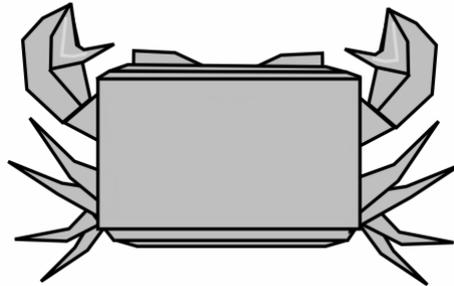


Origami Crab

Donya Quick



Difficulty: complex – requires box pleating and understanding of partial crease patterns.
Recommended paper: $\geq 20\text{cm}$ and either very thin, doubled tissue, or tissue foil.

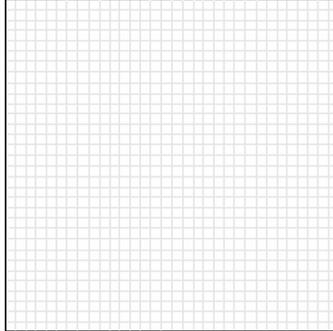
Introduction

This model makes heavy use of box pleating, making thin but strong paper essential. Otherwise, the model's carapace will be prone to splitting in half from the strain of some of the folds. Many commonly sold origami paper packets (most being smaller than 20cm) as well as thicker paper, like copier/printer paper, will have this weakness. The best paper I have found for this model is either doubled tissue folded while the adhesive used to bond the paper is still wet or, perhaps the better solution, a single layer of tissue and foil folded dry. Doubled tissue is very thin and therefore does not create the sources of strain on the carapace, and tissue foil is strong enough to withstand any strain without issue. Doubled tissue will also look cleaner, but is much harder to work with and prone to sloppy folds. Tissue foil will hold its shape better and produce a more robust model.

Folding for this model is not described step-by-step. Instead, collections of folds are shown and described for each figure. Instructions are broken up into four steps: creasing, initial folds, collapsing, and shaping. The instructions begin with box pleating (a total of 64 creases) before any real folding begins. This is necessary to ensure clean folding later. The paper is then folded slightly on itself to form an initial "base" of sorts. Next, the model is collapsed along existing creases in 3-D. Once the model is collapsed, it can be shaped.

1. Box Pleat Creasing

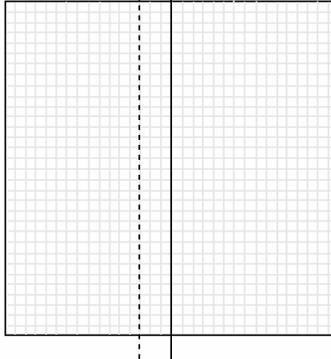
32 x 32



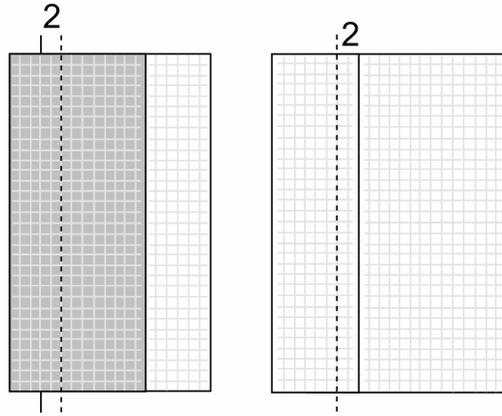
Begin with the paper white side up. Pleat into a 32 x 32 grid. When all of the pleats are folded together from either direction, all white paper should be hidden.

2. Initial Folds

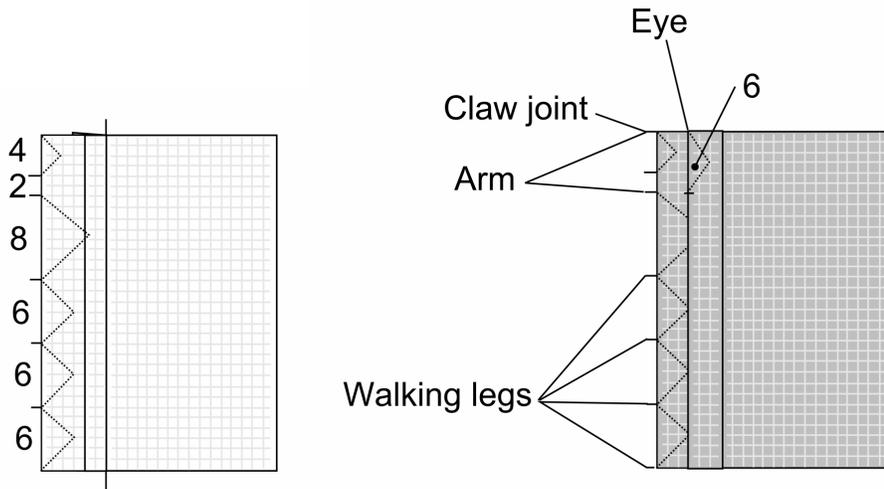
3



Valley fold the left side over leaving three squares between the fold and the midline (marked by the long, solid line).

