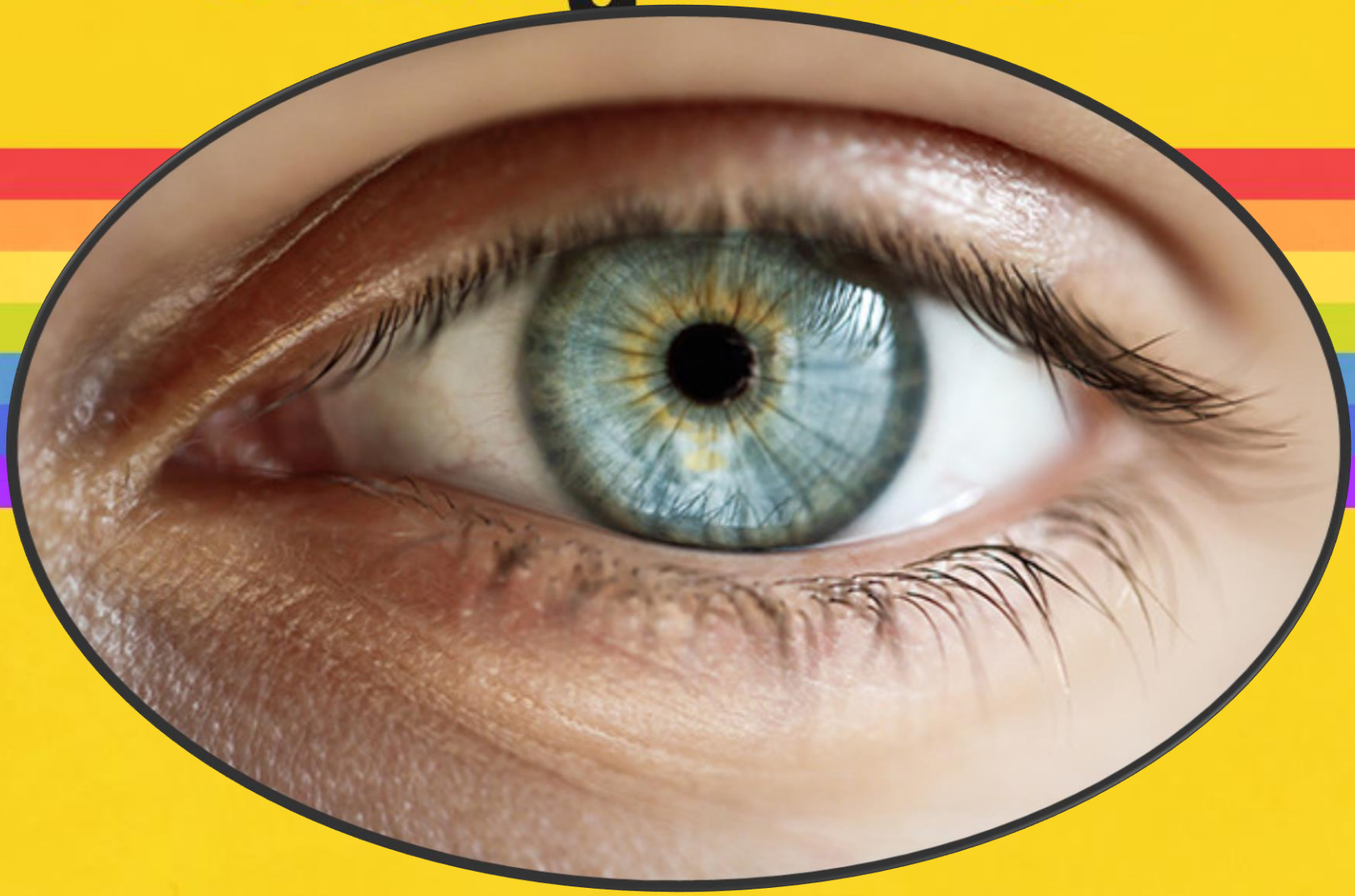
Seeing Colour



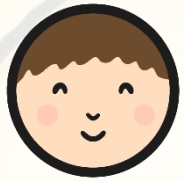
Aim

- To investigate how light enables us to see colours.

