

# Activities for young people over 14 years old



## Online links

### **Youtube channels:**

**Brainiacs** - <https://www.youtube.com/channel/UCOyWqUnLknacYeSI4CvG6FA>

**Asap Science** - <https://www.youtube.com/user/AsapSCIENCE>

**Animalogic** - [https://www.youtube.com/channel/UCwg6\\_F2hDHYrqbNSGjmar4w](https://www.youtube.com/channel/UCwg6_F2hDHYrqbNSGjmar4w)

**It's ok to be smart** - <https://www.youtube.com/user/itsokaytobesmart>

**The King of Random** - <https://www.youtube.com/user/01032010814>

**National Geographic** -

[https://www.youtube.com/playlist?list=PLydZ2Hrp\\_gPSK4VSptBsb8hsvFABPO6b](https://www.youtube.com/playlist?list=PLydZ2Hrp_gPSK4VSptBsb8hsvFABPO6b)

**PE with Joe Wicks** - <https://www.youtube.com/user/thebodycoach1>

### **Websites:**

**topmarks.co.uk** –

website full of educational resources and activities for Years 1 through 12

**poetryzone.co.uk** –

read, write an analyse poetry

### **Apps:**

**duolingo** –

learn a new language or practice your skills in a language you are already learning.



# Simple Science Experiments

Here are some quick and easy science experiments you can try at home. The scientific explanations are given at the end of this document.

## 1. Oobleck

### What You'll Need

- 1 cup water
- 1.5-2 cups corn flour
- a few drops of food coloring of your choice (optional)

### 2. Instructions:

1. Start with the water in a bowl and start adding the corn flour to it. You can use a spoon at first, but you'll eventually have to use your hands to stir it.
2. When you're getting close to adding 1.5 cups of the corn flour, start adding it in more slowly and mixing it in with your hand. The goal is to get a consistency where the Oobleck reaches a state that is the liquid and yet solid.
3. Sometimes you will need more corn flour. If so, keep adding more than the initial 1.5 cups. If you add too much, just add some water back into it. You will have to play with it to see what feels appropriately weird.
4. Now that the Oobleck is just right, add the food colouring. You will have to slowly mix the Oobleck around to get it thoroughly mixed.
5. Congratulations, you've made Oobleck. Now you can find lots of tricks to try out. Here's a short list:
  - Grab a handful, squeeze it, and let it ooze out your fingers.
  - Make a puddle and quickly drag your fingers through it.
  - Put it into a plastic container and shake it or quickly bump it against a table.
  - Jab at the Oobleck and then slowly let your finger sink in.

### Extend the fun

Make a series of videos showing how to make Oobleck and what you can do with it.

### Experiment Notes:

## 2. Bottle Diver

### What You'll Need

- A clear one litre plastic bottle and cap (not a big 2 litre bottle)
- A ball point pen cap that does not have holes in it
- Some modelling clay



### Instructions:

1. Remove any labels from your bottle so that you can watch the action.
2. Fill the bottle to the very top with water.
3. Place a small pea-size piece of modelling clay at the end of the point on the pen cap.
4. Slowly place the pen cap into the bottle, modelling clay end first (some water will spill out – that's okay). It should just barely float. If it sinks take some clay away. If it floats too much add more clay.
5. Now screw on the bottle cap nice and tight.
6. Now for the fun part. You can make the pen cap rise and fall at your command. Squeeze the bottle hard – the pen cap sinks...stop squeezing and the pen cap rises. With a little practice, you can even get it to stop right in the middle

### Extend the fun

There are a few ways that you could change the experiment to see if you have different result:

- Does the size of the bottle affect how hard you have to squeeze to make the diver sink?
- Does it matter if the bottle is not filled all the way with water?
- Does the temperature of the water affect the diver's movement?

### Experiment Notes:

### 3. Make your own sugar stick

#### What You'll Need:

- A wooden skewer (you can also use a clean wooden chopstick)
- A clothes peg
- 1 cup of water
- 2-3 cups of sugar
- A tall narrow glass or jar



#### Instructions:

1. Clip the wooden skewer into the clothes peg so that it hangs down inside the glass and is about 1 inch (2.5 cm) from the bottom of the glass.
2. Remove the skewer and clothes peg and put them aside for now.
3. Get a helpful adult!
4. Pour the water into a pan and bring it to boil.
5. Pour about 1/4 cup of sugar into the boiling water, stirring until it dissolves.
6. Keep adding more and more sugar, each time stirring it until it dissolves, until no more will dissolve. This will take time and patience and it will take longer for the sugar to dissolve each time. Be sure you don't give up too soon. Once no more sugar will dissolve, remove it from heat and allow it to cool for at least 20 minutes.
7. Carefully pour the sugar solution into the jar almost to the top. Then submerge the skewer back into the glass making sure that it is hanging straight down the middle without touching the sides.
8. Allow the jar to fully cool and put it somewhere it will not be disturbed.
9. Now just wait. The sugar crystals will grow over the next 3-7 days.

