



RUDOLPH'S WATCHING YOU!

See some Whizz Pop Bang science magic in action...

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In this amazing illusion, Rudolph seems to turn his head to watch you as you move!

You will need:

- Scissors
- Glue stick

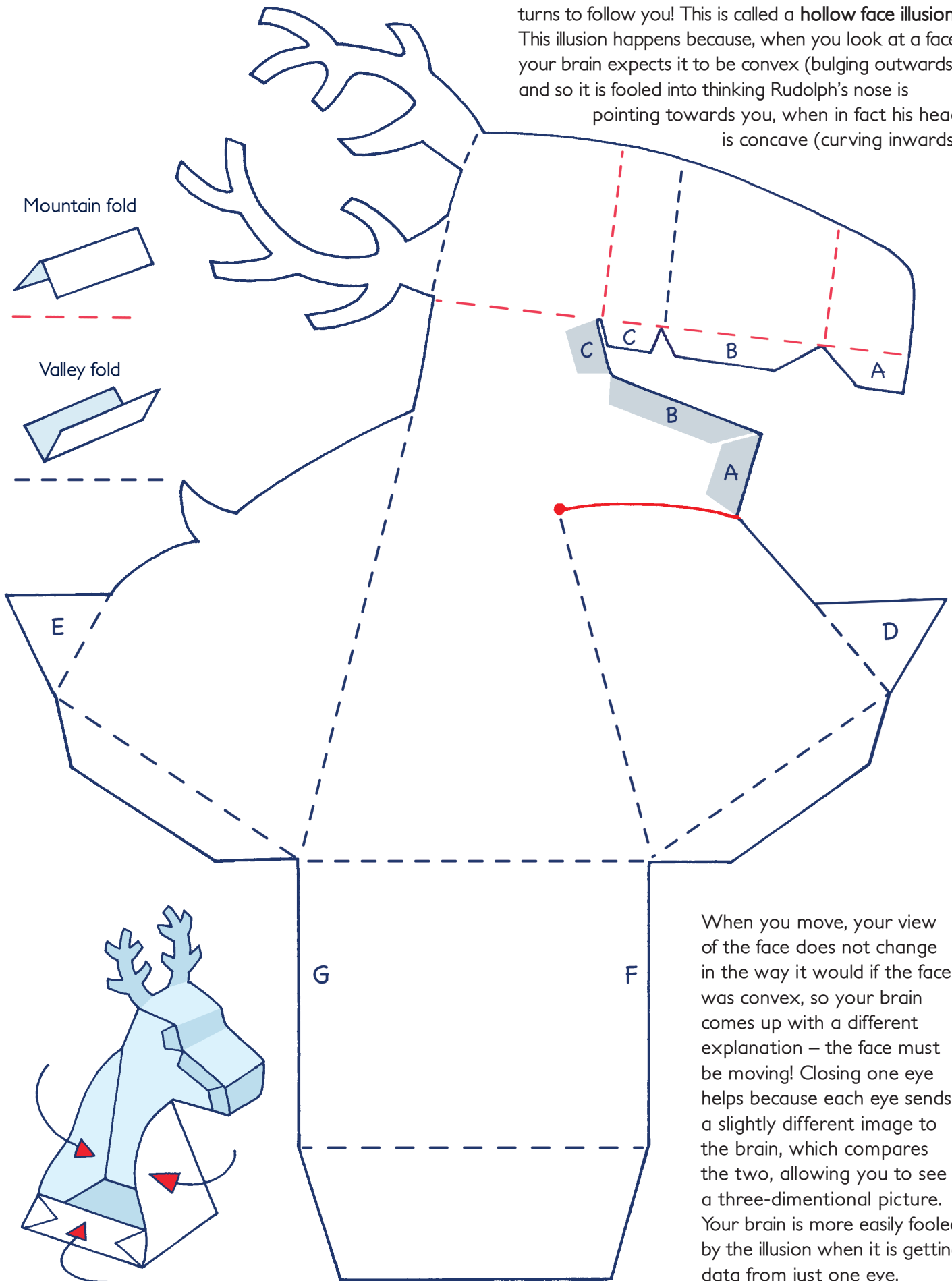


What you do:

1. Print this pdf onto two sheets of paper. Paste the back of one sheet with glue, hold it up against a window and stick the other sheet on top so that the outlines are aligned. Cut out Rudolph and cut along the line under his chin (marked with a solid red line on the reverse).
2. Carefully follow the folding instructions on the back. You will seem to be folding Rudolph's face inside out, but don't worry, this is correct!
3. Stick tabs A, B and C to the places marked A, B and C at the back.
4. Stick tabs D, E, F and G to the places marked D, E, F and G at the back so that Rudolph stands up.
5. Gently bend Rudolph's head backwards a little so that he's looking slightly upwards.
6. With Rudolph at eye level, cover one of your eyes and look at his face. Move from side to side or try tilting or nodding your head.

You should find:

As you move around, it looks like Rudolph's head turns to follow you! This is called a **hollow face illusion**. This illusion happens because, when you look at a face, your brain expects it to be convex (bulging outwards) and so it is fooled into thinking Rudolph's nose is pointing towards you, when in fact his head is concave (curving inwards).



When you move, your view of the face does not change in the way it would if the face was convex, so your brain comes up with a different explanation – the face must be moving! Closing one eye helps because each eye sends a slightly different image to the brain, which compares the two, allowing you to see a three-dimensional picture. Your brain is more easily fooled by the illusion when it is getting data from just one eye.