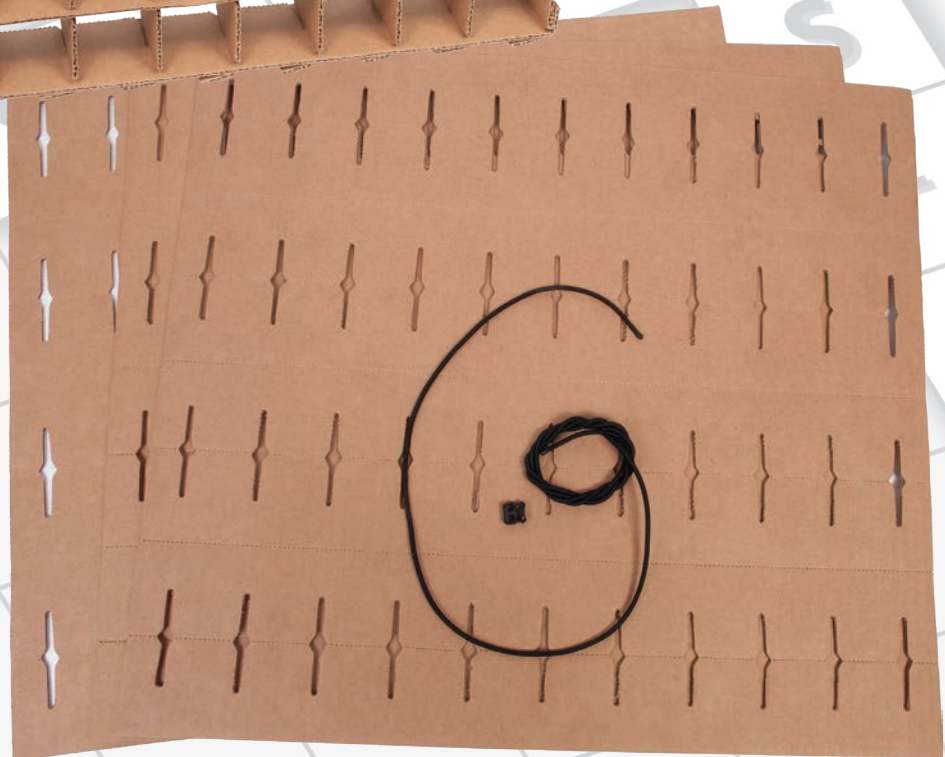
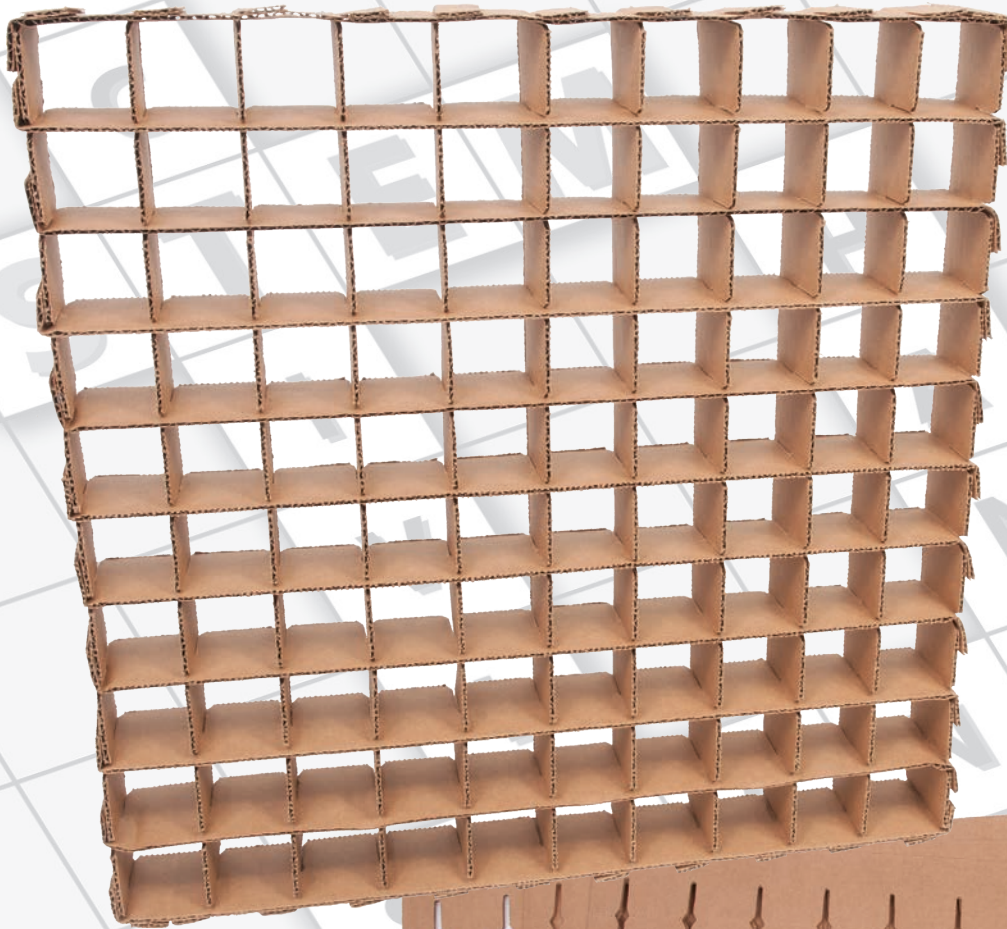


# Air Stream

*User Guide*



## 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

## Materials Included

- 24 cardboard grid pieces (3 cardboard sheets)
- 1 black elastic cord
- 1 cord lock

## Items Required (not included)

- Cool-melt glue
- Glue gun
- Large scissors

## Building the 20-Inch Box Fan Grid

1. Tear along the perforated lines of the cardboard sheets to make the required 22 cardboard grid pieces. Each sheet makes eight cardboard grid pieces. You will have two extra.
2. Using four cardboard grid pieces, make a 20-inch box by interlocking the far-left and far-right slots of each piece (Figure 1).
3. With the open slots of the box outline facing upward, insert nine cardboard grid pieces into the slots so the pieces interlock (Figure 2).
4. Flip the cardboard and repeat step 3 by filling the remaining open slots. When finished, you should have a 20-inch box grid made from 22 pieces of cardboard (Figure 3).

