



A G.A.T.E.WAYS JOURNEY

For Year 1 and 2 gifted children

with a love of science

'Light It Up!'

G.A.T.E.WAYS is an independent organisation offering challenging and enriching activities and experiences to develop and extend highly able children. Established in 1994, G.A.T.E.WAYS runs a range of stimulating school programs as well as the Saturday *Brainwaves Club*. This *JOURNEY* for both girls and boys will run over sessions. Let's light up as we learn about the physics of all things bright and beautiful! In this program, children will discover how much fun it can be to understand what we see and how we see it. Each week the you'll enjoy practical activities and stimulating challenges to discover how light can glow, reflect (bounce) and refract (bend). We will discover how wavelength and frequency give us different types of visible and invisible light, like ultraviolet and infrared. A range of equipment from the everyday to the extraordinary will be used to show that what things that look like magic tricks but are really a trick of the light!

Requirements: * Bring a well- stocked pencil case with scissors and a ruler, a snack (no nuts please), a small photograph (of the enrolled child); a stamped, self-addressed DL envelope for your report; In **Session 4 please bring two cardboard tubes from paper towel rolls, cling wrap rolls or similar.**

Session 1 The Wonder of Colour

In this session we will learn about how we see the beautiful colours around us and find out a little about the colours like ultraviolet that you can't see. We will separate the colours used in pens and markers and mix the colours in light. We will make our own rainbows by splitting up white light. What do you think? Does light make colour, or is colour made from light?

Session 2 Bouncing 'round

Learn about how we see every-day objects as the light bounces around and into our eyes. We will mix together colours with a spinner you design. When do the colours get darker? When do the colours get lighter? We will see how some objects make light energy, like glow sticks and other objects absorb energy. Where does all that light go when you put a glow stick in the freezer?

Session 3 Can You See Me?

Make a model of the eye to take home and learn about how the eye works. Make your own image on paper, just like you have on the back of your eyeball! Find out why some people need glasses and where your blind spot is. Sometimes our eyes play tricks on us, see some illusions where the brain makes mistakes.

Session 4 Images of the real world

All lenses can do is bend light a little bit, but we use lenses in cameras, telescopes, projectors, spectacles, microscopes and much more. For our last session we will compare a pin-hole camera with a lens camera. Which one will allow us to see a clearer image of the real world? We will each make a telescope that you can take home. It's amazing what a small, rounded piece of glass can do!

Work requirements

Children may be asked to complete some homework between sessions.

ABOUT THE PRESENTER

Emma Carter studied Mathematics and Physics at the University of Melbourne. She has taught secondary school maths up to VCE. She has also worked at Scienceworks, and as an outreach education officer for the Discovery Science and Technology Museum. Emma has been presenting science and mathematics workshops with G.A.T.E.WAYS for many years.

© G.A.T.E.WAYS