#### Extend the fun

Try adding food colouring to the water to make sugar sticks of different colours

#### Experiment notes:

## 4. Diet Coke and Mentos Experiment

### Warning:

**Do not attempt this experiment indoors!**

### What You'll Need:

- 2-litre bottle of Diet Coca-Cola
- Roll(s) of Mentos Mints
- 1 Funnel or tube (optional).

### Instructions:

1. Set up your materials outside. Grassy areas work best!
2. Stand the 2 litre of Diet Coke upright and unscrew the lid.
3. If you'll be using a funnel or other device, attach it to the top of the Coke bottle now.
4. Quickly drop 1/2 of the Mentos pack into the Coca-Cola bottle and run
5. The Coke will explode from the top of the bottle

### Extend the fun.

You could try using different fizzy drinks and mints or number of Mentos to see if the same thing happens.

### Experiment Notes:



## Why does it work?

### 1. Oobleck

Oobleck is a non-newtonian fluid. That is, it acts like a liquid when being poured, but like a solid when a force is acting on it. You can grab it and then it will ooze out of your hands. Make enough Oobleck and you can even walk on it!

### 2. Bottle Diver

This experiment is all about DENSITY. When you squeeze the bottle, the air bubble in the pen cap compresses (gets smaller) and that makes it more dense than the water around it. When this happens, the pen sinks. When you stop squeezing, the bubble gets bigger again, the water is forced out of the cap, and the pen cap rises.

### 3. Make your own sugar stick

When you mixed the water and sugar you made a super saturated solution. This means that the water could only hold the sugar if both were very hot. As the water cools the sugar “comes out” of the solution back into sugar crystals on your skewer. The skewer (and sometimes the glass itself) act as a “seed” that the sugar crystals start to grow on.

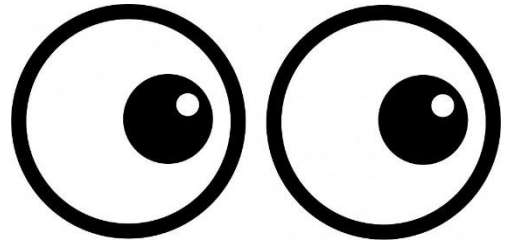
### 4. Diet Coke and Mentos Experiment

This works because of the combination of carbon dioxide in the Diet Coke and the little dimples found on Mentos candy pieces. The thing that makes soda drinks bubbly is the carbon dioxide that is pumped in when they bottle the drink at the factory. It doesn't get released from the liquid until you pour it into a glass and drink it, some also gets released when you open the lid. Dropping something into the Diet Coke speeds up this process by both breaking the surface tension of the liquid and also allowing bubbles to form on the surface area of the Mentos. Mentos candy pieces are covered in tiny dimples (a bit like a golf ball), which dramatically increases the surface area and allows a huge amount of bubbles to form.

## 5. Visualisation

Read the following poem

### Art is Hard



Painting's really difficult,  
With pencils I'm nonplussed.  
Charcoal just gets everywhere,  
And crayons are a bust.

Pastels are too tricky,  
And pens, they lead to splodge.  
Gluing's just too sticky,  
Papier-mâché I just bodge.

Art is really taxing,  
This creating tires me out.  
And I'm really far too messy,  
Of that I have no doubt.

So there's paint upon the ceiling,  
And pencil on the chair.  
There's pastel and chalk dust just everywhere,  
Mum's shrieking with despair.

Our dog's stuck to his basket,  
Crayon scrawled across the door.  
I think it will be quite a while,  
'till I create once more.

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Task 1.

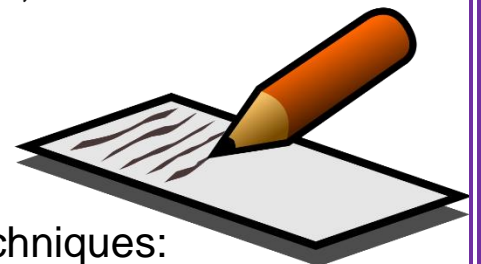
Highlight and label all the different writing techniques:

Alliteration (small, smelly sausage)

Rhyming (car/bar, care/fair)

Tenses (past/present/future)

Person (1<sup>st</sup>/2<sup>nd</sup>/3<sup>rd</sup>)





Task 2:

Identify all the materials used in the poem.

