

## Dr. Seahorse Sees Spots

Today Dr. Seahorse examines the freckles of the sun. Freckles? Yes, take a look!

### What do you need?

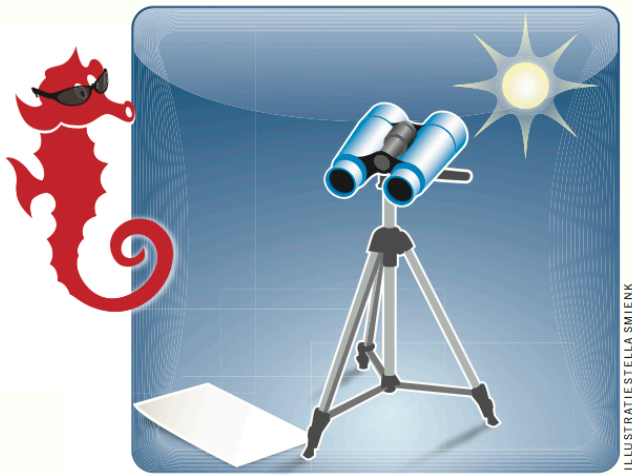
- A pair of binoculars (on a tripod, if you have it), a sheet of white paper, a sunny day and an **adult**.

### How to do it?

We are going to use the binoculars in an unusual way. We will not look through them ourselves, but use them as a projector. **BE AWARE: NEVER** look directly at the sun! Not with the naked eye and certainly not through the binoculars! Also, conduct this experiment with the help of an **adult**.

And now to work!

- Look at the binoculars. Do you see they have two sides? The narrow side is used to look through, and is called the 'eyepiece'. The other, wider, side is called the 'objective'. The ring on the eyepiece can be used to focus the binoculars, by turning it.
- Aim the binoculars with the thick side pointed towards the sun (use your instinct, **do not** look through the binoculars!)
- Ask an adult to hold the sheet of white paper approximately one metre behind the thin side of the binoculars.
- Aim the binoculars so that the sunlight falls through them onto the paper. You have now made a picture of the sun – a so-called 'projection'! If the picture is not sharp enough, use the focus-ring on the eyepiece to adjust the focus or ask the adult to hold the paper a little bit further or closer. Do you see anything special in the projection?



### How is that possible?

The dark spots that you see, are called 'sunspots'. They are created by the magnetic fields of the sun and are much larger than you might think. Often, they are even bigger than the Earth! They look dark because they are a bit cooler than the rest of the sun: they are 'only' 3.500 degrees Celsius. That is really hot, but cool compared to the rest of the sun, where it is almost 6.000 degrees Celsius!

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