Success Criteria

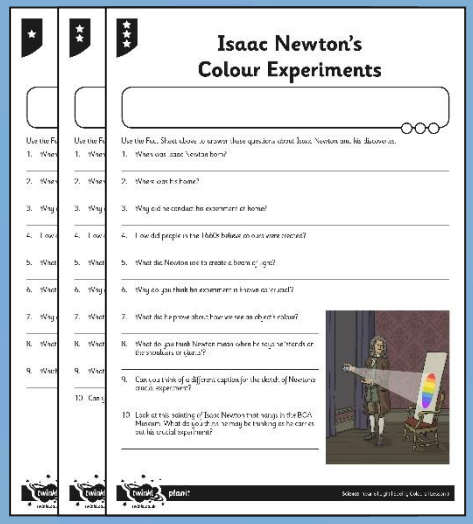
- To be able to explain what Isaac Newton discovered about colour.
- To be able to investigate and understand how light enables us to see colours.
- To be able to use your knowledge of light and colour to create a secret message!

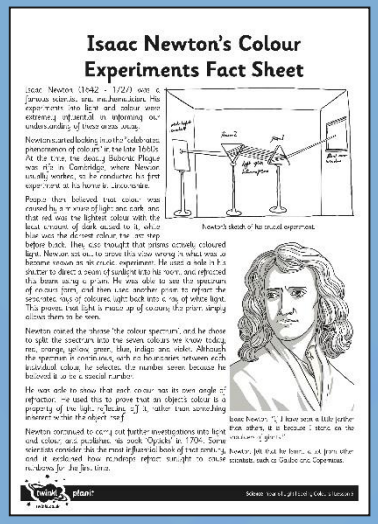
Newton's Discovery

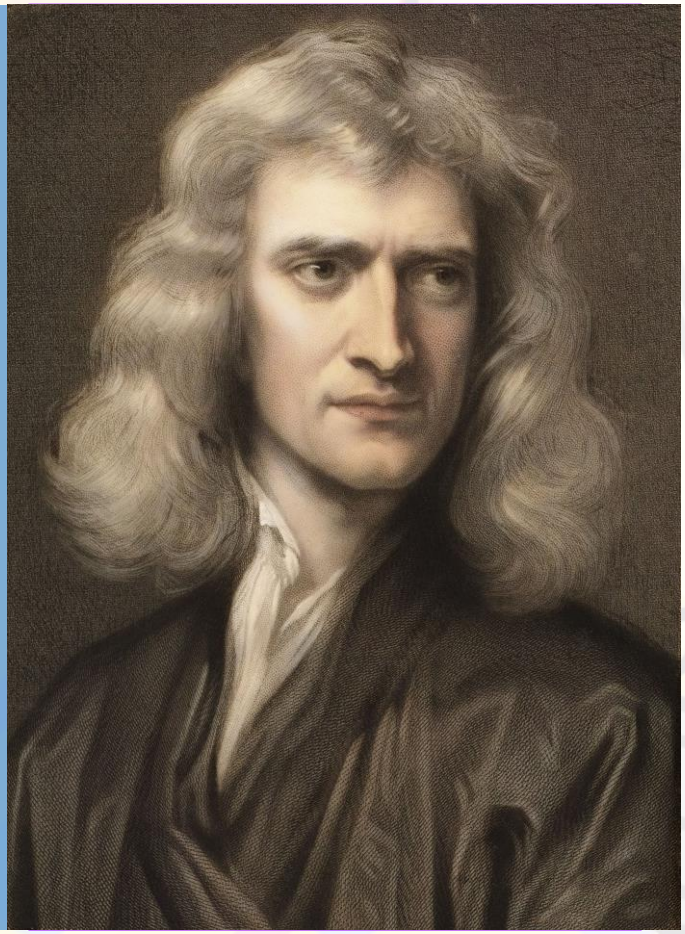


Isaac Newton made many famous discoveries and had lots of important ideas.

Read the Fact Sheet on your Isaac Newton Comprehension Activity Sheet and answer the questions to learn more about his work.

