

FULL-SIZE PATTERN

PUT CENTERLINE ON FOLD

PAPER CLIP

KEEL

PUT ON EDGE OF CARD

Butterfly Glider

This glider is as graceful in flight as the monarch butterfly it imitates. Its shape is a copy of the wings of the monarch, and this gives it some of the monarch's powerful flying ability. A real monarch flies so well that he can wing it from New York to Mexico. Throw the Butterfly Glider as high as you can. It will climb, trace a perfect loop, level out, and head for Mexico.

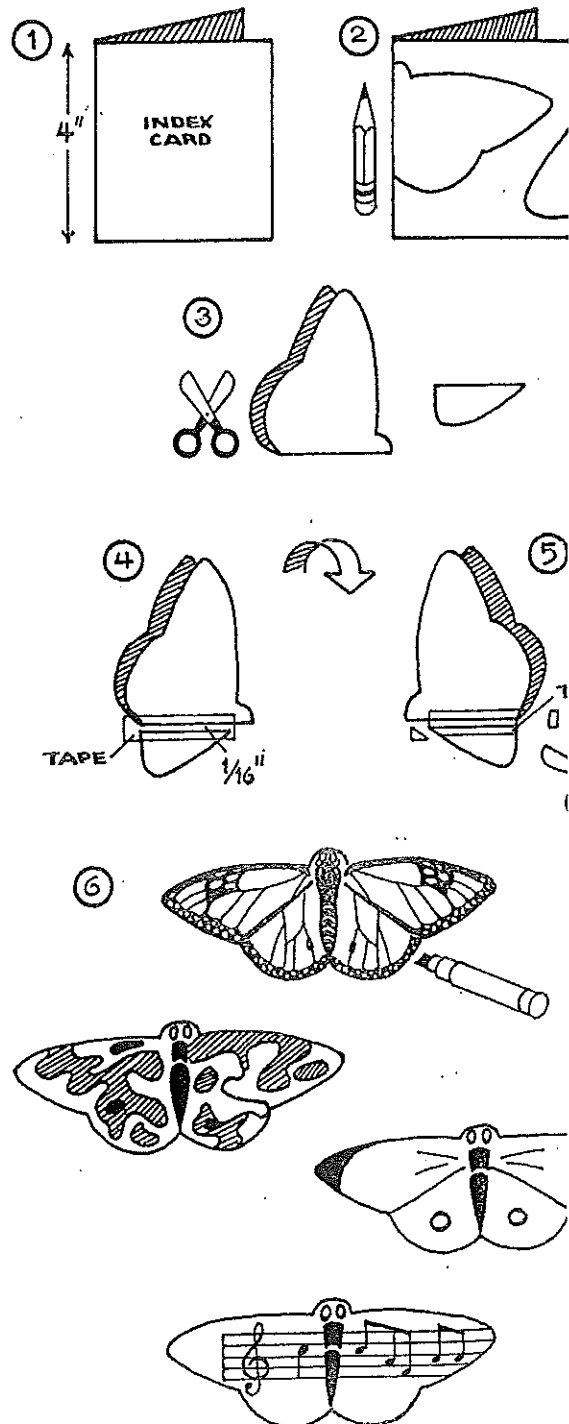
The glider's antennae are made from paper clips bent in a special shape and taped to the bottom of the wings. Their weight pulls the glider forward through the air. A real butterfly's thin antennae of course have almost no weight at all. Many people think the butterfly uses them as "feelers," which is not true. In fact, the butterfly *smells* with his antennae.



