



Nadya Ben Bekhti, *Astronomer*

What would have happened if Nadya Ben Bekhti's father had not told his daughter about the stars and the planets?

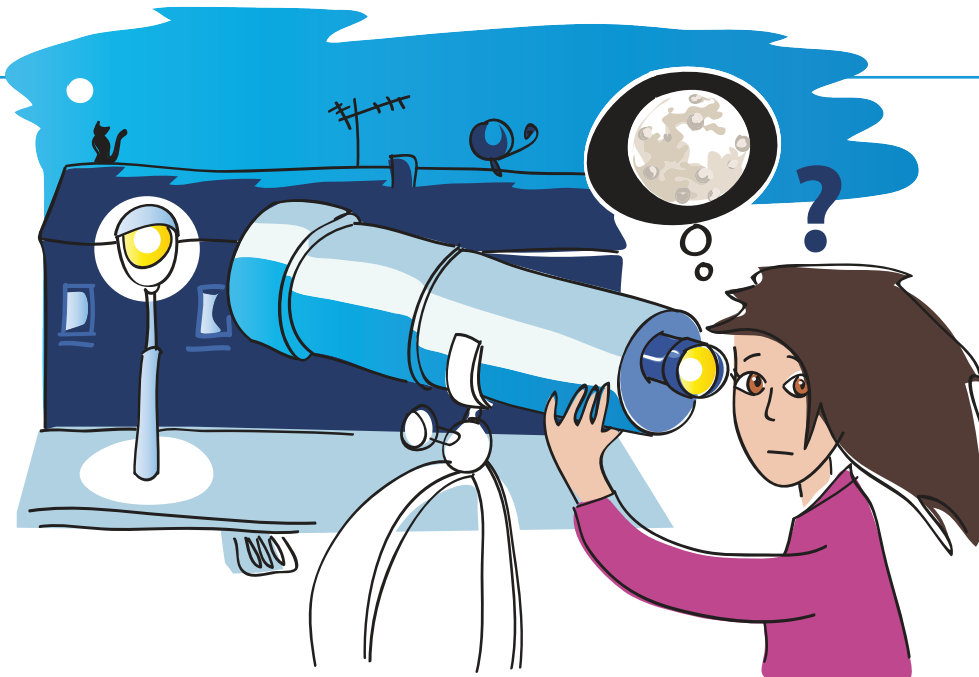
When I was a child, I decided to become an astronomer

By the time we had got back, I had decided on my future career: I wanted to become an astronaut and do research in space. In kindergarten, the playground became a spaceship, and my friends and I did research in faraway worlds. When I was in primary school, I went to a planetarium for the first time. There the people who research the stars, who are called astronomers, showed us the paths of the stars and the planets on a gigantic dark screen that stretched above us like an artificial sky. Soon after that I decided not to be an astronaut but to become an astronomer instead.

At grammar school I studied physics for the first time. Our teacher showed us many experiments and explained to us how rainbows formed and why the sky is blue. I also learned that you need to do a lot of maths in order to understand space and the stars, because mathematics is like a language you have to master in order to describe the universe.

When I was twelve years old, my biggest wish came true. My parents gave me a telescope. I wanted to use it to explore the sky on my own. I could hardly wait for the first cloudless night sky. The first thing





I wanted to do was to look at the Moon with its many craters. And I wanted to find with my telescope the spot where the first man landed on the Moon. But the first time I looked through the telescope, with great excitement, I was very disappointed: all I could see was a bright light. I called out to my parents and told them my new telescope was broken. But after they took a short look at it, they started to laugh out loud. I, the astronomy expert, had pointed my telescope directly at the streetlight across the street. No wonder I couldn't see any Moon craters!

