adult who has read and understood the instructions provided in this user guide.
- Read warnings on packaging and in manual carefully.
- Always exercise caution when using sharp tools.

Kite Terms

- aerodynamics – the study of different forces that act on an object as it moves relative to the air
- airfoil – a body, such as a kite or an airplane wing, designed so lift is created when it moves through the air
- angle of attack – the angle the chord of an airfoil makes with the direction of the airflow
- bridle – two or more lines, called legs, that attach the KaZoon Kite to the flying line at the towing point and set the angle of attack
- drag – the resistance of the air to the forward motion of the KaZoon Kite
- flying line – the string that holds the KaZoon Kite captive to the wing
- lift – the aerodynamic force acting on an airfoil in an upward direction, opposing the pull of gravity
- towing point – the point where the KaZoon Kite attaches to the bridle and sets the angle of attack
- vertex – a corner of the KaZoon Kite or a tetrahedron

Facts about the KaZoon Kite

- Four pyramid shapes are joined to make the KaZoon Kite. Each pyramid shape is built according to the instructions and then attached to the other pyramid shapes to form the KaZoon Kite.
- The KaZoon Kite is a tetrahedron, which is a three-dimensional object that has four triangular faces. Tetra means four and hedron means three-dimensional object.
- The completed KaZoon Kite is a series of airfoils. Each pyramid shape is an airfoil and provides lift as the air moves across its surface.

Materials Included

- 2 construction clips
- 50 plastic drinking straws
- Sheet of 20" x 30" tissue paper
- Lifting Surface Template with String Measurement Guide
- Glue stick
- Spool of kite string

Note: There are enough straws, kite string, and tissue paper in the KaZoon Kite Kit to construct two kites. Does not apply to 30-pack.

Making the Straw Frames

1. Locate the string measurement guide on the Lifting Surface Template (LST) and the spool of kite string.
2. Measure and cut four strings that are 40 inches long. The string measurement guide is 10 inches long. You must measure four continuous segments of the string to make a piece of string 40 inches long.
3. Refer to the string measurement guide printed on the LST.
4. Measure and cut eight strings that are 14 inches long. Find the seven-inch mark on the string measurement guide. Measure two continuous segments of the string to make a piece of string 14 inches long.
5. Using one of the 40-inch pieces of string, thread the string through three plastic straws.
6. Tie the two loose ends of the string together. Leave two inches of string on one side of the knot and about 12 inches of string on the other side (Figure 1). The straws should form a triangular shape. Make an extra knot in the string to strengthen the original knot. Set this straw triangle aside.
7. Take a straw triangle and tie one of the 14-inch strings to one of the triangle's vertices that doesn't have a string hanging from it.
8. Take another 14-inch string and tie it to the third vertex of the straw triangle.