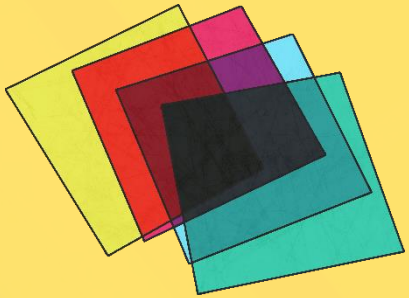




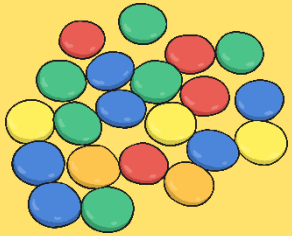


Newton's Discovery

An lets some coloursoptical filter is a device that of light through, but not others.



You will use the different coloured filters to look at some coloured objects.



What do you think they will look like through the different filters?

Make a prediction on your Fun with Filters Activity Sheet, then try it out!

Obviously, due to being at home, this is a bit tricky as I don't expect you to have coloured filters!! However, you could use transparent (see-through) sweet wrappers, coloured transparent glass or plastic cups/plates etc. or anything else that is plainly coloured and you can see through it! If it becomes too much of a challenge, don't worry! ☺

Fun with Filters

Look at your results.

Do you notice anything significant or interesting?

Can you draw any conclusions from your investigation?

Add your ideas to your Fun with Filters Activity Sheet.

Use coloured filters to look at different coloured objects. What do you predict you will see? What do you actually see?

Colour of object	Colour of filter	Prediction: What colour do you think it will look?	What do you see? What colour does it actually look?

Extend your thinking by using two overlapped filters. How will your predictions change, and what will you see?

Colour of object	Colour of filter	Prediction: What colour do you think it will look?	What do you see? What colour does it actually look?

I think this is because...

twinkl planit

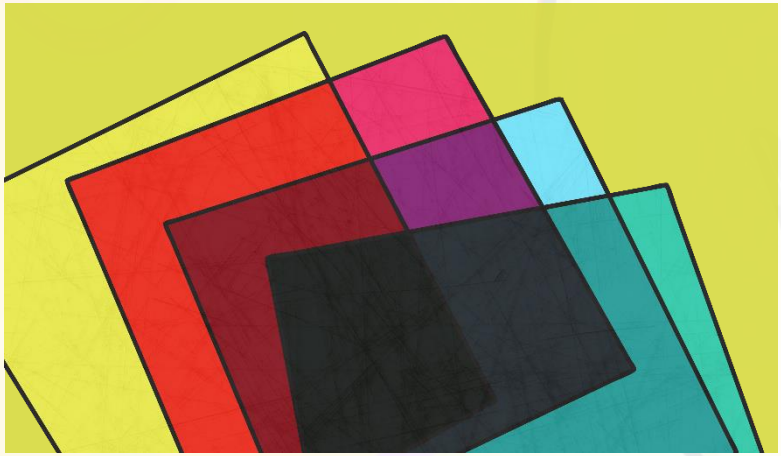
Science | Year 6 | Light | Seeing Colours | Lesson 5

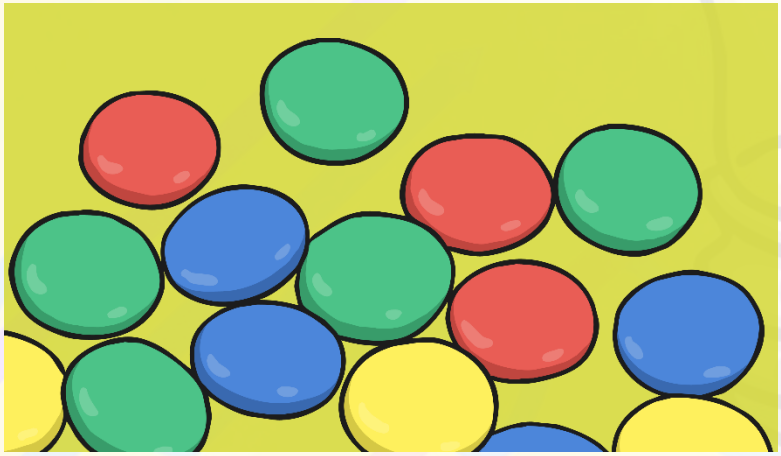
Filtering Facts

Did you notice that when you look at a green object through a green filter, it still looks green?

But did you discover that a green object looks black through another colour of filter?

Why does this happen?





