

# Science Challenge



## Shadows

The weather has been very sunny recently and I'm sure everyone has noticed their shadow following them around. Shadows form because something gets in the way of the rays of light and block their path. Are all shadows the same colour? Can you make a shadow darker or lighter?

This page from BBC will give you a good introduction to the properties of light.

<https://www.bbc.co.uk/bitesize/articles/zr8thbk>

### **Opaque, Transparent or Translucent?**

Not every material causes a dark shadow. Some materials are transparent, which means light can pass through them and they cause no shadow. This would be things like the glass in the window or the front of a clock face. Some items are translucent, this means it allows some light through. Examples of this might be a plastic water bottle, a piece of greaseproof paper or bubble wrap. They cast a shadow, but it won't be dark as it does not block all of the light. Some objects are opaque, they do not let light through and cast a dark shadow. Use a patch of sunlight or a torch to investigate materials around your home to sort them into transparent, translucent and opaque.

### **Shadow Puppets**



This episode of Let's go Live has a really clear guide to help you make shadow puppets. Have a go at creating your own shadow puppet using card or paper. You may want to use some of the materials you tested earlier.

[https://www.youtube.com/watch?v=6FFMr\\_1DisA](https://www.youtube.com/watch?v=6FFMr_1DisA)

# Technology Challenge



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## Disappearing Coin Trick

This easy disappearing coin trick uses refraction of light to make it look like a coin under a glass disappears!

Materials:- Glass cup or jar, Coin, Water



### Instructions

Place a glass on top of a coin and ask a friend if they can still see the coin. Hopefully they will say yes!

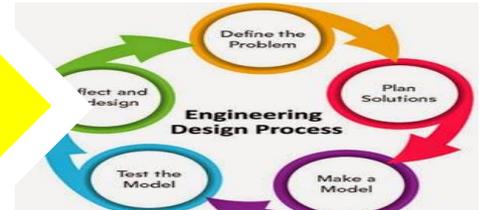
Pour water into the glass and ask your friend if they can see the coin now. They should say that the coin has disappeared.

### WHY DOES THE COIN DISAPPEAR?

Light (from the sun, or an artificial light) travels in a straight line, bounces off objects and into our eyes, allowing us to see things. Generally, there is little or no refraction of light as it travels through air.

However, when you pour water into the glass or jar in this activity the light is refracted ( bends ) and doesn't make it to your eyes which is why the coin seems to disappear.

# Engineering Challenge



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## Super Sculptures

Do you know what a sculpture is? A sculpture is a 3D work of art which can be made, for example, by chiseling, molding, carving or joining different materials together. **Watch [this clip of 23 incredible sculptures from around the world](#)**. As you watch, **make a list of different materials** that have been used to construct the sculptures.



**At the end, decide which your favourite is. On Microsoft word or publisher,** create a fact-file about it. Make sure to include: a photo of the sculpture; it's name; who designed and created it; materials it is made from and why you think these materials were right for this sculpture; keys facts e.g. height/weight; why you like the sculpture; any interesting facts.



**Challenge:** Sculptures are created for different reasons. Sometimes they are made to share ideas or information; remind people of an important event; or to honour someone. During the current situation we find ourselves in, the **NHS and Keyworkers** are doing an incredible job to support our communities and country. An artist in Hereford has been creating miniature sculptures and leaving them around her village to thank key-workers for what they have been doing. **Your task is to design and**

**create a sculpture to honour/thank all the local workers who are helping us through this challenging time.**

Photo from: <https://www.tewkesburymag.co.uk/news/regional/18364295.tiny-sculptures-thanking-nhs-staff-left-around-hereford/>

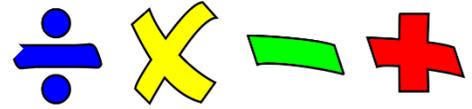
To get you started have a think about;

- Who our Keyworkers/NHS are and what they do
- If you want to make a recognisable person/object/place or if you want to make your sculpture abstract (not a recognisable object)

**You can decide which materials** you think would be best to construct your sculpture. When it is completed, **display it** in your window or (if you have used natural materials) outdoors so that you can encourage people as they pass by.

**Evaluate:** Take a photo of your finished sculpture. Insert it into a Word document and write a paragraph about what inspired you, what went well and anything you would improve.

