Water droplets
Weather

06

time
60 minutes.

learning outcomes
To:
- know that not all clouds look the same
- know that a rainbow can be made by shining sunlight through water sprayed from a hose
- know the colours of the rainbow

end product
- a cloud craft project
- a coloured rainbow

materials needed
- photographs of clouds (appendix)
- 24 sheets of A4 card
- garden hose, or a sheet of white paper, a glass of water, and a torch
- glue
- cotton wool
- colouring pencils in the colours of the rainbow

Preparation
For the activity **Looking at clouds** you will need the photographs of three different sorts of clouds from the Appendix.
For the activity **Making clouds** put out A4 card, glue, and cotton wool on each table.

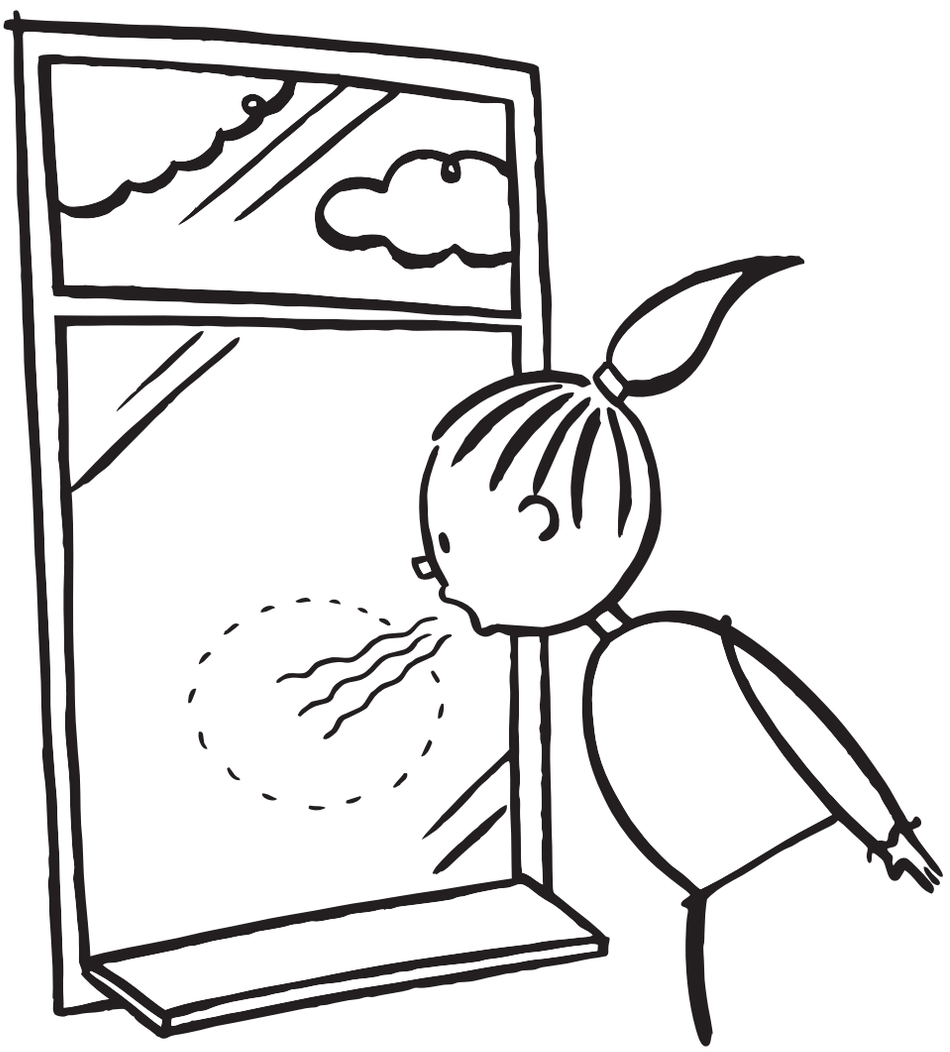
Looking at clouds 15 min.
Take the children outside. Encourage the children to lie down in the playground so they can get a good look at the clouds. What do the clouds look like today? Can they see figures in the clouds? What colour(s) are the clouds?
Take the children back to the classroom. After returning to the classroom the children sit in a circle. Show them the photographs of the three sorts of clouds. Which photograph looks most like the clouds they have just seen outside? Explain to them that not all clouds look the same. They may be very thin, or very thick. Sometimes they are white, sometimes black, and sometimes they look pink. Ask the question: 'What is a cloud actually made from?'

Good to know. **Cirrus clouds** are formed very high in the sky. These clouds are made from ice crystals. When the cirrus clouds come from the west and start to get thicker it is often a sign that bad weather is approaching. Sometimes these clouds are made by aircraft. We see these as white stripes across the sky.
Cumulus clouds are tall and puffy. They are formed when hot air rises and expands.
Stratus clouds are grey clouds forming a layer low in the sky. Sometimes they form a low-lying fog. Stratus clouds may produce rain, ice crystals, or snowflakes.

The children find out what a cloud is made from and how a rainbow is made.

Making clouds 15 min.

Take the children to a window in the classroom. Encourage them all to breathe on the glass. What happens?



Explain that they have just made a sort of cloud on the glass.
Their hot breath contains water vapour. When it touches the cold window it cools down producing tiny water droplets. Real clouds are formed in exactly the same way: a cloud is a collection of lots of droplets of water.

Ask the children to sit down at their table and give each child a sheet of A4 card. Encourage the children to make a cloud using cotton wool and glue. Encourage them to think about the clouds they have seen outside. On each sheet of card write the name of the child and what they saw in their cloud.

Making a rainbow 15 min.

Besides clouds, you can sometimes see a rainbow in the sky. Ask the children if they have ever seen a rainbow. Explain that a rainbow is formed by light shining through water droplets. When you see a rainbow in the sky it is usually caused by the Sun shining through rain.
Take the children outside at the end of the school day when the Sun is low in the sky. Ask the children to stand with their backs to the Sun. Take the garden hose and turn on the water. Hold the hose at the children's eye level. What colours can they see?

Tip. If the Sun isn't shining you can make a rainbow indoors. Shine a torch through a tall glass of water and hold a sheet of white paper behind it. This experiment does not give such a clear result as the one using a garden hose.

Colour a rainbow 15 min.

Encourage the children to colour in the rainbow on the worksheet using the colours that they saw in the rainbow outside. Then they can colour the rest of the picture.

Discuss what the children have learned and done, asking these questions:
'What are clouds made from? And how is a rainbow made?'
Hang the coloured rainbows in the classroom.

Good to know. We experience sunlight as white light. But in reality sunlight is made from different colours. These colours become visible when the sunlight is broken up or refracted by water droplets. The rainbow is formed because some colours are broken or refracted more than others. The amount by which the light is refracted depends on its wavelength and therefore its colour. This effect is called dispersion. The colours you see in a rainbow always appear in the same order: red, orange, yellow, green, blue, indigo, and violet.