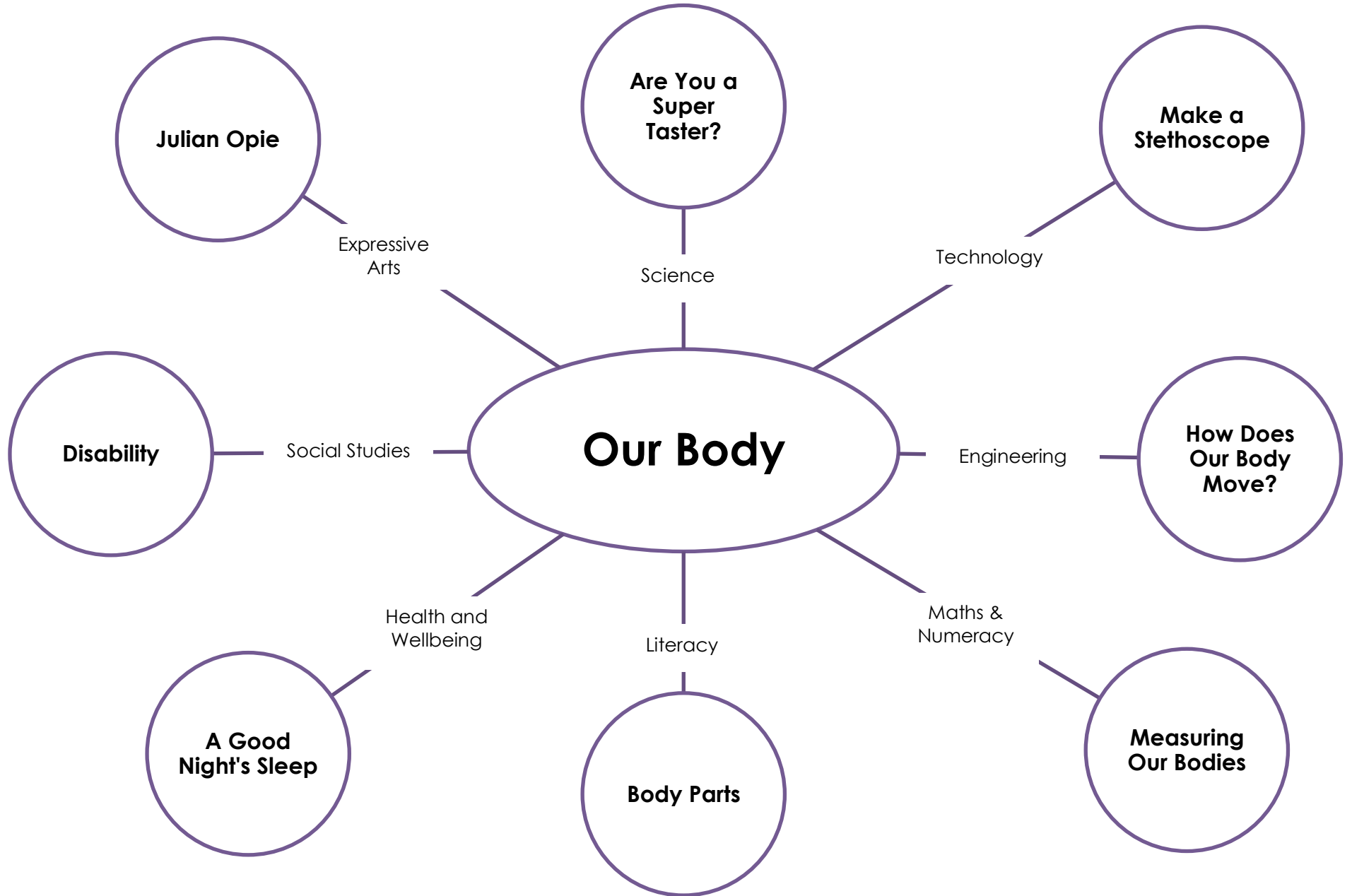




# Learning from Home



# Science Challenge



## Are You a Super Taster?

### Adult Supervision Recommended

How many times have you heard 'No pudding until you eat all your vegetables?'



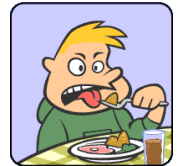
Sometimes you have to decide which is better, skipping your vegetables or getting pudding. Taste is an important sense, let's see how good yours is.

### You will need:

Dark food colouring, cotton ball, piece of white paper, hole punch, mirror

### Instructions:

1. Use the hole punch to make a small hole in your piece of paper.
2. Dip the cotton wool ball into the food colouring.
3. Wipe the food colouring across the tip of your tongue.
4. Put the coloured part of your tongue through the hole in the paper.
5. Look in the mirror.
6. Count the round bumps on your tongue that appear in the paper hole.



