

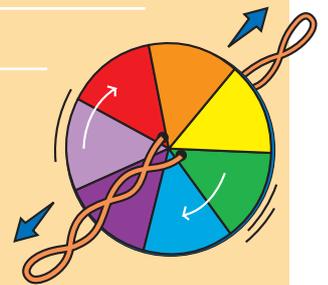


Rainbow Spinner



Preparation

CLASS LEVEL	Third – sixth class
OBJECTIVES	<p>Content strand and strand unit Energy & forces, Light</p> <p>Through investigation the child should be enabled to investigate the splitting and mixing of light, SESE: Science Curriculum page 85.</p> <p>In this activity children learn that not only can white light be broken up into the rainbow colours, but also that the rainbow colours can be brought together to produce white light. They also learn about persistence of vision (i.e. that if things move fast enough the eye cannot distinguish between them and they merge).</p> <p>Skill development Making; observing</p>
CURRICULUM LINKS	<p>Geography Natural environment/weather phenomena</p> <p>Visual arts Paint and colour/painting</p>
BACKGROUND	<p>A previous activity, perhaps a demonstration, of white light being broken into the seven rainbow colours by a prism would be helpful.</p> <p>Working with bubbles is another way of introducing some ideas about colours.</p>
MATERIALS/EQUIPMENT	White cardboard, Scissors, Cup or jam jar, Strong string (120 cm works well), Pencil, Coloured pencils or markers, Small electric fan, Protractor (for older children only).
PREPARATION	Collection of materials and equipment
BACKGROUND INFORMATION	<p>Ordinary light consists of the seven rainbow colours, viz. Red, orange, yellow, green, blue, indigo, violet.</p> <p>Isaac Newton was the first person to show that light could be split up into seven different colours.</p> <p>Just as raindrops, prism, etc. can split white light into these seven colours so can white light be made by mixing the seven colours together.</p> <p>By spinning the disc quickly the eye sees all the colours together (persistence of vision) and so the disc appears white (in practice the disc appears off-white, as most colours are not pure).</p>





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Activity

SETTING THE SCENE

Discussion on colour – what would the world be like without it, e.g. clothes, weather, gardens, organising city traffic, etc.

Not all creatures see colours in the same way, e.g. guinea pigs and squirrels are colour blind. Colour is really the way our eyes see different kinds of light.

TRIGGER QUESTIONS

When/where do you see rainbow colours?

Where do you think that the colours that you see in rainbows, in bubbles, on CDs, oil, etc. come from?

What are the rainbow colours?

If you can split light up into rainbow colours (by raindrops, prism, CD, etc.) can you make white light by bringing the rainbow colours together? TRY AND SEE!

If we switch off the light will we see the colour?

DEVELOPMENT OF ACTIVITY

You can bring the colours together by making a cardboard disc with all the colours and then spinning – a rainbow spinner.

SAFETY

General care with scissors

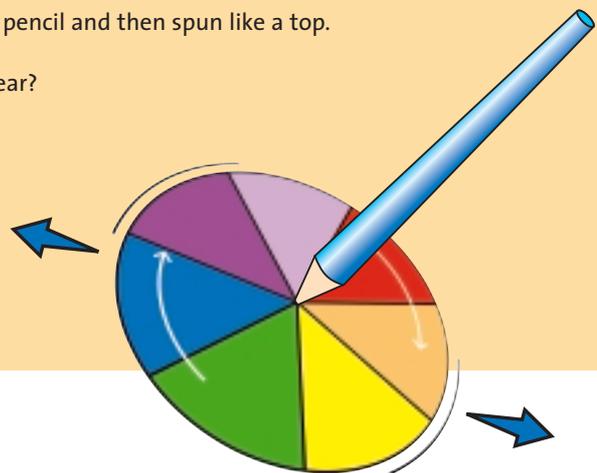
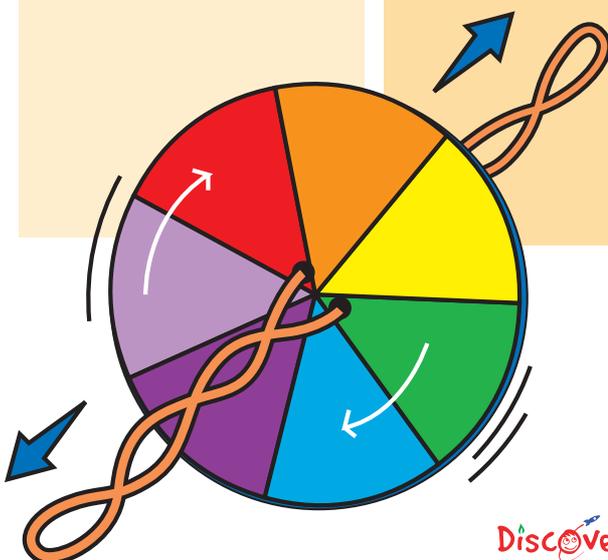
ACTIVITY

Cut out a cardboard disc and divide it into seven equal segments (the older children may like to do this with a protractor). Colour the segments the seven colours of the rainbow.

Make two holes in the centre of the card 1 cm. apart and thread the string through them making a loop at each end. Put a finger through the end of each loop and flip the disc over the string several times until the string is well twisted. Pull your hands apart and let the string go slack. The disc should now spin.

OR The card can be placed on a pencil and then spun like a top.

What colour does the card appear?



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Review

REVIEW

Is there any difference between coloured pencils and markers in this activity? Does it matter what order the colours are arranged on the disc?

ASSESSMENT

The children could display their rainbow spinner and use diagrams and text to explain how they work. They could film their spinners and add a voice-over explaining how they work.

FOLLOW-UP ACTIVITIES

The coloured card can be placed on the spindle of a motor. When the motor is connected to a battery the spindle will turn and the card rotates. Reverse the connections between the motor and the battery. Is there any difference?

The children could be asked:

- What else would you like to find out?
- How would you find it out?

This would encourage them to design their own investigation.