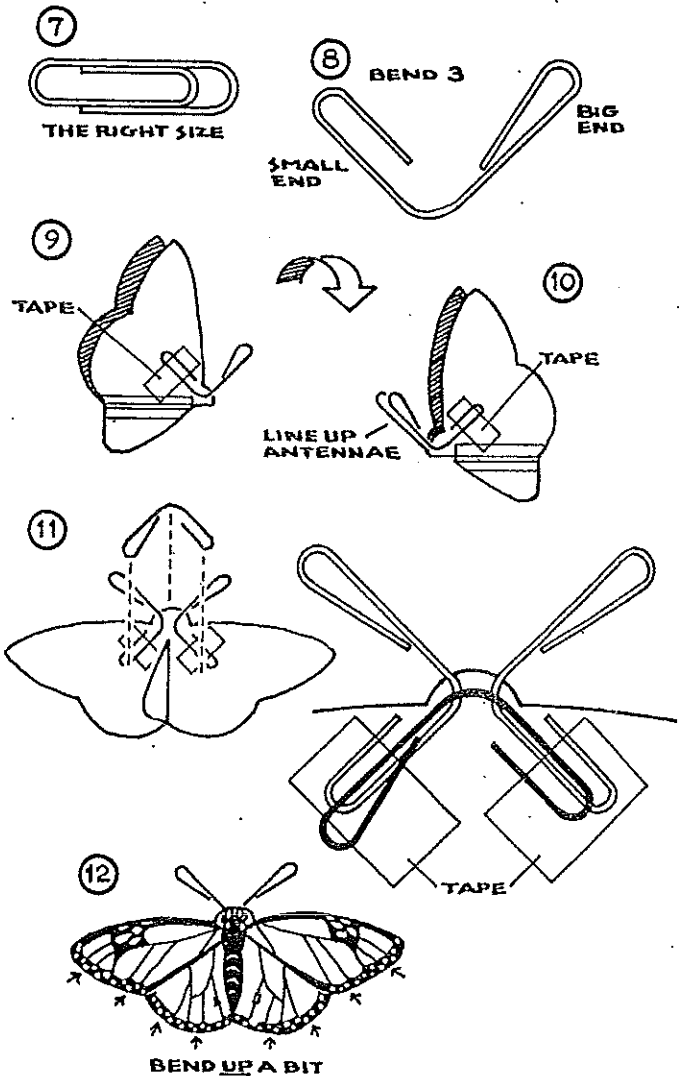
You Need:

- 1 white 4" × 6" index card
 - 1 sheet of tracing paper OR typing paper
 - cellophane tape
 - 3 regular-size paper clips (see Step 7)
 - markers OR crayons
- Tools:* pencil, scissors

1. Fold a 4" × 6" white index card in half so the short sides meet.
2. Page 8 shows you an easy way to copy the outline of half of the full-size pattern on the facing page onto the folded index card. Make sure the centerline of the pattern goes along the fold of the index card. The straight edge of the keel pattern can lie along any outside edge of the card.
3. Cut through both sides of the index card at the same time along the outline to make the butterfly shape. For the keel shape, cut through only one side of the card.
4. Leave the butterfly shape folded and lay it on a tabletop. Lay the keel in place next to it with a tiny gap ($\frac{1}{16}$ ") between them. Now tape the butterfly and the keel together with a single strip of tape.
5. Turn over and tape the other side. Snip off corners of tape that stick out past the edges of the butterfly and the keel.
6. Open the wings and lay the butterfly on a table with the keel folded to one side under it. Decorate the up side (top) of the Butterfly Glider with markers or crayons. Make up any pattern or combination of colors you like, or make it look like a real butterfly. For a very realistic glider, you can copy the monarch butterfly markings shown on the full-size pattern. The markings are black; color all larger spots on the wings orange and leave the small spots on the borders of the wings white.



7. The Butterfly Glider's antennae are made from paper clips. They give the glider the weight that pulls it forward, so it is important to use exactly the right size of paper clips to get the right amount of weight. Use regular-size paper clips from a variety store, exactly the size shown. Other sizes won't work as well.
8. Bend three paper clips open into the shape shown. Hold them against the illustration to be sure you get the shape right, and hold them against each other to be sure they are all the same.
9. Fold the glider and tape a paper clip to it.
10. Turn the folded butterfly over and tape another paper clip to the other side. Line this one up exactly with the first one.
11. Open up the butterfly and add the third paper clip over the taped-down ends of the first two. Tape it tightly in place with two pieces of tape.
12. Turn the glider over and bend up the back edges of its wings a little bit. If they are bent down, the glider will nose-dive.