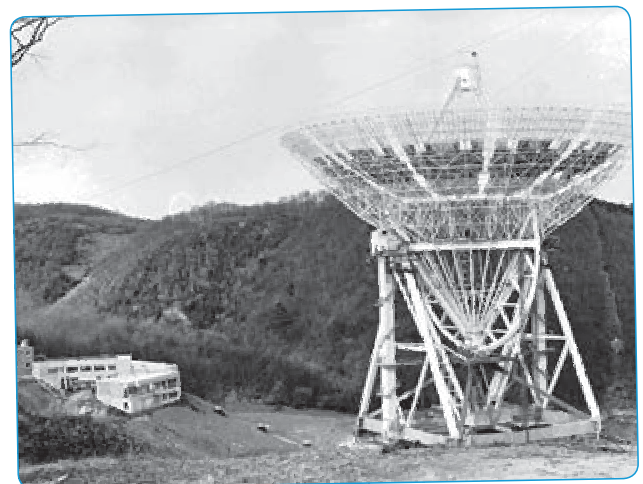
Today I use telescopes that are as big as a football pitch

Today I am grown up and I really do work as an astronomer at the Argelander Institute for Astronomy in Bonn (Germany). I conduct research on galaxies, which are among the biggest objects in the universe. If we compare the universe to a gigantic ocean, the galaxies would be islands. Each galaxy is unique, and they come in many different shapes, colours and sizes.

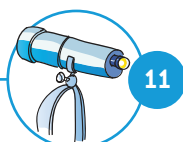
One galaxy is the Milky Way, which includes the Sun, the Earth and many thousands of other stars besides the Sun. In very dark places on the Earth, where there is no "light pollution", on clear nights you can see part of the Milky Way as a faint band of light in the sky.

I have been researching galaxies for six years now. In order to do that I observe space with the biggest telescopes in the world – for example, with a telescope in Effelsberg, a district near Bonn. The telescope is about as big as a football pitch, but round, and 50 metres high. It can be turned in all directions, depending on the direction you want to look in. With this gigantic telescope you can look especially far into the universe. Every time I look at the pictures I've taken with this telescope, I am amazed!

- ▷ **If you have any questions or suggestions, you can get in touch with me at any time: nbekhti@astro.uni-bonn.de. I will definitely answer!**

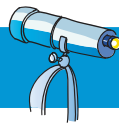


The almost completed telescope in Effelsberg near Bonn (1971), one of the biggest telescopes in the world. © MPIfR





Now it's your turn!



1 Observatory and planetarium

Find out where there is an observatory or a planetarium near you. Try to participate in a guided tour.

2 Constellations

- ▷ Find out which constellations you can observe in the evening at this time of year.
- ▷ Organize a constellation evening with your class. Who can identify lots of constellations? Who can find the North Star?

3 Experiment: Constellation viewer

What you need:

