## **Boomerang : Assembly Instructions**



http://www.canon.com/c-park/en/

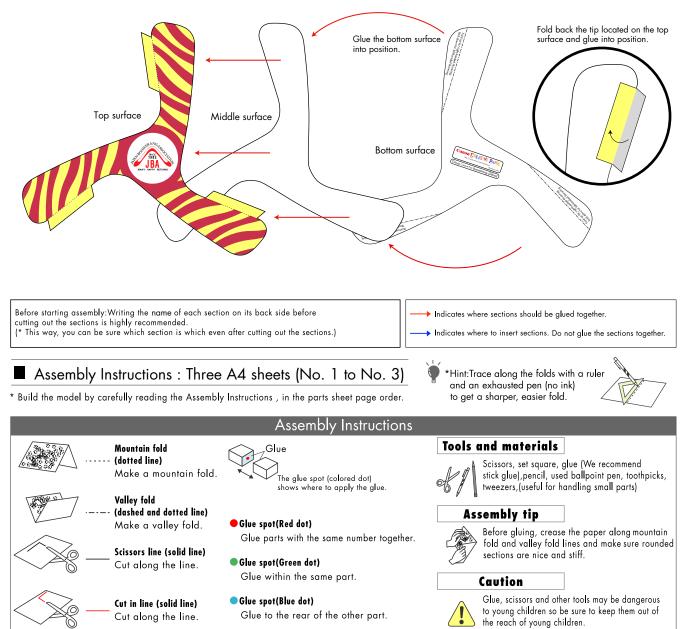
## Assembling the Zebra, Command Four, and Star boomerangs

\* Note that liquid glue may cause warping. We recommend using a stick glue.

\* After gluing the parts together, place the boomerang on a flat surface with a book or similar object placed on top. Store the boomerang under the same conditions. Always retune the boomerang before throwing it.

- Make an indentation on the tip of the top surface and align with the middle surface. Glue these surfaces together.
- 2. After gluing the top and middle surfaces together, glue the bottom surface to the glued assembly. Then flip the boomerang upside and glue the tip.
- 3. After gluing the components together, to flatten the boomerang, place it under some books and allow to stand for some time. Before using it, tune the boomerang as described on page 3 of the Assembly Instructions.

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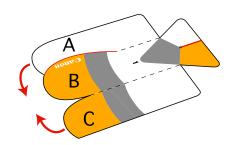


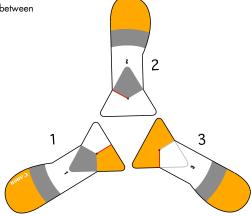
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## Assembling the Triangle boomerang

\* Note that liquid glue may cause warping. We recommend using a stick glue.
 \* After gluing the parts together, place the boomerang on a flat surface with a book or similar object placed on top. Store the boomerang under the same conditions. Always retune the boomerang before throwing it.

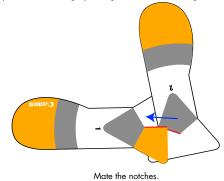
 ${f 1}$  . Fold each part up. Glue the wing surfaces together with surface A inserted between surfaces B and C.

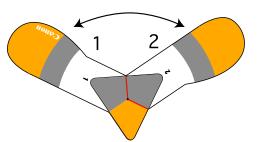




2. Attach wing 1 to wing 2.

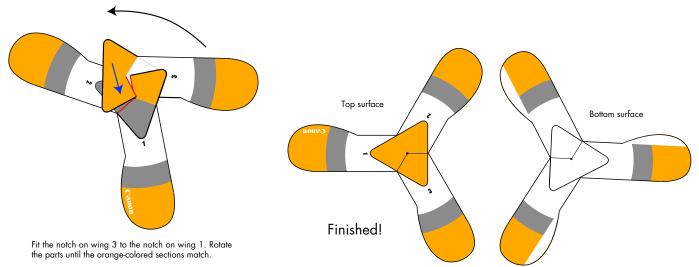
As shown in the illustration, align the notches for each part, then rotate the parts so that the grey triangles in the center align.





Rotate the parts so that the colors match the illustration.

3. Attach wing 3. As shown in the illustration, align the notches for each part, then rotate the parts so that the orange triangles in the center align. This will form a white triangle on the bottom surface. Complete assembly by gluing the wings in place while adjusting them to ensure that the colors beneath the triangles are not visible.