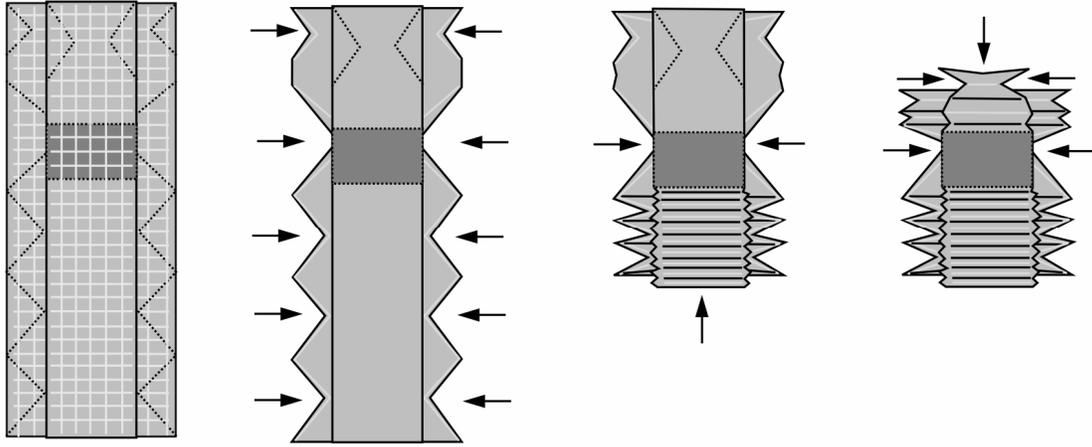


Valley fold the top flap over leaving two squares between the fold and the midline. Fold the excess paper to the left along the midline.

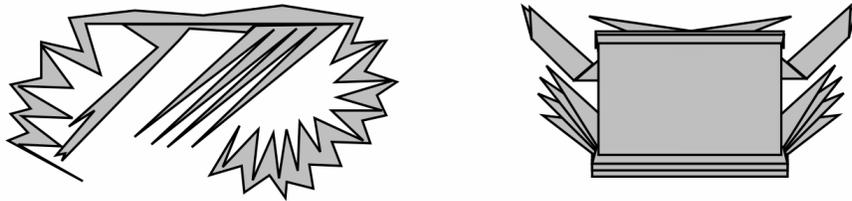


Repeat everything on the other side, then pleat and form the limbs by using six squares between each of the walking legs, eight squares between the highest walking leg and the arm, 2 squares contained within the arm, and four squares between the tips of the claw/pincher. The eye will be formed from the flap on the other side of the paper by collapsing 6 squares.

3. Collapsing the Model

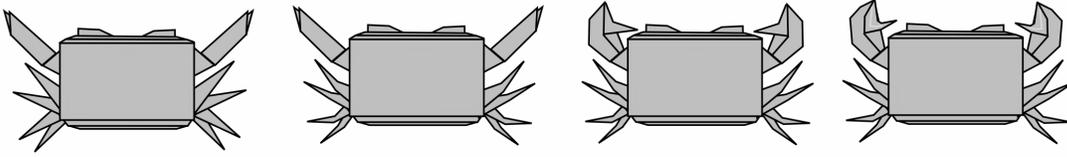


The shaded area will become the carapace and should not have hard pleats folded into if possible. For best results, at least partially pleat the model and make the creases necessary for the, arm, and claw joints. The larger gap between the legs and arm cannot be fully formed at this time, however, because there is a layer of paper in the way on top. Once the creases between the limbs are made as much as they can be, pull up the narrower top flaps on both sides to separate two layers. This will cause the model to take on a 3-D, pill bug-like shape that starts to curl inwards on itself. Re-separate the legs and form the gap between the leg and arm as the model collapses.



Pinch all of the appendages together and rotate them forward, so that all tips face what will be the front of the model. Allow the carapace to flatten above the legs and remain pleated but separated at the front and back. The carapace should be 4 squares from front to back and 6 squares from side to side. Roll the back end under and pull the pleats up on the underneath side to help flatten them. If desired, these excess pleats can be used to form a more detailed underside for the model. Form the flaps for the eyes, then roll the excess front pleats under. Turn the eyes upwards.

4. Shaping



Spread the legs apart. On foil-based papers, the legs can be separated more easily. On other papers, the legs may be better separated by fanning them. Let the topmost leg be the farthest forward. Roll the legs over on themselves to thin them. Expand the excess pleats in the arm to widen it and curve the arms forwards. Open the claw joint and shape the claws.



Finished models from tissue foil (left) and wet-folded doubled tissue (right).