# Maths & Numeracy Challenge



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## Visual Logic Puzzles – Balance Scales:

This week you are going to develop your own logic to solve and balance visual problems using the following website\*

<https://solve.me.edu.org/Mobiles.html>

\*You do not need an account to play these challenges.

A "Solve Me Mobiles" app is available to download on some devices.

Once the Website/app has loaded click the Green "Play" Square



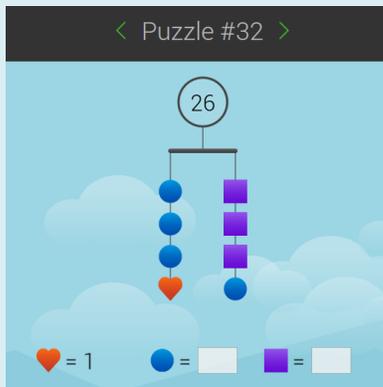
For First Level I it is suggested that you stick to the puzzles in:-

### Explorer level #29-60.

Some of these may be easy, some may be hard – have a go. The beam will tilt and give you visual clues. Remember - It's all about balance.

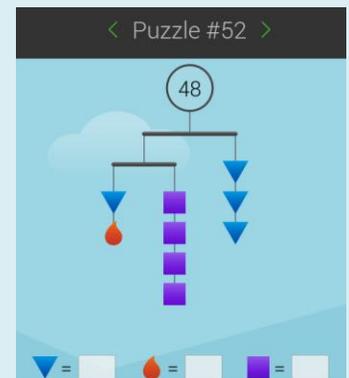
Use your addition, subtraction, multiplication and division skills and knowledge to help.

Here are some worked examples:



- 26 is the total of all 8 items.
- Each side of the scale = half of 26 which is 13.
- 1 red + 3 blue = 3 purple + 1 blue = 13
- Therefore, since 1 red = 1, 3 blue must equal 12 => **1 blue = 4**
- 13 = 3 purple + 4 => 3 purple = 9 => **1 purple = 3**

- 48 is the total of all 9 items.
- Each side of the top scale = half of 48 which is 24
- 3 blue = 24 => **1 blue = 8** (3x8=24)
- Each side of the bottom scale = half of 24 which is 12
- Therefore, 4 purple = 12, so 1 purple = 3
- 1 red + 1 blue = 12 and we know **1 blue = 8**, so 1 red must = 4



# Literacy Challenge

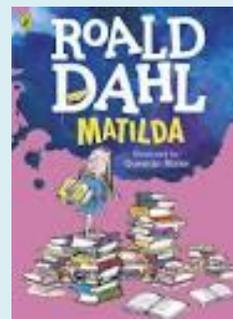
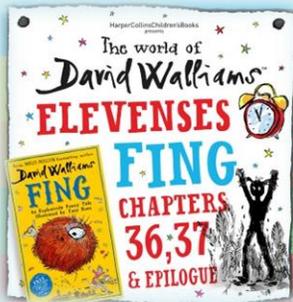


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## Drawing the Story

Choose a story to read, it could be the reading your teacher has set or a chapter from a novel. It could be a David Walliams story available here-

<https://www.worldofdavidwalliams.com/elevenses/>



or Matilda by Roald Dahl here-

<https://www.youtube.com/watch?v=b-pg4sppX6s>

(there are lots of others available!)

When you have read or listened carefully to your story draw the scene as you see it. Include as many details as you can from the text. Think about where the story is set indoors/outdoors, the characters, the mood of the scene etc. You can go back to reread the story as many times as you like.

When you have completed your drawing check it over. Does it include the detail you want? Have you set the scene accurately? Have you made some attempt to express the mood of the story? Do the expressions on your characters faces or their body positions help to tell the story? You may like to create a new front cover for your book.



