

The Magic Egg

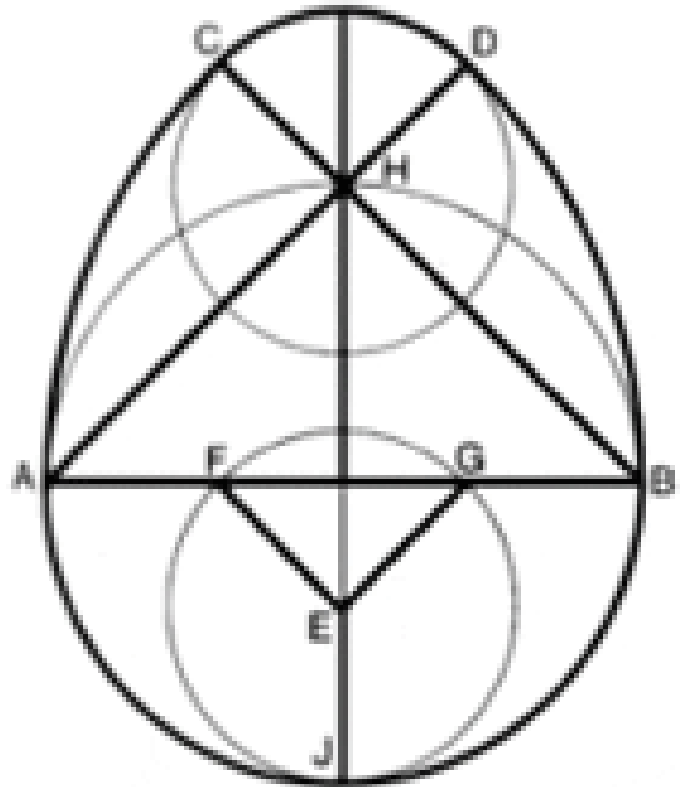
(adapted from www.mathlove.com, where you'd find more great ideas if you could get the page translated sensibly)

These puzzles help build a feeling for geometric properties, as well as visual problem-solving skills and a logical approach (not to mention the ability to follow instructions to get a cool puzzle!)

Materials: construction paper or plastic foam sheet (around 14 cm by 21 cm), ruler, sharp pencils, compass, scissors.

You need to follow the instructions in order!

1. Draw a circle, using approximately a 5 cm radius, so that the bottom edge is a couple of cm from the bottom of your foam sheet.
2. Draw the diameter AB roughly parallel to the bottom of the sheet.
3. Draw the perpendicular bisector of AB, all the way to the top of your sheet. Mark diameter HJ along this perpendicular bisector.
4. Draw the line through AH, extending it at least 5 cm past your circle (no need to be precise), then do the same for the line BH.
5. Open your compass to the diameter of your original circle, then draw arcs BD and AC to meet your straight lines from our previous step.
6. Draw a circle centred on H with radius HC.
7. With the compass at the same radius as in step 6, put the point on J and mark E. Draw a circle with this radius at E.
6. Draw EF and EG.
7. Reinforce the heavy lines as in the diagram. There are 9 pieces (not 10: **don't cut the line from E to the diameter AB**). Once you are sure you have the 9 pieces, cut them out.



Now you've got your pieces, how many of the birds at the top of the next page can you hatch from the Magic Egg? Can you create some different birds?

Don't look at the solutions!