Try and use all the materials and re-create what you think the room in the poem would look like!

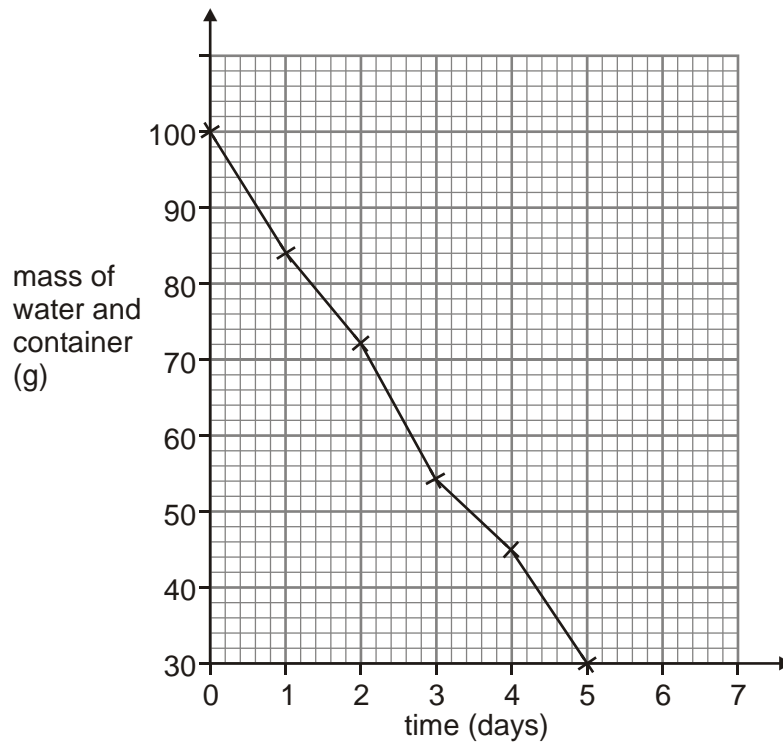


Use this box to draw your image

## 6. Numeracy

Graphs tell us information and can also be used to find out information.

### Graph 1.



What does this graph tell you?

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### **Activity for you!**

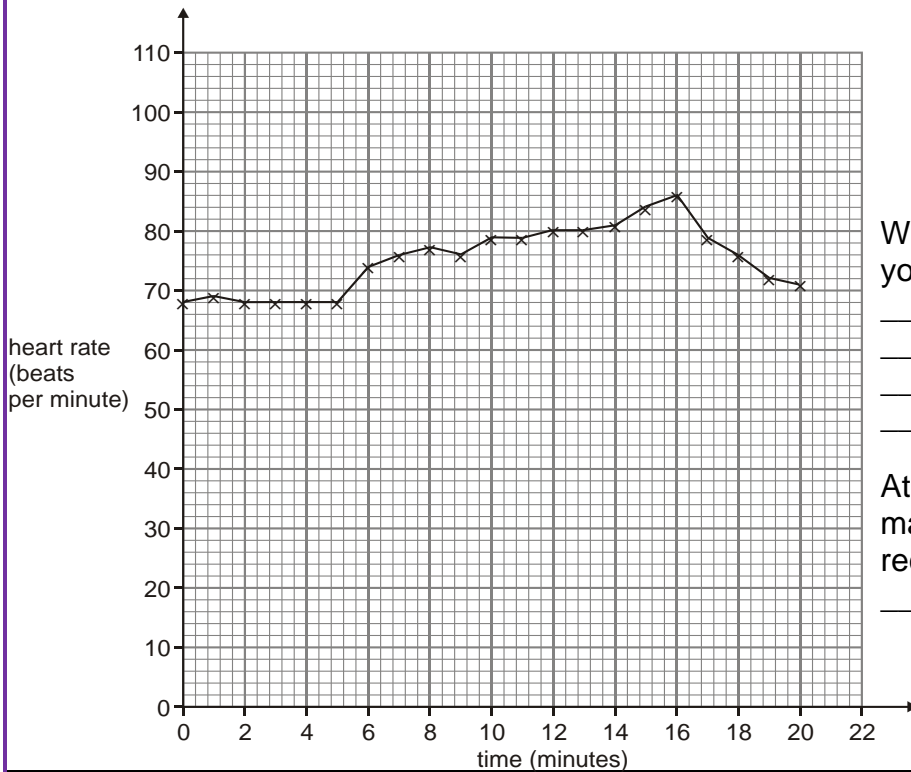
(What you will need: An old plastic container, pen, water)

Step 1: Fill an old plastic container (jug or a cup) with water. Draw a line at the top of the waterline.