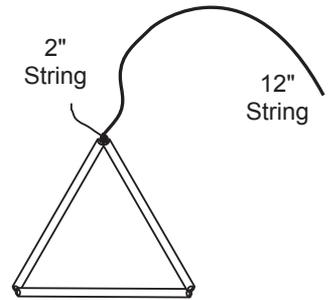


Figure 1

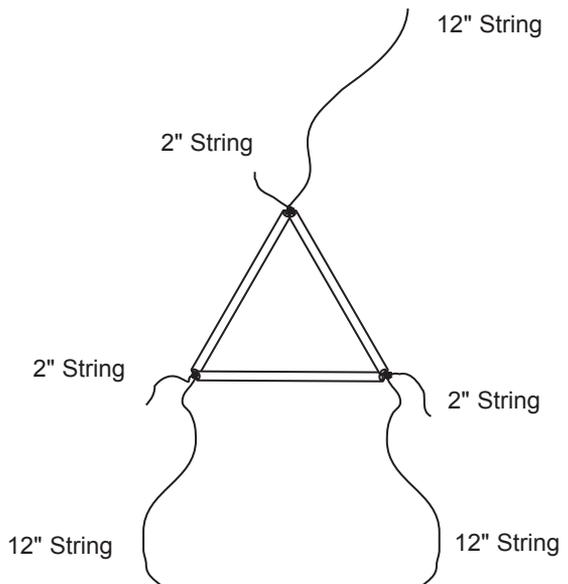


Figure 2

9. Thread a string from one of the straw triangle's vertices through a straw.
10. Thread the string from the second vertex of the straw triangle through another straw.
11. Take the two strings just threaded and tie them together. A diamond shape is the result (Figure 3). You have now produced the diamond shape that will form two surfaces of one kite wing.
12. Repeat Steps 1-11 three times to make three more straw triangles like the first one.

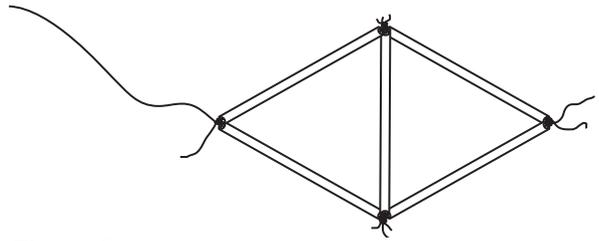


Figure 3

Building the Tetrahedrons

1. Locate the LST sheet and cut out the template.
2. Fold the 20" x 30" sheet of tissue paper as shown on the LST. (This step may be omitted if the sheet of tissue paper has been prefolded in the kit.)
3. Locate the two construction clips. Attach the LST to the tissue by placing the clips on the long folded edge. Important: Place the LST's longest side along the long fold of the folded tissue paper.
4. Use sharp scissors to cut around five sides of the LST. Do not cut along the long fold where the clips are attached.
6. Unfold one of the four pieces of tissue paper. The shape it forms should closely resemble Figure 4.

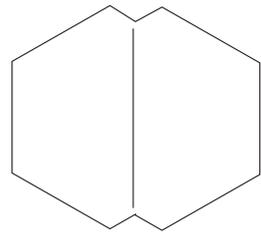


Figure 4

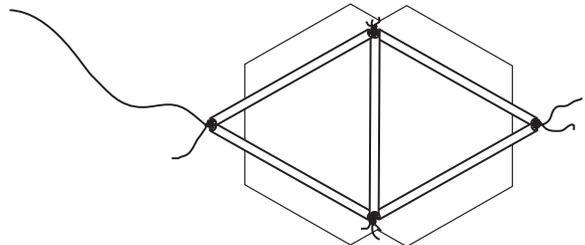


Figure 5

7. Place the diamond-shaped straw figure on the unfolded piece of tissue. Place the center straw (between the two triangular shapes) at the center of the unfolded tissue paper as shown in Figure 5. The tissue paper should extend equally in all directions from under the diamond shape.
8. Use the glue stick to place a strip of glue along one of the four edges of the cutout sheet.
9. Fold the glued edge of the tissue paper over the straw and press it smoothly to the tissue surface.
10. Repeat Steps 8 and 9 until all four edges have been glued to the tissue surfaces (Figure 6). You have attached the wing surface to one of the KaZoon Kite's wings.

