

# Science Challenge



## Shadows

The weather has been very sunny recently and I'm sure everyone has noticed their shadow following them around. Have you ever wondered where your shadow comes from? Do you always have a shadow, or does it sometimes go away?

This BBC clip has some short videos and activities to help us to understand light.

<https://www.bbc.co.uk/bitesize/articles/zjix6v4>

Because light travels in straight lines objects can get in its way and block its path. This causes a shadow.

Make a shadow clock like the one below using a pencil and paper plate or by placing a ruler or stick in a plant pot. Put it on the ground in a sunny spot. Mark where the shadow is either with a pebble or by drawing around it on paper. An hour later, go back to your shadow clock and notice if anything has changed.

Repeat this as often as you can throughout a sunny day.....

Did your shadow change position or change shape?



This episode of Let's go Live contains lots of fun experiments to do with shadows and light.

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

We have used the sun as a source of light but what other sources of light can you find in and around your home? Some of these will be natural sources of light and some will be manmade. Do they all use white light or are there any other colours?

Can you use a torch or the sun through a window to make a hand puppet or if you have space outside can you use your body to make the letters of your name in shadows?

# Technology Challenge



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## The Unbreakable Egg

**What you need:**- An egg, Cling film

### **Instructions**

Wrap the egg in cling film, place in your palm and close your hand around it so your fingers are completely wrapped around the egg. Squeeze as hard as you can.



The egg should remain in one piece. If you are feeling extra brave you could try it without the cling film.

### The Science

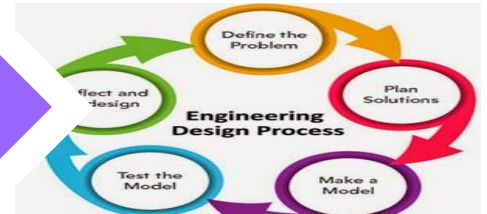
If you've ever dropped an egg you know the shell is fragile, but the shape of an egg is very strong. If pressure is applied evenly all over the shell it will not break.



Did you know:

- A fresh egg will sink in water, a stale egg will float.
- Another way to make an egg float is to add some salt to a bowl of water.

# Engineering Challenge



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## Super Sculptures

**Do you know what a sculpture is?** This [short clip from 'Word on the Street'](#) on Sesame street gives a definition and lots of examples. As you watch, make a list of different materials you see being used to make sculptures.



**What do you think of this sculpture using different sized stones?** Finding the perfect balance for each stone will have taken a lot of patience! **Does the sculpture remind you of anything?** It is an example of abstract art – this is when it doesn't look like something we can recognise from our everyday world.

**Challenge: Design and build your own sculpture using only natural materials.** In your garden or on your daily walk, collect different natural materials which you could use e.g. sticks, stones, shells, clay, bark, moss, dried seaweed.

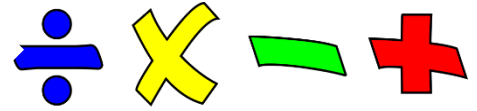
**Choose one of the design challenges from below** and thinking about the materials you have gathered, **draw a sketch** of your planned sculpture. **Add labels** to show the different materials.

|                                |  |  |
|--------------------------------|--|--|
| It must be at least 20cm high. | It must be able to hold 20ml of water without any leaks. | It must be made of at least 5 different natural materials. |
|--------------------------------|--|--|