Step 2: Place in a cool, dry, safe place (maybe a windowsill) and wait 24 hours.

Step 3: After 24 hours, see how much water has evaporated from the container and draw another line!

How long do you think will it take for all the water to evaporate?



What does this graph tell you? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

At what time was the maximum heart rate recorded?

\_\_\_\_\_

### **Activity for you!!**

(What you will need: a watch or a clock, paper, pen/pencil)

Stand in the middle of a room, outside or somewhere where you have plenty of room.

(Make sure you can see a watch/clock clearly.)

Step 1: Count your resting heart rate (How many times a minute does your heart beat in one minute before doing exercise). Record your heart rate in the table below

Step 2: Do a form of exercise (walking, skipping, jumping, running, cycling, star jumps etc) for 2 minutes. Record your heart rate again after exercise in the table below.

Step 3: Keep doing exercises (a different one every time) until you have filled in the table.

#### Resting Heart Rate (HR)

- HR – 2 mins
- HR – 4 mins
- HR – 6 mins
- HR – 8 mins
- HR – 10 mins
- HR – 12 min
- HR – 14 mins
- HR – 16 mins
- HR – 18 mins
- HR – 20 mins
- HR – 22 mins

After you have completed the table, record your data in the graph above!

What can you notice between your data and the data already there?

## 7. Homemade tie-dye shirts

Got some boring, plain clothes at home?  
Fancy jazzing them up a bit?

Try this homemade tie-dyeing trick to give your clothes some new life!

### WHAT YOU WILL NEED!

1. An old item of clothing like a t-shirt or vest (cotton works best)
2. Bucket of water
3. Food colouring
4. Vinegar
5. Old containers or bottles
4. Elastic bands (or bobbles)



### WHAT YOU NEED TO DO !!

1. Gather your items
2. Soak the t-shirts in the bucket full of water.  
(Empty the bucket after you've finished)
3. Pull the t-shirts out and twist and tie bobbles or elastic bands around the shirt in random places (get creative!!)



4. Take your old containers or bottles and half fill with water.  
Pour in half a cup of vinegar and drops of food colouring and mix!  
(You will have to use a different container for every colour you want!)



5. Tip/Dip/Pour each colour onto sections of the t-shirt and then leave in the empty bucket overnight! (The longer you leave the t-shirt, the darker the colours will be)

6. After you're happy with the colours of the t-shirt, pull the elastic bands or bobbles off and wash the t-shirt in the washing machine on cold!

7. Once it's washed and dried, you wear your amazing new t-shirt!



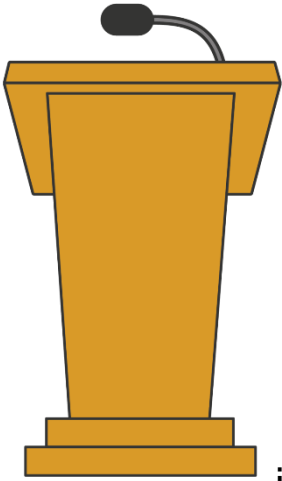
## **8. Time to Debate!!**

Boris Johnson has released the following 2 statements:

1. TikTok is a terrible app for young people.  
It is distracting them from doing other things like school work and exercising and is making young people spend too much time on their phones.

2. Schools should abolish all art classes and focus more on sports because the majority of the population are overweight.

3. Celebrating holidays such as Christmas and Easter should be stopped because it's just an excuse for people to have time off work and school



Task:

Pick two of the statements and write a response to Boris Johnson.

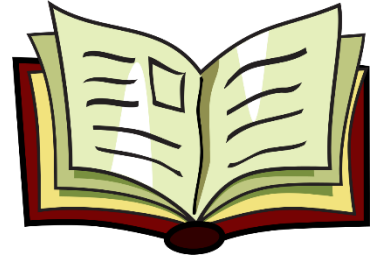
Include:

- If you agree or disagree with the statements + why?
- What advantages/ disadvantages are there to these things?
- Do you yourself use them + why?
- Is there an alternative people could use?
- Any other comments you want to make.



## 9. Blog me this !

Write a blog on a topic of your choice!



Use different writing techniques to create a blog.