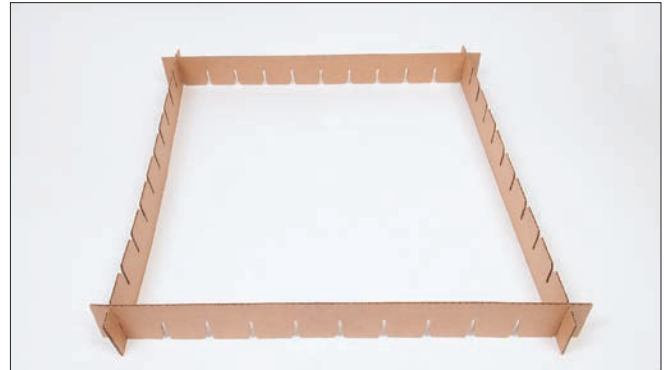


Figure 1



Figure 2

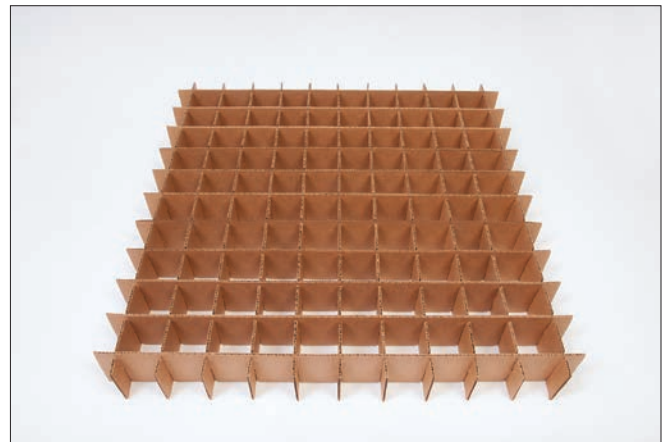


Figure 3

## Gluing the Box Fan Grid

1. With cool-melt glue ready, bend the two flaps of cardboard at each corner in opposite directions and glue them down to the box grid (Figures 4 and 5).
2. Bend and glue down all outside flaps on the box.



Figure 4

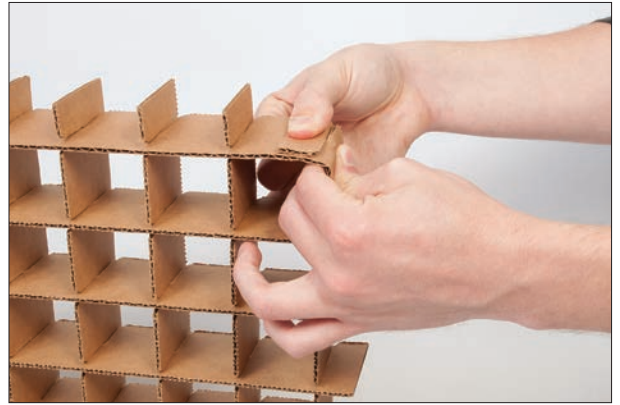


Figure 5

## Securing the Box Fan Grid to a Fan

1. Squeeze the cord lock and slide the black elastic cord through both holes (Figure 6).
2. Place the grid in front of the fan and secure it onto the fan with the black elastic cord. Tighten the cord lock appropriately until the grid is snug against the fan (Figure 7).



Figure 6

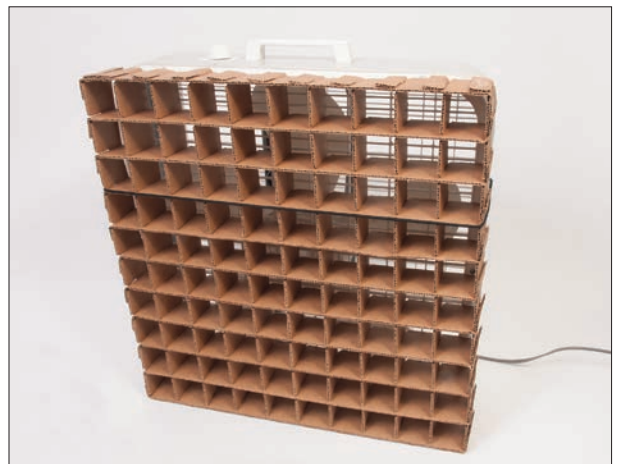


Figure 7

## Activity Ideas

- Use a 20-inch box fan with and without the Air Stream to see the difference between the turbulent flow of the fan without the Air Stream and the laminar flow with the Air Stream. Do this by holding a piece of string or tissue paper in front of the fan with the Air Stream and without it. Discuss the differences observed.
- Use a wind turbine product, such as Eco-Wind Generator II, WinDynamo III, Wind Turbine Experimenter's Kit, and so forth to test the voltage produced with and without the Air Stream. Discuss the differences.
- Use the Wing Test Stand, Wing Build Kit, and Air Stream to test the lift of the wing built during the Wing Build Kit activity.



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