Filtering Facts

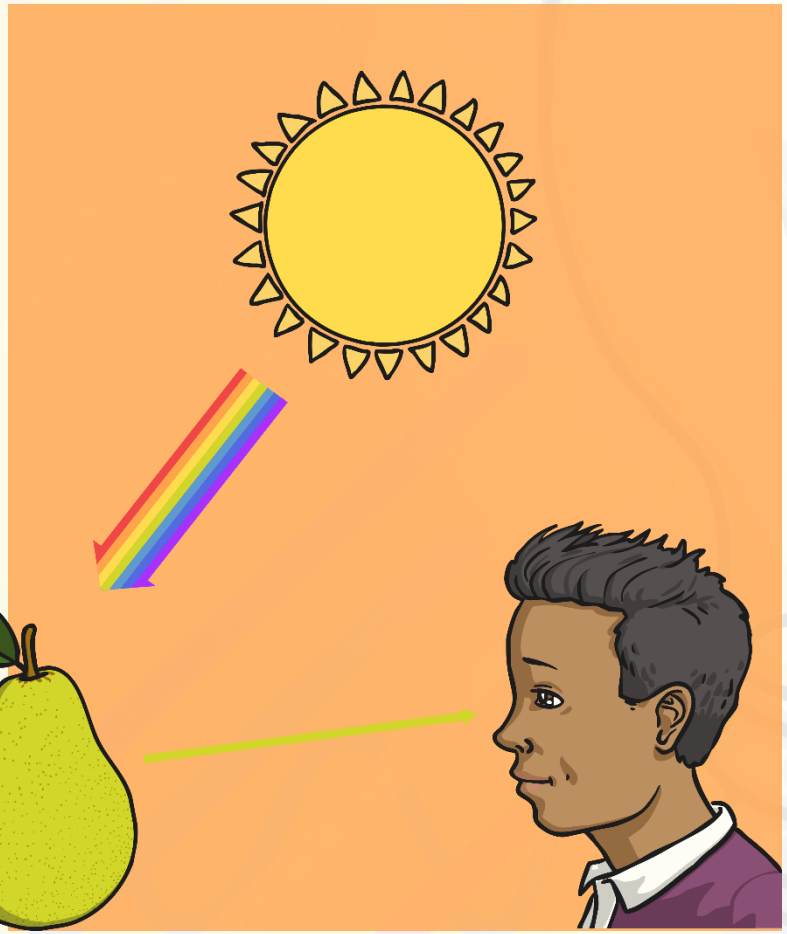
As you found out in the last lesson, white light is actually made up of all the colours of the rainbow.

This is called the 'visible spectrum'.

When a ray of white light shines on an object, the object absorbs some colours and reflects others.

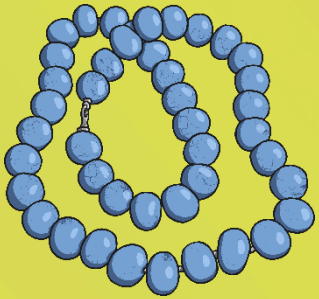
A pear reflects the green light and absorbs the other colours of light. It is only the green light that bounces back into our eye.

The pear looks green to our eyes!



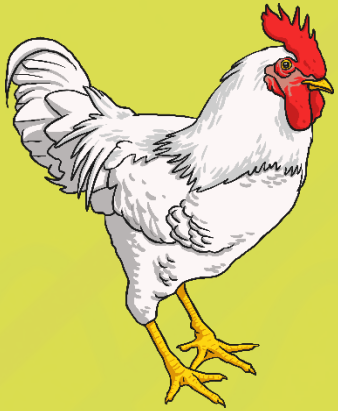
Filtering Facts

Blue objects absorb all colours of light but blue, which they reflect.



Red objects absorb all colours of light but red, which they reflect.

White objects reflect all the colours of light.



