

Quarterly Problem

- Science Edition -

Rainbow in the sky

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Rainbow in the sky - where does the rainbow come from and why is it round?

First it rains, then the sun begins to shine. And with a little luck, a brightly colored rainbow starts to appear in the sky.

But how does a rainbow actually form and what gives it its typical (half-)round shape? Are they really all round or can there also be angular rainbows?

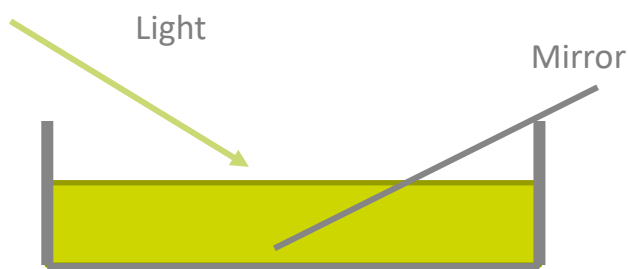
Tip: To understand how a rainbow is formed, try the following experiment:

You will need: a small mirror, a shallow bowl, water, a flashlight and a sheet of paper.

Fill the shallow bowl with water until it is half full.

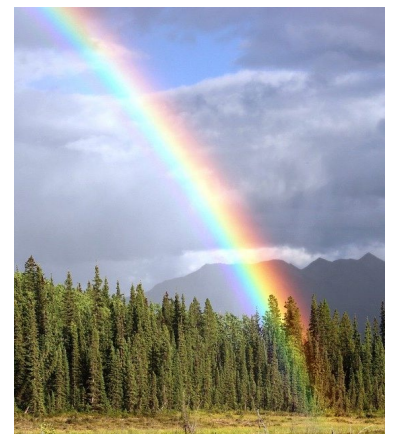
Place the mirror at an angle in the water. Shine the flashlight on the part of the mirror that is under water. Hold the paper over the mirror and change the angle until you see a rainbow on the paper.

Where does the rainbow come from? How is it shaped?



Brainstorm-Box

What color(s) does actual normal daylight have?
Would two people standing 100 meters apart see the same rainbow?
And what shape does water in rain actually have?



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Whose method is the most accurate?

Be sure to state your approach clearly and understandably.
Also indicate what basis you used for your estimates.