EXPLORING SCIENCE WORKING SCIENTIFICALLY

You have probably noticed that you only see rainbows when it is a wet or damp day – this is because rainbows are formed when light from the Sun is refracted and reflected inside water droplets.

A rainbow isn't something you can touch – you see the bands of colour in the sky because, from where you are, you see only one colour from each drop.

Rainbows always appear in the part of the sky opposite to the Sun. Because they depend on the angles between your eyes and the reflected and refracted light, you will not see exactly the same rainbow as someone standing next to you.

You can see other patterns in the sky that are due to refraction and reflection inside water droplets. If you have ever flown in an aeroplane and looked out at the clouds below, you may have seen a glory (a shadow of the aeroplane with a circle of colours around it).

Hillwalkers sometimes see glories if they are above the clouds or a bank of mist with the Sun behind them. They can see their own elongated shadow with a ring of colours around their heads.



- 1 You can see bigger rainbows in the morning and evening, and may not see them at all in the middle of the day in summer. Why is this? Draw a diagram as part of your answer.
- **2** Look at diagrams A and B. Why is the sky inside a rainbow usually lighter than the sky around it?
- **3** Make a slide for a computer presentation that explains how rainbows form. You could include your drawing from question 1 as part of your presentation.
- 4 Work in a group to find out more about refraction and reflection effects. You can use the internet to find pictures of different patterns caused by refraction and reflection. The words in the box will help you to find different effects. Choose one of these effects and make a slide for a computer presentation.

rainbow	secondary bow	glory	Brocken Spectre	fogbow
	corona ice h		alos	

I can...

- explain why rainbows are not always the same size
- carry out research in a group
- present my research findings clearly.

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