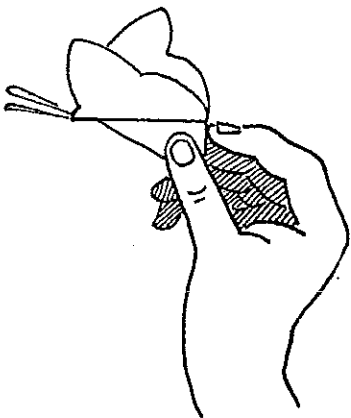


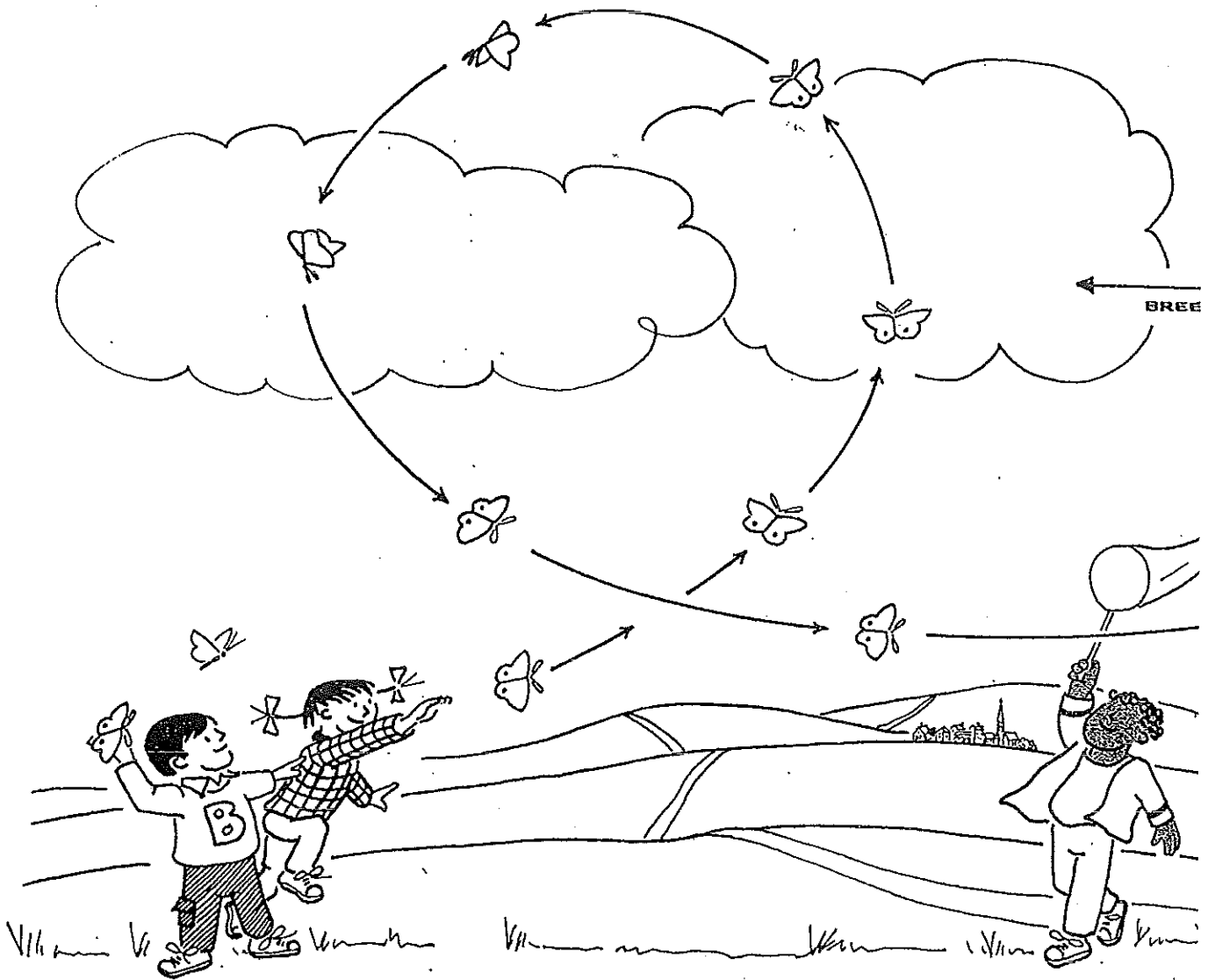
Flying Tips

- Before launching, look at the glider head-on from the front. The wings should be held up in a wide V with the keel straight down.



- To launch the glider, hold the keel between your thumb and middle finger with your first finger along its back edge. Then throw it as you would throw any glider.





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- **Net Game:** As one or two kids throw Butterfly Gliders, another tries to catch the gliders with a real net. The catcher must stand twenty paces from the throwers. You get one point for each catch. Change catchers every ten throws.
- Outdoors, the glider will fly best on a calm day or on a day with a steady light breeze. Throw it upward fairly hard and into the face of an oncoming breeze.
- If the glider curves to one side again and again, there may be too much weight on the side it curves toward. Try bending the antennae a bit toward the opposite side. Experiment till you find the best position for them.