# Cardboard Boomerang

Introduction: Cardboard Boomerang

Boomerangs have existed for thousands of years. In fact, the oldest evidences of booremangs were 50,000 years old. Its simple design has been a reason for its success. Till today it is one of the most iconic and classic toys.

Usually boomerangs are made out of wood or plastic. They work great. But at home carving a boomerang out of wood is difficult and needs different tools. So i will show a very simple way to make it using cardboard.

Step 1: 1. Understand
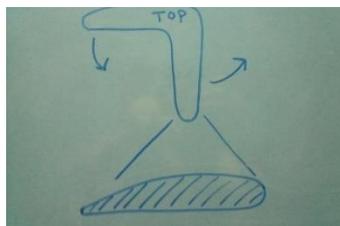
To make a boomerang you need to understand its physics. As you can see, the cross section. of the boomerang is basically an aerofoil. The thicker and rounded front edge is called leading edge. The thinner and slanting rear edge is called the trailing edge. It is the same as an airplane wing. when the boomerang rotates the wings produce lift, hence it flies.

The boomerang I will show is a right handed boomerang, this means you throw it with your right hand. For a left handed boomerang you just need to flip the design. I will explain it at the end.

Step 2: 2. Materials

You will need the following materials:
1- Cardboard.
2- Tape.
3- Scissors.
4- Pencil.

Step 3: 3. Cutting

Start by drawing the shape of a boomerang on cardboard. The boomerang does not need to be exactly symmetrical. Cut out the shape. Now trace this cutout on cardboard two more times and cut these tracings as well. So now you have three pieces of the boomerang. Mark the pieces as 1,2 and 3. You will have to keep it in this order throughout the process.

Step 4: 4. Shaping the Trailing Edge

We have to flatten the marked edges. Just use the pencil or a stick to flatten the edge. Do this for all three pieces. After this when you will put the pieces together the trailing edge will be thinner than the leading edge.

Step 5: 5. Shaping the Leading Edge

Keeping the pieces together, use a pencil or stick to round the leading edge. This will make it more aerodynamic.

Step 6: 6. Put It Together

You do not need any glue. Keep the pieces together. Remember to maintain the order of the pieces. Start by putting tape on the edges. Put the tape tightly so that the edges become smooth. Cover the entire boomerang with tape.

Step 7: 7. Finished

We have finished making the boomerang. Now you can see the aerofoil shape.

Step 8: 8. Throwing

Hold the boomerang as shown and point your hand forward so that the boomerang stays at 45 degrees with horizontal. This is the best position for throwing a boomerang. Now pull back your arm towards your shoulder and throw the boomerang forward.

If you throw it vertically then it will not fly.

If you throw it horizontally then it will fly upwards and come down crashing.

So maintain the angle.

Step 9: 9. Modifications
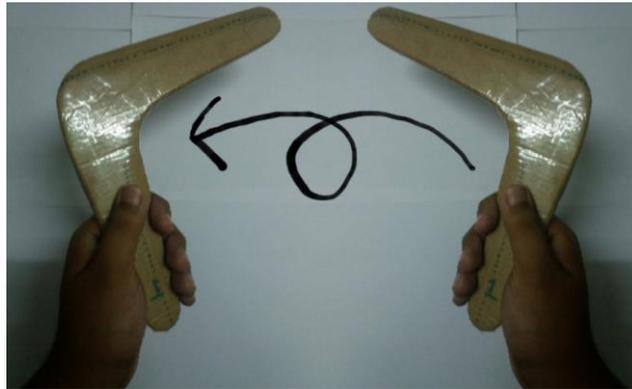
For **left handed** boomerang we need to do the same process just in the opposite direction, just like a mirror image. The throwing will be same as well, just by left hand.

Now this boomerang was medium sided for backyards and parks.

For making **a long range** boomerang use the same method. Just make it bigger, use thicker cardboard and add more layers (3 to 5 layers).

For making a **smaller indoor boomerang**, just make it smaller, use thinner cardboard and reduce number of layers(1 or 2 layers).

So make your boomerang and have fun.