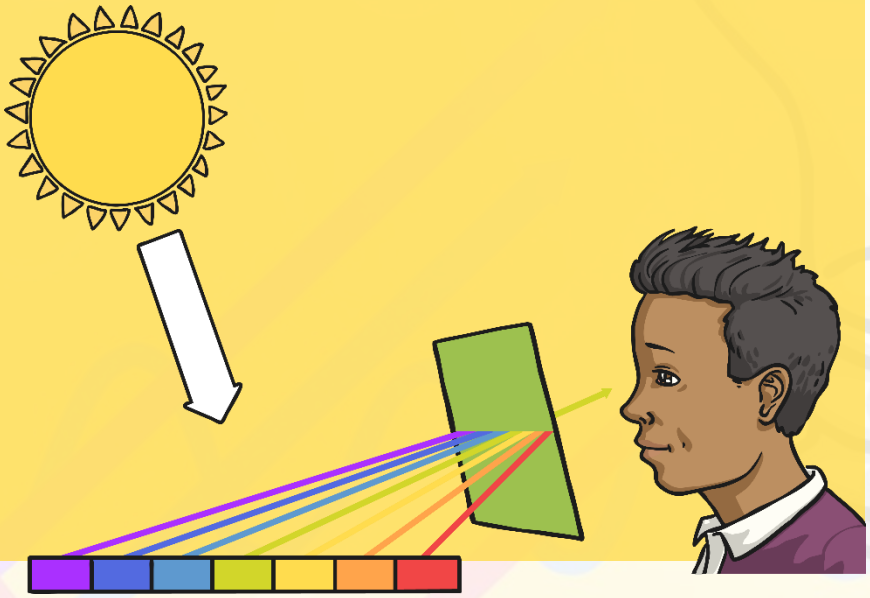
Black objects absorb all the colours of light.

Filtering Facts

A filter only allows certain colours of light through. For example, a green filter allows green light through, but absorbs the other colours.

So if you look at a green pear through a green filter, it will still look green, because the green light will get through the filter to your eyes.

But if you look at it through a red filter, it will look black, because there is no red light reflecting off the pear, and the green light that is reflecting off it will be absorbed by the filter.



Filtering Facts

Look again at your results and your conclusion.

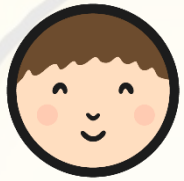
Do they support this explanation?

Are any there any results that don't make sense?

Can you think of a reason for this?

How could you check your results to be sure they are reliable?

Secret Messages

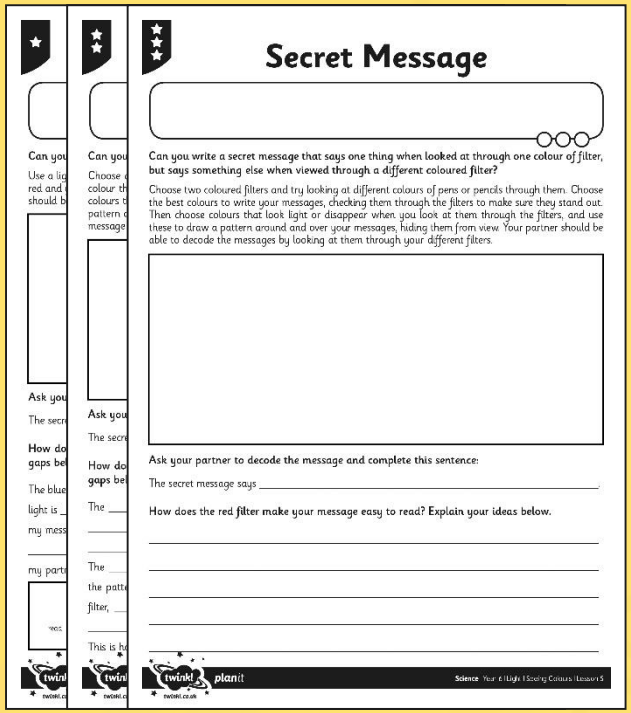


Your challenge is to use your knowledge of light, colour and filters to create a secret message!

The message should be impossible to read unless you look at it through a coloured filter.

Follow the instructions on your Secret Message Activity Sheet to prepare your message.

Then swap with a partner and use filters to try to read each other's messages.



Secret Message

Can you write a secret message that says one thing when looked at through one colour of filter, but says something else when viewed through a different coloured filter?

Choose two coloured filters and try looking at different colours of pens or pencils through them. Choose the best colours to write your messages, checking them through the filters to make sure they stand out. Then choose colours that look light or disappear when you look at them through the filters, and use these to draw a pattern around and over your messages, hiding them from view. Your partner should be able to decode the messages by looking at them through your different filters.

Ask your partner to decode the message and complete this sentence:

The secret message says _____.

How does the red filter make your message easy to read? Explain your ideas below.

How does this work? Explain your ideas on the Activity Sheet.