Pick a topic:

- music you're listening to
- videos you're watching online
- films/series you're watching
- books/magazines you've read
- Video games you've played
- Makeup/hair styles you've tried



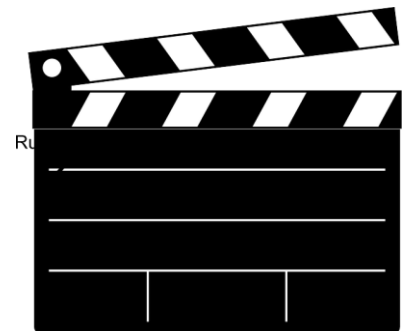
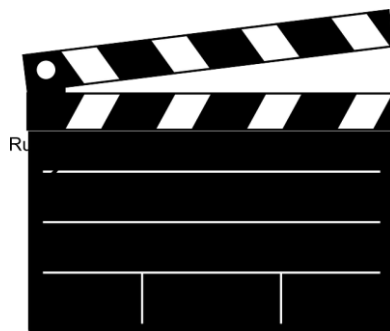
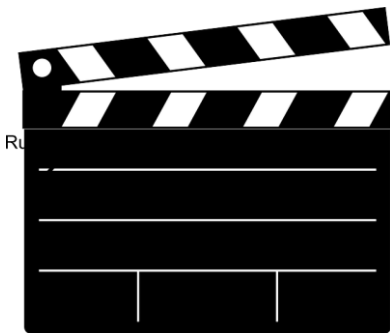
or anything else you want and write about it!!

You can make it as long or as short as you want, but make it fun!

Include fun facts, descriptions, opinions, good points, bad points etc!

### Extend the fun

Once you've written your blog, try reading your blog in front of a mirror or record yourself and turn it into a vlog!



## 10. 1,2,3 ... What can i see?

Pick a room of the house, or go outside.

Note down:

1. 5 different emotions
2. 5 different objects/things you can see
3. 5 different things you can feel/touch



1.	2.	3
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### **Task.**

Use the things you have listed, to help you write a poem.

*\*Remember, poems do not have to rhyme,,, they tell us stories\**

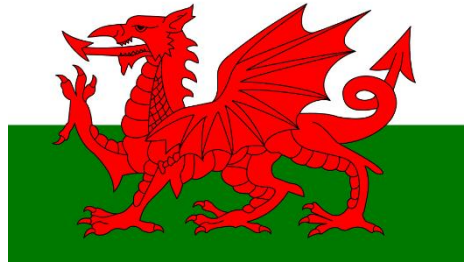


Use this space as a draft space to write some notes before your finished piece.

## 11. Newid Cân

### Bydd angen:

- Papur a phen/pennau ffelt
- Geiriau cân Cymraeg



### Cyfarwyddiadau:

1. Dewiswch gân Cymraeg cyfarwydd, mae'n haws os mae'r geiriau gennych chi.
2. Neidiwch y geiriau er mwyn creu cân ddoniol. Mae enghraifft ar gael i chi isod. Mae'r enghraifft wedi'u cymryd oddi wrth Facebook ac yn seiliedig ar y gân "Ry'n ni yma o hyd" gan Dafydd Iwan:

Dwyt ti'm yn cofio Andrex  
Does dim o'r stwff ar ôl;  
Mae sandpaper, cardboard a'r daily post,  
Yn stwff sy'n brifo'r pen ôl!  
Daeth Coronafeirws i Gymru,  
Yn y flwyddyn dwy fil dau ddeg,  
A'n gadael yn genedl gyfan  
Rhannwch yr handwash yn deg!

### Am fwy o hwyl:

Ysgrifennwch gân eich hunan (sydd ddim yn seiliedig ar gan sy'n bodoli'n barod) a chreu fideo yn canu'r gân.

### Syniadau:



## 12. Lluniau llonydd

### Bydd angen:

- Play Doh neu glai
- Hambwrdd neu bapur
- Camera e.e. ar ffôn symudol



### Cyfarwyddiadau:

1. Defnyddiwch y Play Doh/clai i greu'r cymeriadau o llyfr rydych chi wedi astudio yn yr ysgol, neu hoff lyfr Cymraeg. Gallech hefyd greu pethau eraill sy'n bwysig yn y stori e.e. anifeiliaid, coed, mynyddoedd ayyb.
2. Cymerwch luniau llonydd ar gyfer pob rhan o'r stori, un ar y tro, gan gymryd llun o bob un.
3. Gallech ychwanegu testun i'r lluniau er mwyn esbonio beth sy'n digwydd ym mhob un.

### Parhau â'r hwyl:

Gallech wneud yr un peth am chwedlau neu straeon eraill sy'n gyfarwydd i chi.