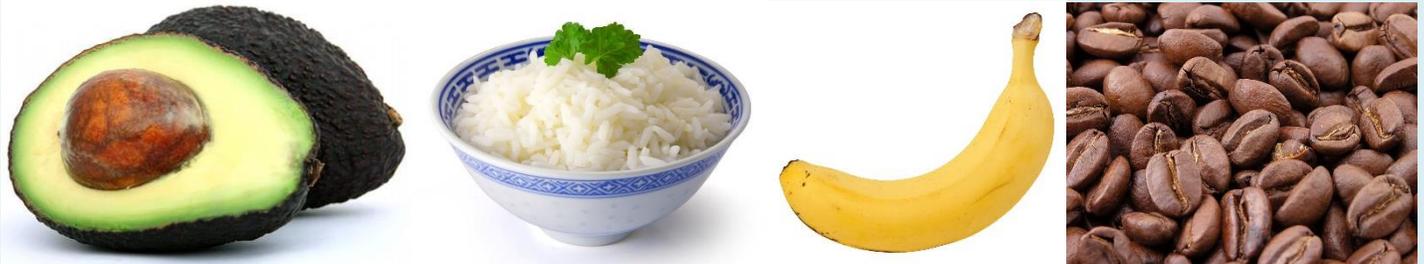
# Health & Wellbeing Challenge

## Where does our food come from?

**Think about a meal** you have eaten recently. **Identify where each part originally came from** e.g. for breakfast I had toast with butter, an apple and a glass of milk. Toast = bread = flour = wheat. Butter = milk/cream = a dairy cow. Apple = apple tree. Milk = a dairy cow.

**All our food has to be produced for us. Plants have to be grown or animals reared or caught.**

**Some of our food can be produced in the UK** but due to our climate, we can only grow some foods at certain times of the year. This means that **we often import a lot of food in from countries** which have a different climate to us. **Do you recognise any of these world foods?**



**These are foods not traditionally grown in the UK which we get imported for different reasons. Choose one and research the following information. Create a poster to share what you learn.**

1. Where they grow – country / climate
2. How they are produced
3. Why they are not produced in the UK e.g. climate, soil condition, cost

**Watch [this video clip](#)** which explores what food miles are and the impact these have over a long time on our planet. **Create a table** like the one below and record **advantages and disadvantages** of being able to get foods at all times of the year.

Advantages	Disadvantages

**Have a look at food labels in your kitchen.** Record the food and the country they come from. Can you research how far they have travelled to get to your home? **[This website has a great food miles calculator](#)** which you can use.

**We should try to eat as much local produce as we can and eat foods which are in season.** Why not have a go at **making a delicious seasonal meal** with your family. Here are some ideas for some **[Spring dishes](#)** from the BBC good food website.

# Social Studies Challenge



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## Live Outdoors

This week is **Mental Health Awareness Week**. Being outdoors in your garden or local community can improve your mood, reduce stress and really help you relax. Spending time in green space or bringing nature into your everyday life can benefit both your mental and physical wellbeing. For example, doing things like growing food or flowers, exercising outdoors or being around animals can have lots of positive effects.

Your challenge this week is to explore your local community and surroundings and do as many activities outdoors as you can!

### Things to try

- Get creative. Draw or paint animals or nature scenes or let them inspire a poem or song lyrics. If you enjoy writing in a journal, try doing this outside.
- Eat meals outdoors. Having a picnic in a local park isn't allowed yet so simply sit in a garden. This might be something you could enjoy doing with other people in your home.
- Watch the stars. Use a stargazing website, app or book to help you recognise different stars, or simply enjoy looking at the night sky. Give your eyes time to adjust, as it can take about 20 minutes before you can fully see stars in the dark.
- Try exercising outside. Run or jog through a local park or do yoga outdoors. You could try it by yourself or look for classes online that you can copy or join in with.



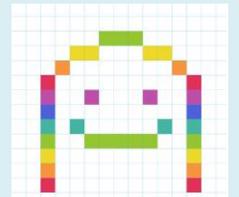
# Expressive Arts Challenge



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## Chrome Music Lab – Song Maker:

Chrome Music Lab is a website that makes learning music more accessible through fun, hands-on experiments. It is a tool to explore music and its connections to science, math, art, and more. It can be used to make your own songs using the [Song Maker](#) experiment, which lets you make and share your own songs. *You do not need to make an account and it can be accessed across devices—phones, tablets, laptops – just by opening the site on a web browser such as [Chrome](#).*



Song Maker

<https://musiclab.chromeexperiments.com/Song-Maker/>

To simply make a song, add notes by clicking in the grid.

An introduction vide can be found here –

<https://youtu.be/BanCqSxlwgc>

- Here is a link showing how a Star Wars tune was made on Song Maker – (you can edit this composition)

<https://musiclab.chromeexperiments.com/Song-Maker/song/6173885272686592>

- Here is a link to a composition –

<https://musiclab.chromeexperiments.com/Song-Maker/song/4614672356474880>

- Can you improve this song?
- Can you change the instruments?
- Can you change the tempo?
- What other notes and rhythms can you add?

