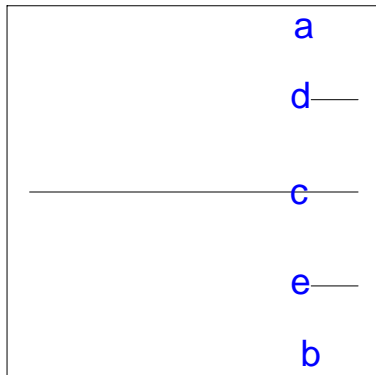
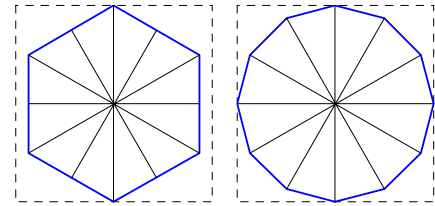


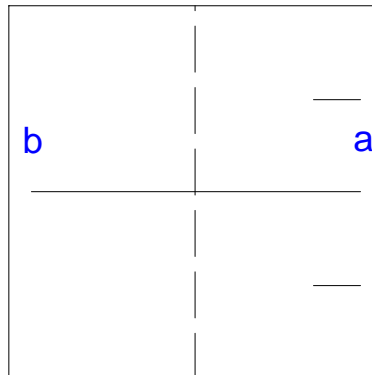
# Regular Hexagon, or 12-sided Regular Polygon

folded from a square

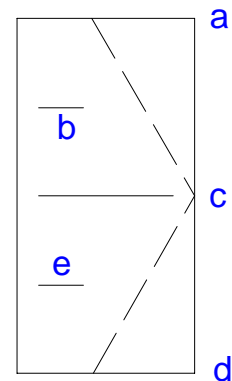
diagrams by Jim Clark



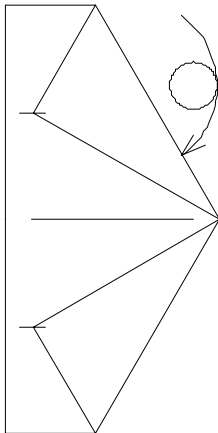
1. Fold edge **a** to edge **b** to make crease **c** (unfold). Then fold **a** to **c** and make short crease **d**; likewise **b** to **c** to make crease **e**.



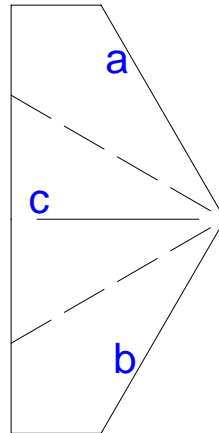
2. Valley-fold edge **a** to edge **b**.



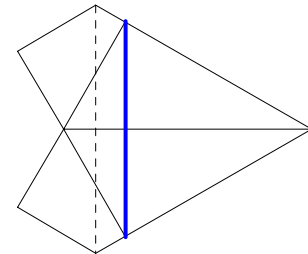
3. Valley-fold corner **a** to crease **b**, making the fold start at mid-point **c**. Like-wise, corner **d** to crease **e**.



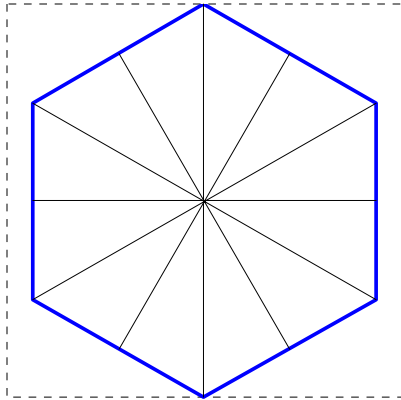
4. Like this. Now, turn over, top-to-bottom.



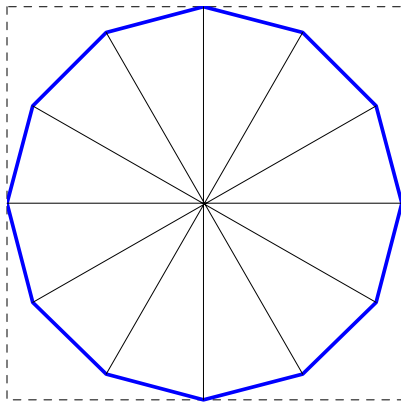
5. Valley-fold edges **a** and **b** to center crease **c**.



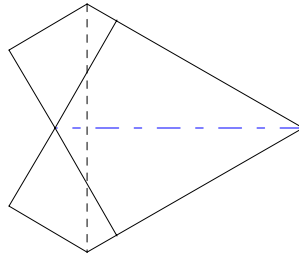
6a. To make a hexagon, cut on a straight line between the two corners as shown, then unfold.



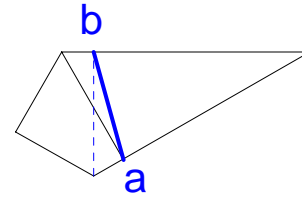
7a. This makes the largest hexagon that fits in a square, like this.



8b. This makes the largest 12-sided regular polygon that fits in a square, like this.



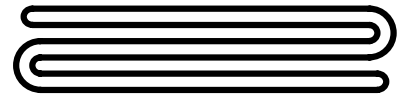
6b. To make a 12-sided regular polygon (after step 5), mountain-fold in half as shown.



7b. Then cut on a straight line between corner **a** (in front) and corner **b** (behind), then unfold.

**OPTIONAL - a test of symmetry:** If you fold the polygon in half on all of the creases shown in diagrams 7a or 8b, and if the sides and corners match perfectly each time, then you have folded accurately.

Many designs need these creases.



**OBSERVATION:** When the paper is Z-folded as illustrated here, the number of paper layers that are folded together is minimized, reducing errors caused by paper thickness. When two layers are folded together, the inner layer is folded more sharply, and takes a shorter path. When more layers are folded together, the differences are greater.