# Why colour really does matter

## Kathryn Albany-Ward, founder of Colour Blind Awareness, has worked with many independent schools and shares her advice on this often underlooked condition

Did you know that there is probably more than one colour blind child in every class in your school? Do you know how to adequately support them? Until now you might even have thought that colour blindness was a bit of a joke. But for colour blind children in school today their condition is no laughing matter.

One of the very first things we teach young children are the colours of the world around them. They learn that grass is green and the sky is blue, but what if the colours we see and describe aren't the same for the children we are teaching?

Colour blindness affects 1 in 12 boys (8%) and 1 in 200 girls to varying degrees. This means there are approximately 400,000 colour blind children in school today and about a quarter (95,000) are severely colour blind.

### What is colour blindness?

Colour blindness is (usually) a hereditary condition that affects ability to perceive colours. It is currently thought that colour blind people have a 'faulty' connection between one of the three types of cone cells in their eyes (which are responsible for perceiving colour – either blue, green or red light) and the brain (where the information from the eye is converted into the images we see).

Generally speaking, people with red or green colour blindness have difficulty distinguishing between reds, greens, browns, oranges, yellows and greys. All of these colours appear to be varying shades of murky green. Blue and yellow can be seen, but shades of blue and purple are confused because purple contains an element of red. Blue blindness and monochromacy (no colour vision at all) are very rare but red/green colour blindness is quite common and can range from a mild form to a severe condition.

Colour blindness can be readily identified using a simple test (the Ishihara Plate test).

### Why colour matters?

When children start school we ask them to pick up the red brick and describe the big brown dog. We ask them to fill

Main image: As someone suffering severe colour blindness (deuteranopia) would see.
Inset: Normal colour vision

in colouring sheets and sing songs about the colours of the rainbow. If children don't understand some of what we are saying, they are not learning to full capacity. This is a problem that can not only undermine their confidence but provide a faulty foundation for future learning.

But there is much more to being colour blind than this. As pupils progress through school they are encouraged to interpret coloured maps and graphs; colour is used to highlight material; it is used in the science lab, the art room, in mathematics, food technology, IT and even history. On the football pitch, players might pass a ball to the opposition because they mistake the colour of their strip. Balls are often coloured to stand out on the grass, but may not.

While colour blind children can learn to identify colours through their hue and saturation they still cannot actually see them. So, colour blindness is a disability, even if it remains largely unrecognized.

## The impact

For colour blind students, colour is not a useful tool: it can be a nightmare – undermining confidence and their ability to learn, encouraging basic errors in the simplest work, making them slower to follow instructions and causing frustration and even anger.

Most textbooks take no account of the needs of the colour blind so most subjects can cause problems.

In maths, for example, pie charts and graphs can be impossible to follow. Science is a minefield of potential problems too, as colour blind students are unable to:

- read litmus paper accurately
- tell the colours of different chemical solutions
- identify metals by the colour of the flame produced when the metal is burnt
- accurately read stained slides under a microscope
- accurately carry out dissections in biology
- fully understand coloured diagrams in textbooks, particularly in biology
- use coloured wiring, prisms *etc* in physics

The list of potential problems at school is extremely long.

## The Colour Blind Awareness Organisation

The Colour Blind Awareness Organisation was founded after I discovered by chance that our seven-year-old son is colour blind. Like 25% of colour blind boys he has a severe condition.

Having realised the extent of his problems and subsequently researched the condition, I was aghast to discover that not only is colour blindness no longer routinely screened for at school entry, but that the condition is not considered to be a Special Educational Need. There is no formal training in colour blindness for teachers and no clear understanding of its implications within the education system, even though 8% of boys are affected. So I was compelled to increase awareness, particularly in the education sector.

## Schools taking action

Some schools are already aware of the importance of taking colour blindness seriously as Anne Greenwood, matron at Magdalen College School, confirms: "At MCS we recognise colour-blindness as a medical condition so that boys can be given extra help. We screen everyone joining the junior school. On average, we pick up one or two in each class of 20."

Suzanne Kennedy, deputy head at Aylesbury Grammar School says: "We were surprised to find that statistically one in 12 males is colour blind. As we are a boys' school we have decided to screen the boys; in a school of 1275 boys we may find approximately 100 with the condition.

"For boys who are identified, we will notify parents and put an Individual Education Plan (IEP) in place so that teaching staff are aware of how to modify resources to support the student. We will also consider exam access arrangements."

## What can you do?

1. Visit www.colourblindawareness.org to gain a better understanding of the condition and 'see' it for yourself.
2. Consider screening children as they enter school. Your school nurse should be able to do this, otherwise contact us via the website.
3. Download the Guidance Notes for Teachers from the website which gives detailed information on what schools can do.
4. Talk to parents about how they can support their children at home and direct them to the Colour Blind Awareness website.

### Simple steps to improve your classroom

- Label felt tips, paints, pencils *etc*
- Colour-code boxes of toys, art materials and books
- Check computer-based teaching aids, web pages, computer settings
- Use strong contrast on white or chalkboards.
- Use patterns and labels rather than colours for maps, pie charts, diagrams
- In sports and games ensure that children can see who is on his or her 'team'
- Group and label beads, bricks and colouring material according to colour
- Organise 'buddies' for science experiments, art and DT projects *etc*