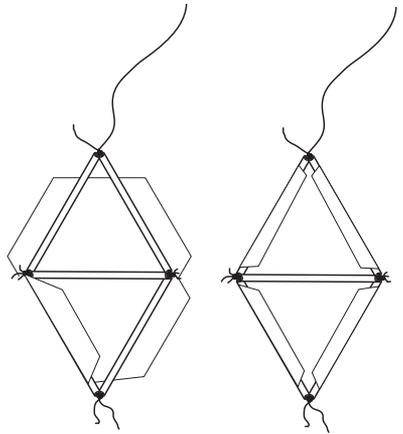


Figure 6

11. Locate the 12-inch string remaining on the diamond object, and thread it through a sixth straw (Figure 7).

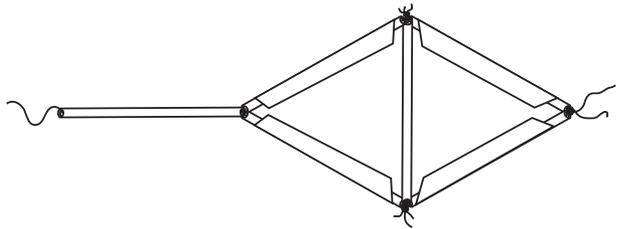


Figure 7

12. Tie the end of the string threaded in Step 1 to the opposite vertex. Use one of the two-inch strings at this vertex to tie to the string threaded in Step 1. You have formed one of the kite's wings. The shaded area represents the tissue paper (Figure 8).
13. Repeat Steps 6-12 to make three more KaZoon Kite wings.

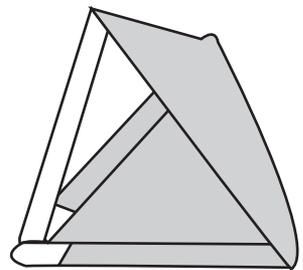


Figure 8

You have now built the four KaZoon Kite wings.

Putting the Tetrahedrons Together

1. Place one of the uncovered sides of three of the KaZoon Kite wings in a triangular shape on a flat surface. Tissue-covered faces of all wings should point toward the front of the KaZoon Kite.
2. Using the strings at the vertices, tie the corners of these three wings together where they touch at their bases (Figure 9).

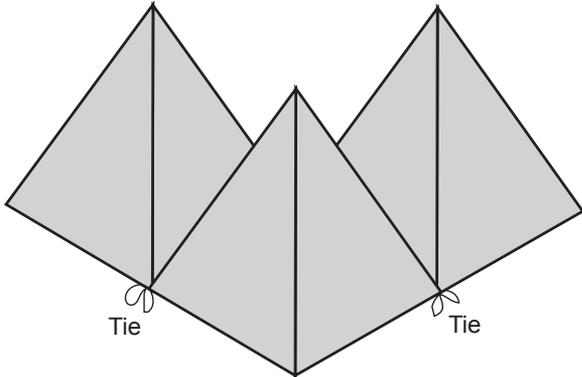


Figure 9

3. Place the fourth KaZoon Kite wing on top of the three attached kite wings. Ensure that all tissue-covered surfaces face toward the front of the KaZoon Kite.
4. Using the strings at the vertices of the three base wings, tie the fourth KaZoon Kite wing to the three base wings (Figure 10). Trim the excess strings from each vertex.

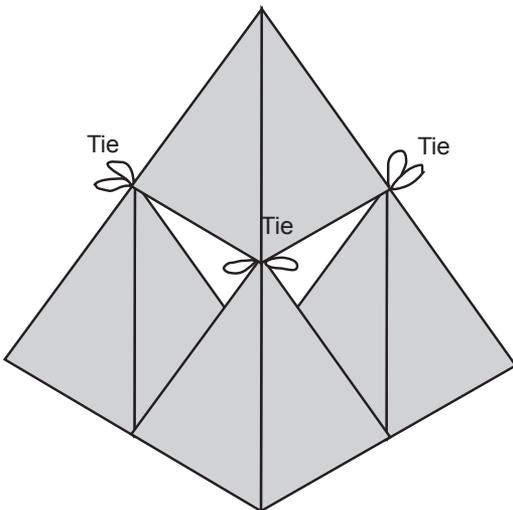


Figure 10

5. Locate the front of the KaZoon Kite. When viewed from the KaZoon Kite front, all surfaces are covered.
6. Attach the end of the kite string on the spool through the vertex of the front base wing. Tie it tightly. A second knot should be used to ensure that the KaZoon Kite does not come loose in flight.

You have completed the KaZoon Kite. Now, go fly your KaZoon Kite!



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