Build your own telescope

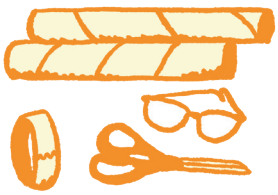
A telescope is used to see objects that are far away. In the book Comet in Moominland, Sniff gets to look through a very large telescope with large lenses, and that is how he sees the comet approaching Moominvalley.

Telescopes can gather much more light than the human eye can. Inside the telescope, the light is directed to a focal point, creating a magnified image of distant objects, such as stars and planets.

With this telescope, you won't be able to see far enough to spot stars or planets, but you'll be able to see objects that are a little way off will appear clearer.

Here's what you'll need

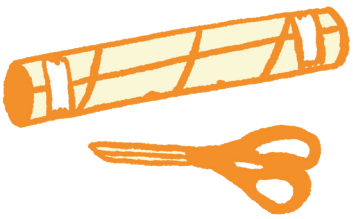
- 1 pair of reading glasses, with a strength of +2 or higher (can be found in second-hand stores)
- 2 empty paper towel rolls (one slightly wider than the other, or two of the same size)
- Scissors
- Masking tape



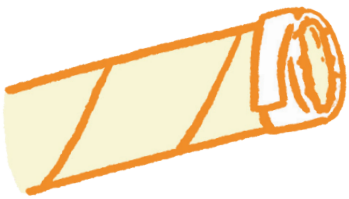
How to build your telescope

1. Carefully remove the lenses from the glasses.

2. If the tubes from the paper rolls are the same size, cut one of the tubes open along one entire side. Tape both ends of the cut tube together so that it isn't too wide. If you have tubes of different sizes, you can skip this step.



3. Take the narrow tube and tape one lens to the end of it, with the convex side facing outwards.



4. Take the wider tube and tape the other lens to it in the same way.

5. Insert the narrow tube into the wider tube so that you have a lens at each end.

6. Your telescope is now ready! When you want to zoom in on something in your surroundings, look through the lens in the narrow tube. To focus the image of the object you're looking at, make the telescope shorter or longer by moving the outer tube forward or backwards.

7. Is the image in your telescope upside down? Then you've done everything right!

Why is the image in the telescope upside down?

You have built what is known as a refracting telescope, in which one lens collects light for your eye and the other lens magnifies the image you see.

The image appears upside down because of the way the light rays are refracted by the lens. When the light passes through the lens, the rays converge at a focal point, which turns the image both upside down and mirror-inverted.