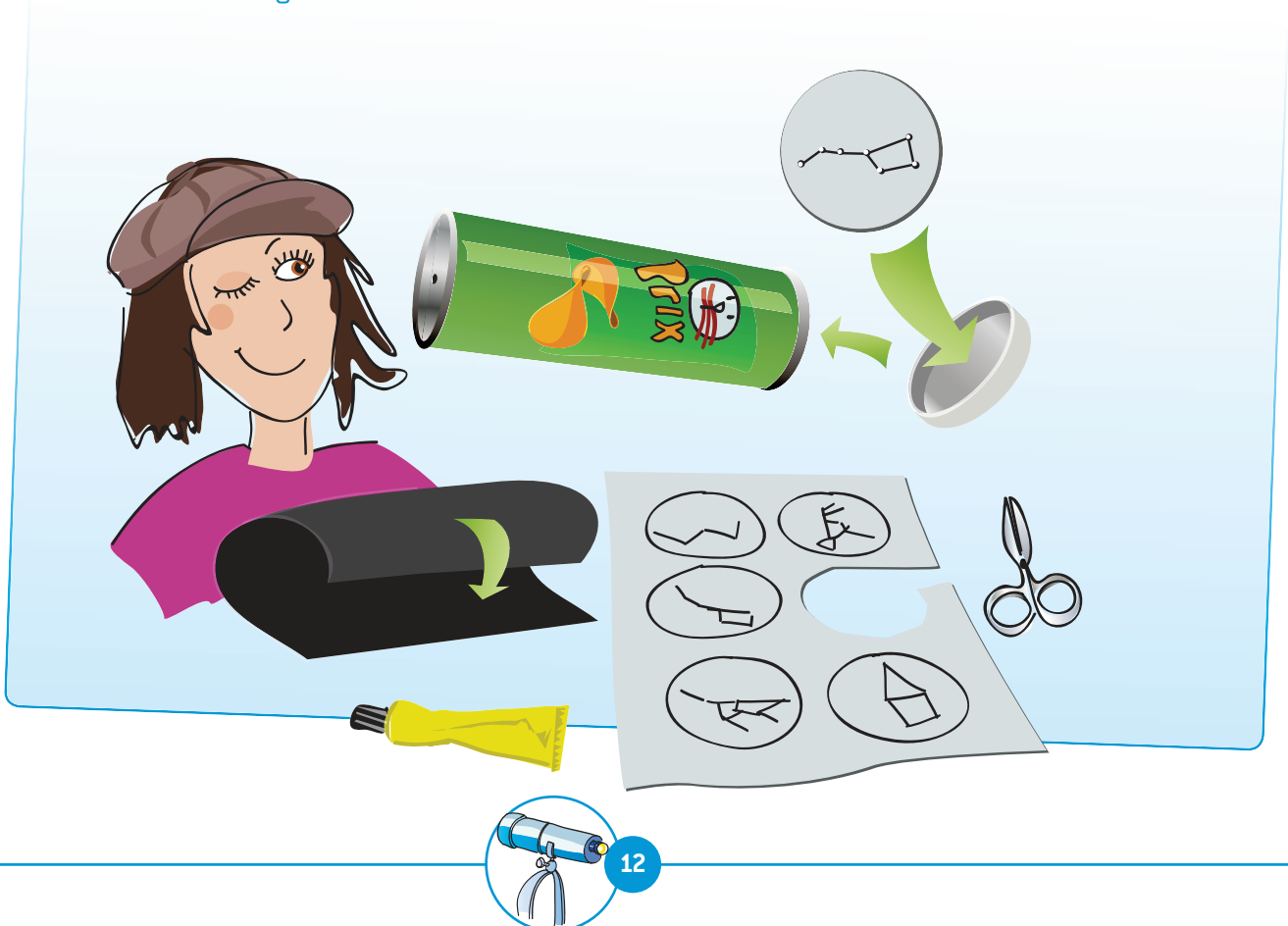
- ▷ Cardboard tube with a plastic cover (e.g. for crisps)
- ▷ Sharp scissors
- ▷ A big nail
- ▷ A hammer
- ▷ Black paper
- ▷ Cardboard
- ▷ Constellation patterns: available on www.science-on-stage.de/lantern-moon

How to do it:

- ▷ Roll up the black paper so that it fits inside the cardboard tube and glue or tape it down.
- ▷ Use the big nail and the hammer to make a hole in the bottom of the tube. Get help if you need it!
- ▷ Glue the constellation patterns on the cardboard. When it is dry, cut out the constellation patterns. Check to see if they fit into the plastic top.
- ▷ Use the tip of the sharp scissors to punch small holes in the constellation discs at the points representing the stars.
- ▷ Put the finished disc in the plastic top and put it on the cardboard tube.
- ▷ If you like, you can decorate your tube. Paint a picture on a sheet of paper and glue it to the outside of the tube.

If you now look through the tube at a light (for example, a flashlight), you can see the different constellations.

Memorize the constellations until you know them well and can find them in the night sky.





4 Moonwatching

- ▷ Observe the Moon with binoculars. Take a close look at its craters.