**Take a photo** of your finished sculpture. Then, insert it into a word document and below it write about;

1. What went well with your sculpture.
2. If you would improve anything.

# 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\*

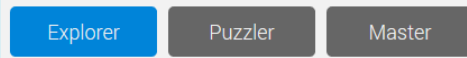
<https://solveme.edc.org/Mobiles.html>

\*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



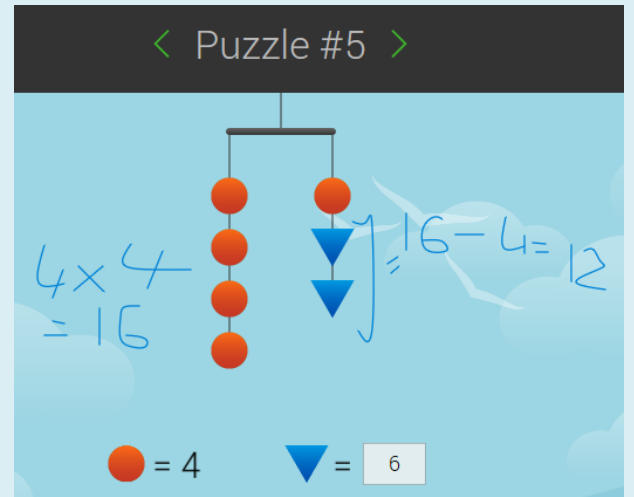
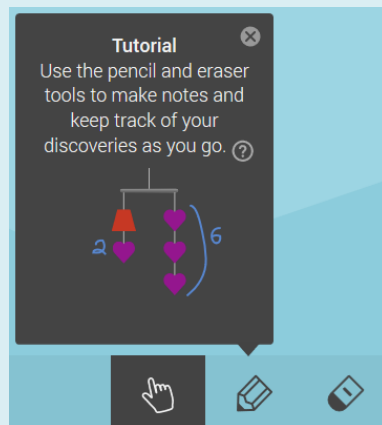
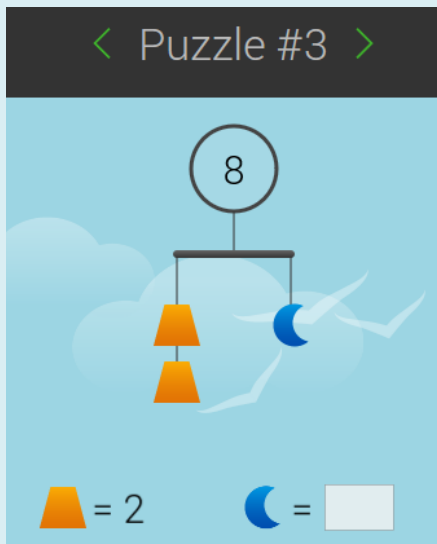
For First Level I it is suggested that you stick to the puzzles in:-

### Explorer Level from #1-28.

Some of these may be easy, some may be hard – have a go. The beam will tilt and give you visual clues.

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

Here are some examples:



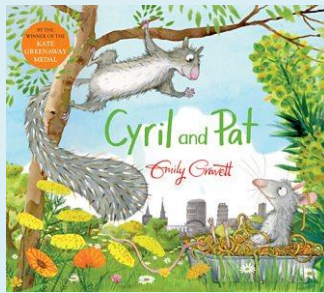
# Literacy Challenge



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## Drawing the Story

Choose a story to read together with someone else. It could be the reading your teacher has set or here is an extract from the book **Cyril and Pat**, you can use if you would like.



*Lake Park only had one Squirrel,  
All alone and sad (poor Cyril).  
Until the morning he met Pat,  
His new best friend, a big grey...  
SQUIRREL!  
Just like ME!*

*Pat and Cyril spend each day  
Thinking up good games to play.  
They liked to put on puppet shows,  
And test how fast a skateboard goes.  
Their favourite games were Hide-and-seeK,  
And one that they called Pigeon Sneak.  
BOO!*

When you have read/listened carefully to your story draw the scene as you see it. Include as many details as you can from the text. Think about characters, weather, where the story is set indoors/outdoors...



# Health & Wellbeing Challenge

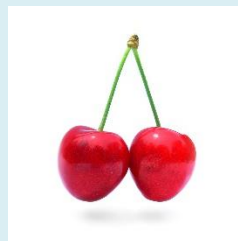
## Food from plants

Plants are grown for food and might be grown on farms, allotments, in gardens or on windowsills.

What kinds of foods can you think of which are grown on plants? **Draw pictures** of the foods and **write their names** underneath.