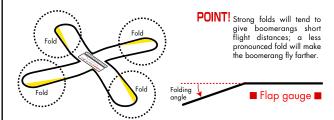




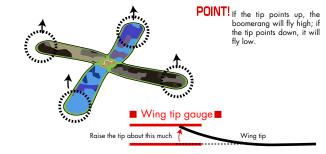
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## Tuning your paper boomerang before throwing it

(1) Fold along the fold lines on the bottom surface. Fold these in line with the angle of the bottom flap gauge. Fold up for right-handed throwing; fold down for left-handed throwing.



(2) With the top surface on top, place the boomerang on a desk or other flat surface and gently bend up the tip of each wing in line with the gauge. While doing so, ensure the center of the boomerang's bottom surface remains in contact with the flat surface.



## Other fun things to try with a boomerang

- When you've learned how to catch the boomerang, see how many times you can catch it out of ten throws.
- Use a stopwatch to see how many times you can catch the boomerang within 30 seconds or a minute.
- Try throwing with one foot raised or catching the boomerang without moving your feet.
- Use something to mark a spot on the floor, then throw the boomerang while standing above the mark to see how close to that mark you can get it to fall. Assign points based on distance from the mark (for example, 10 points if it lands on the mark and five points if it lands 30 cm from the mark). Challenge a friend to see who gets the most points in five throws!



Scatter a few balloons around the room and compete with a friend to see who can hit the most balloons. Try competing for points, assigning more points for more distant balloons and fewer points for closer ones.

(1) Hold the boomerang with its top along your thumb (face side), gripping it with your thumb and positioning it all the way to the base of the thumb

Hints for improving boomerang flight

- (2) Hold the boomerang aloft beside your head and throw it up, snapping your wrist to impart spin. Throw it the way you would throw a paper airplane. Move your hand forward rather than downward, as if throwing a dart.
- (3) When throwing the boomerang, aim at an imaginary point slightly above eye level. Try to avoid aiming for a point that's too high.
- (4) If you threw the boomerang correctly, it will return, spinning counterclockwise if you're right-handed or clockwise if left-handed.
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- (5) Gently catch the boomerang when it returns, using both hands. If you bend it while catching it, tune it once again. Note that a paper boomerang will not return properly if you throw it too hard. Keep practicing until you can use your wrist to

### Tips for building a left-handed boomerang

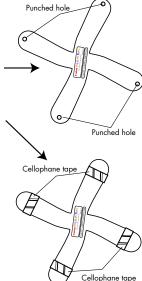
- Use the surface with no design printed on it as the top.
- Tune the boomerang by bending the flaps down.

impart as much spin as possible.

When bending the wing tips up, keep the surface with no design printed on it on top Throw the boomerang with the surface with no design printed along your thumb (face side)

## Try this

- Throw a paper boomerang, then measure the time it takes to return. Consider how you can make the Punched hole boomerang fly for longer.
- Use a paper punch to punch holes in the wings of your paper boomerang. This will create unique humming noises as it flies. Experiment to get your boomerang to make sounds you like best.
- To make your paper boomerang fly farther, attach a loop of cellophane tape to the wing tips. When doing so, be aware of your surroundings and be sure to throw the boomerang in a spacious area.
- Once you've built a paper boomerang that can fly long distances, try building another one. Throw the first one, then throw the second while the first one is still in the air. Try to catch and throw the first boomerang before the second one returns, then do the same with the second boomerang. See how long you keep 'juggling' your boomerangs. Think of them as flying beanbags!



#### Paper boomerang warnings

- We recommend using paper craft boomerangs indoors only. Outdoors, the effects of imperceptible breezes may affect flight characteristics, keeping them from returning properly Don't throw boomerangs on streets or walkways used by vehicles or pedestrians
- Keep your surroundings in mind when throwing a boomerang to avoid striking people or animals.
- Be careful to ensure the boomerang flies only in the intended direction and won't veer off-course and strike people or objects. Never throw the boomerang sidearm.
  Retrieving your paper boomerang if it gets stuck in high places can be dangerous. Ask an adult to help you retrieve your boomerang.
  We recommend using goggles to protect your eyes when playing with your boomerang.
- Adults should carefully monitor small children playing paper boomerangs.