

Name _____

Date _____

The color spectrum



Reading and Discussion

Why is the sky blue? Why are the clouds white? Where did all the colors in the rainbow come from?

Did you know that all colors come from light? Although the rays of light from the sun seem to have no color, they contain all the colors we can see, and even some we can't see.

When all the colors are mixed together they appear white. When this **white light** shines through a **prism** or a raindrop, for example, it is split up into its different colors. White light shining through the rain makes a rainbow. Each color in the white light has a different **wave length** and bends at a different angle. The colors split into the same **spectrum** every time. The color red has the longest wave length and violet has the shortest, all the other colors fit in between in this order: Red, Orange, Yellow, Green, Blue, Indigo, Violet. Ultraviolet light has an even shorter wavelength than violet. Humans can't see it but birds and bees can.

The colors we see around us are the colors which are **reflected** from, or bounce off, a surface. So a white object reflects all the colors. A black object absorbs all the colors and reflects none. Green grass absorbs all the other colors and reflects green, and a red rose absorbs all the other colors and reflects red.

So, why is the sky blue? Because when the white light from the sun passes through the atmosphere the molecules in the air are just the right size to reflect the blue waves and scatter them through the sky. And why are clouds white? Because the water droplets in the clouds are much larger than the molecules in the air and they reflect all the colors making them look white. When the clouds are very dense the light cannot penetrate all the way through. That is why rain clouds look dark.

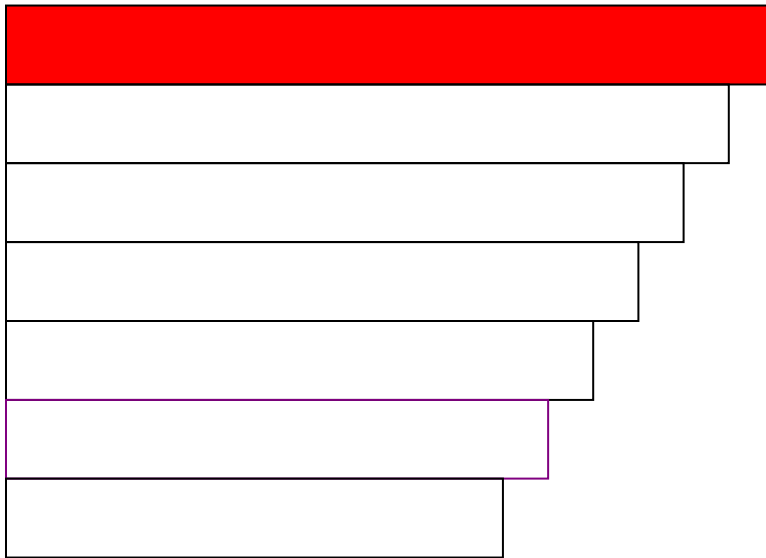
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Activities

A: All the colors of the rainbow

Each color has a different wave length, can you color them in, from the longest to the shortest? The first one has been done for you.



B: What do you know about colors?



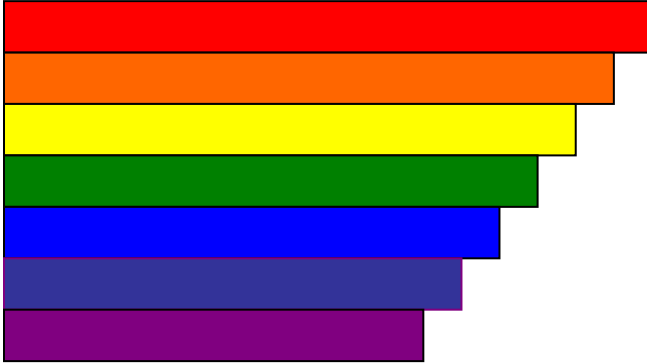
Our little questioner here is still not sure what makes the grass green and the rose red. Can you explain it to him in your own words?

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Answer Sheet

Activity A



Activity B

The children should be able to explain in their own words how the different colors are either absorbed or reflected by the surfaces which the light touches.