

# Colour Blindness Awareness

**learn.**

The project delivery specialists

# Introduction to Colour Blindness



- Colour blindness affects almost 1 in 12 men
- Worldwide there are 300million people affected by colour blindness
- There are different causes of colour blindness- it is largely genetic however conditions such as diabetes or MS can cause the onset of colour blindness.
- There are different types of colour blindness and in rare cases some people have no colour vision
- Normal colour vision uses all three types of light cones correctly and is known as trichromacy
- When colour blind, one out of the three cones perceive light differently.

- Dichromacy:
  - People with dichromatic colour vision have only two types of cones which are able to perceive colour i.e. they have a total absence of function of one cone type
    - Protanopia
    - Deuteranopes
    - Tritanopes
  
- Monochromacy
  - People with monochromatic vision can see no colour at all and their world consists of different shades of grey ranging from black to white
  - It is extremely rare

# Types of Colour Blindness



- People suffering from **Protanopia** are unable to perceive any 'red' light
- Protanopes are more likely to confuse:-
  1. Black with many shades of red
  2. Dark brown with dark green, dark orange and dark red
  2. Some blues with some reds, purples and dark pinks
  3. Mid-greens with some oranges

# Protanopia



# Types of Colour Blindness



- **Deuteranopia** inability to perceive 'green' light
- Deuteranopes are more likely to confuse:-
  1. Mid-reds with mid-greens
  2. Blue-greens with grey and mid-pinks
  3. Bright greens with yellows
  4. Pale pinks with light grey
  5. Mid-reds with mid-brown
  6. Light blues with lilac

# Deuteranopes



# Types of Colour Blindness



- **Tritanopia** inability to perceive 'blue' light.
- The most common colour confusions for tritanopes are light blues with greys, dark purples with black, mid-greens with blues and oranges with reds.



# Tritanopia



- Colour blind people face many difficulties in everyday life which normally sighted people just aren't aware of
- Driving can cause issues, particularly traffic lights, which can be impossible to distinguish in certain conditions
- Electricians can also face difficulties with coloured LED's & wiring
- Colour Blind Awareness aims to increase awareness of the needs of colour blind people in everyday life and in the workplace

- There is currently no treatment for inherited colour blindness. Colour filters or contact lenses can be used in some situations to enhance the brightness between some colours and these are occasionally used in the workplace
- There is hope on the horizon for a 'cure' for inherited colour vision deficiency using gene technology
- For acquired colour vision deficiency, once the cause has been established and treated, your vision may return to normal.

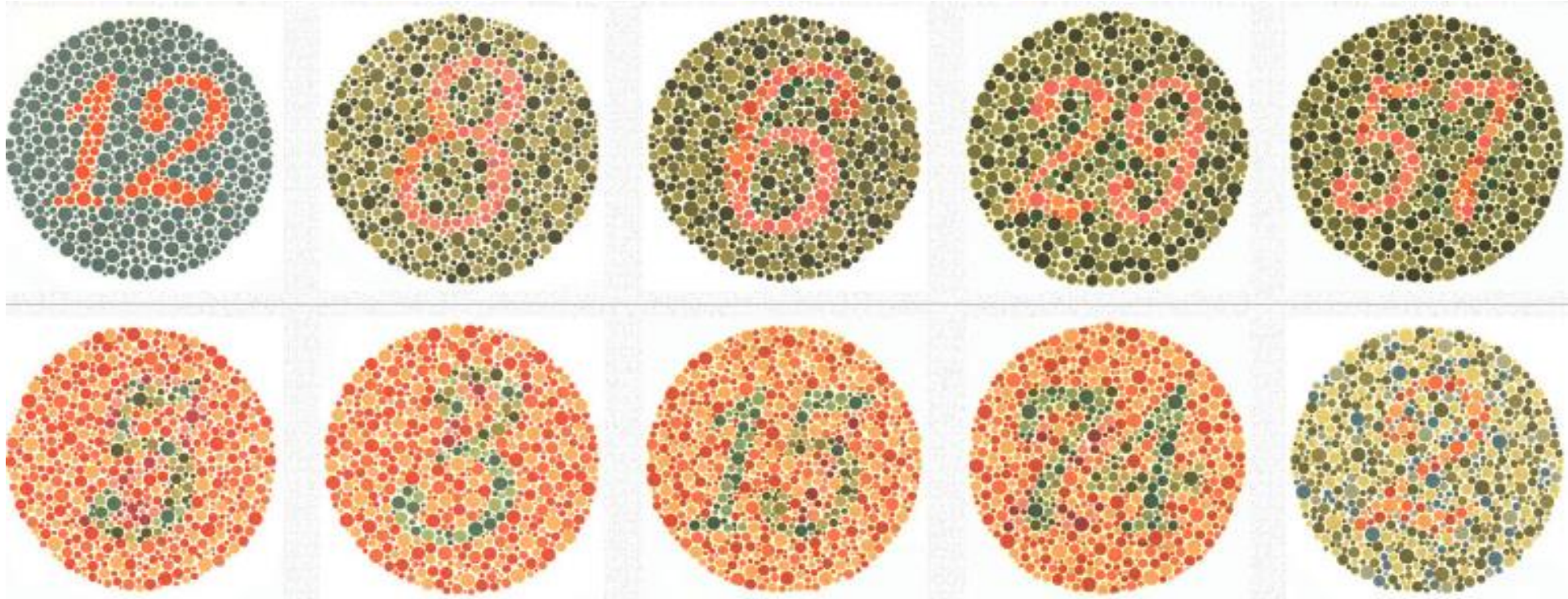
# Ishihara's Test for Colour Deficiency



- The Ishihara test for colour vision deficiency comprises of 38 numbered and patterned plates
- If you have difficulty distinguishing the numbers/ patterns then you may suffer from some form of colour blindness
- On the next slide there is a sample of 10 plates, the full test can be completed online at:

<https://www.color-blindness.com/ishihara-38-plates-cvd-test/#prettyPhoto/1/>

# Sample: Ishihara Plates



- <http://www.colourblindawareness.org/>
- <https://www.allaboutvision.com/conditions/colordeficiency.htm>
- <https://www.hse.ie/eng/health/az/c/colour-vision-deficiency/>
- <https://www.color-blindness.com/ishihara-38-plates-cvd-test/#prettyPhoto/1/>