5 Moon craters in a shoebox

What you need:

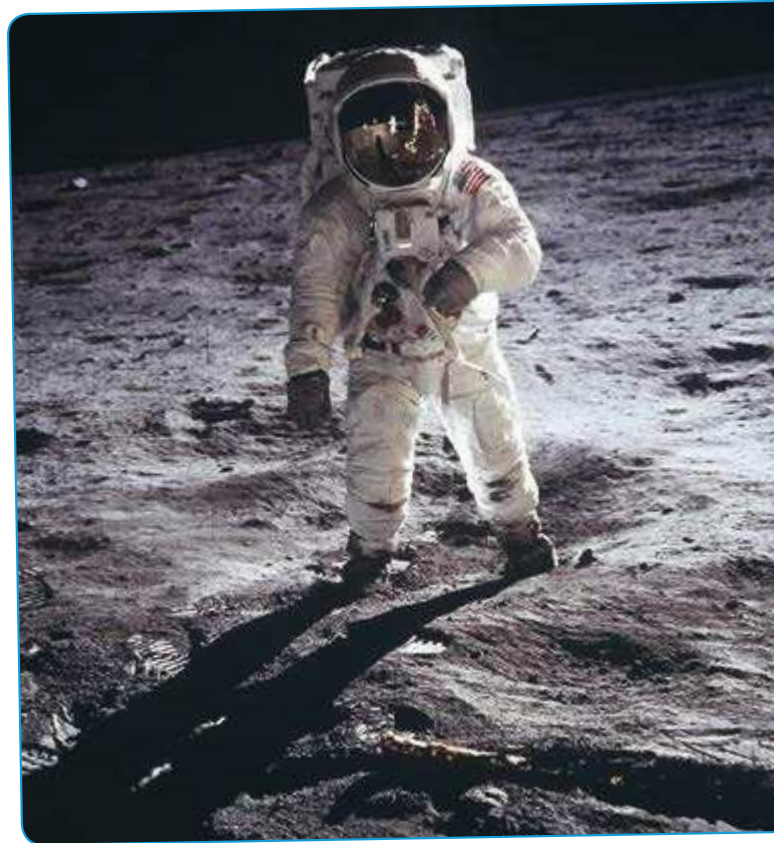
- ▷ Plaster
- ▷ Water
- ▷ A jar (to mix the plaster and water)
- ▷ A flat shoebox or its cover
- ▷ A big spoon

How to do it:

- ▷ Mix the plaster in the jar. Take two parts of plaster to one part of water. The mixture should not be too thin.
- ▷ Pour the mixture carefully into the shoebox and keep a small remainder in the jar.
- ▷ Take a spoonful of the mixture from the jar and shake it onto the plaster in a shoebox. You can do this with several small spoonfuls of the mixture. The plaster can splash, so look for the right place to do this experiment. If your craters have turned out especially well, you can let them dry.

6 Presenting the Planets

Find out information about the planets. In group work, make posters about the planets. Make presentations about your posters, as much as possible without notes.



The astronaut Buzz Aldrin on the moon (1969). ©NASA

7 Reading star maps

Find star maps and learn to read them. With these maps you will know where you can find stars and planets in the sky every night. Look at the sky and use the map to get your bearings.



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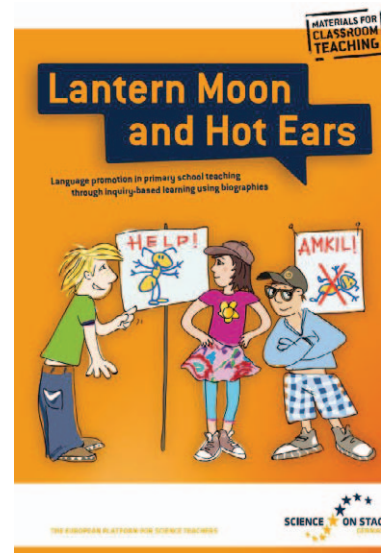
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