Watch [this video clip](#) about how fruit is grown and picked in an orchard. Can you **sort these fruits into a table** to show what they grow on? Research any you are unsure of on the internet.

| Trees | Bushes | Plants close to the ground |
|-------|--------|----------------------------|
|       |        |                            |



**Design your own orchard.** On the video, William Whiskerson's phone showed a map of Orchard farm. **Draw a birds-eye plan** of your own orchard and **include different fruits** which you like to eat in it. Don't forget to draw paths connecting the different fields and areas together. Will you include any poly-tunnels or a farm shop? **Add colour, label each area of your orchard and give your farm a name.**

# Social Studies Challenge



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## Bring the outdoors indoors

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 try to bring the outdoors inside!

### Things to try

- Collect natural materials, for example leaves, flowers, feathers, tree bark or seeds – use them to decorate your living space or in art projects.
- Arrange a comfortable space to sit, for example by a window where you can look out over a view of trees or the sky.
- Grow plants or flowers on windowsills. (See the [Royal Horticultural Society](#) website for tips on [planting seeds indoors](#).)



- Take photos of your favourite places in nature. Use them as backgrounds on a mobile phone or computer screen or print and put them up on your walls.
- Listen to natural sounds, like recordings or apps that play birdsong, ocean waves or rainfall.

# Expressive Arts Challenge



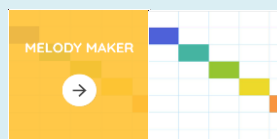
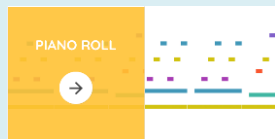
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## Chrome Music Lab – Piano Roll and Melody Maker:

Chrome Music Lab is a website that makes learning music more accessible through fun, hands-on experiments.

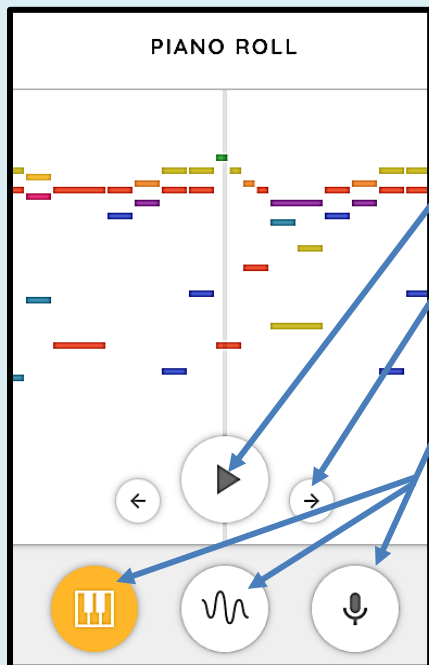
It is a tool to explore music and its connections to science, math, art, and more.

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.



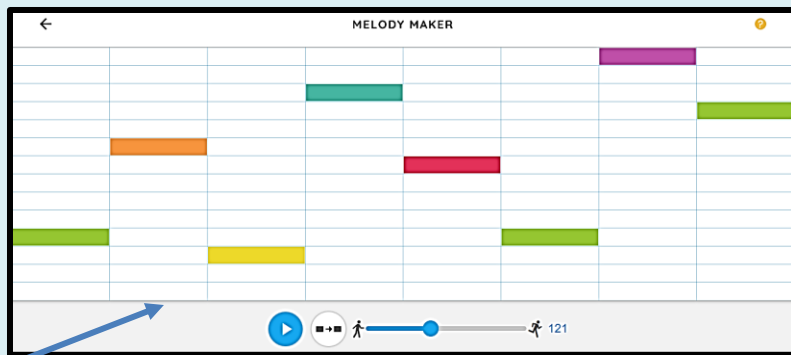
Piano Roll and Melody Maker are two great features to explore digital music creation.

- <https://musiclab.chromeexperiments.com/Piano-Roll/>
- <https://musiclab.chromeexperiments.com/Melody-Maker/>



Play  
Click to scroll through different songs  
Click to change instrument

Chrome Music Lab: Melody Maker



**Can you create this melody?**

Grids are a common interface for creating melodies. Time moves left to right and pitch goes up and down. Tap to add notes, then use the buttons on the bottom to play and change your melody tempo.

**What other melody can you create?**