### The Science:

If you have 25 or more round bumps on the tip of your tongue, you might be a super taster! If you have less than 25, you are likely to be an average taster. Being a super taster isn't necessarily a good thing! Some people have such sensitive taste buds that they find some nice tasting foods horrible because they can taste other things in them that average tasters can't. The taste buds are mostly found on or between bumps called papillae. Papillae cover the tongue surface, and you can see them with your naked eye.

### Share these facts with an adult:

- \*Your tongue has five basic types of taste buds: bitter, sour, salty, sweet and umami.
- \*Taste buds only live for about 2 weeks before being replaced by new ones.
- \*You also have a few taste buds on the lips (especially salt-sensitive ones)
- \*You should always make sure your food and drink isn't too hot but if you do eat or drink something which burns your tongue, you will burn off your taste buds. When this happens, they flip over and rebuild themselves, so you don't lose your sense of taste.

Images from [www.clipart-library.com](http://www.clipart-library.com)

# Technology Challenge



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## Make a Stethoscope

### Adult Support Required

Stethoscopes are used to listen to a person's heart and breathing. We can make a very basic stethoscope easily using just a cardboard tube, tape and a funnel.



Activity and image from: [www.science-sparks.com/](http://www.science-sparks.com/)  
Clipart from [www.clipart-library.com](http://www.clipart-library.com)


### You will need:

Kitchen roll tube, thick tape (duct tape), small funnel, a partner (adult at home or brother or sister), recording chart, pencil, timer

### Instructions:

1. Test out your cardboard tube – place it on the middle of your partner's chest. (Ask permission first!) Can you hear their heart beating?
2. Tape the funnel into one end of the kitchen roll. Listen to your partner's chest again, does it sound any clearer?
3. **Make a prediction** - what do you think would happen to their heart rate if they did some exercises?
4. \*Ask your partner to run on the spot for 2 minutes. **(Only if they can)** counting the number of heartbeats **before and after** the exercise.
5. Now swap over and ask your partner to listen to and count your heart beats before and after exercise.

\*Try counting the number of beats before and after some exercise. Can you record this data on a chart like this one?

	Heart Beats (Rate) <b>Before</b> Exercise	Heart Beats (Rate) <b>After</b> Exercise
<b>Me</b>		
<b>Partner</b>		

Stethoscopes used by doctors consist of a chest piece, rubber tubes and earpieces. The chest piece consists of a round flat diaphragm and bell

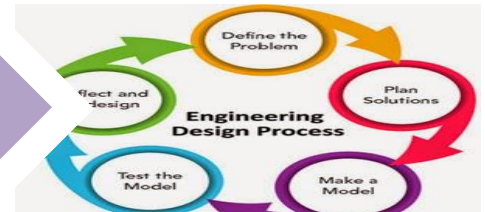
(not one that rings!) which amplify (make it louder) the sound of the heart beating so the doctor can hear it.

Your heart pumps blood all around your body supplying it with oxygen. When you exercise, your need for oxygen increases (goes up) so your heart rate speeds up sending more blood (and oxygen) around your body.

### Extension:

How could you improve your stethoscope? What if you used a hose with a funnel at each end? Or different sized funnels? Which do you think would work the best? Can you listen to any other parts of the body?

# Engineering Challenge

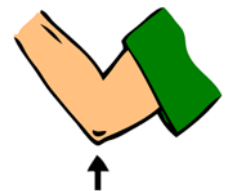


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## How Does Our Body Move?

### Adult Supervision Required!

A joint is where one bone meets another. We need joints to be able to move our bodies. Where there are joints, muscles control the movement. However, muscles can only pull on a bone; they can't push it. They can only apply a force in one direction.



**Your Task:** is to make a model of the elbow joint and discover how muscles make the lower arm both bend and straighten. When you've assembled the model arm, it will look like the image below. (Left)

**You Will Need:** two pieces of stiff card, two pieces of elastic, a paper fastener (split pin), scissors (ask an adult for help), ruler, any other materials you choose to use

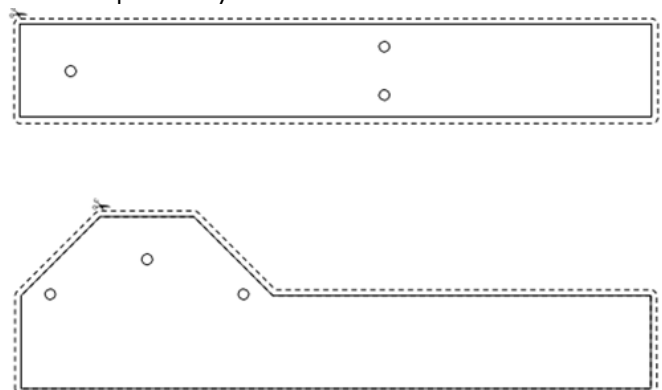
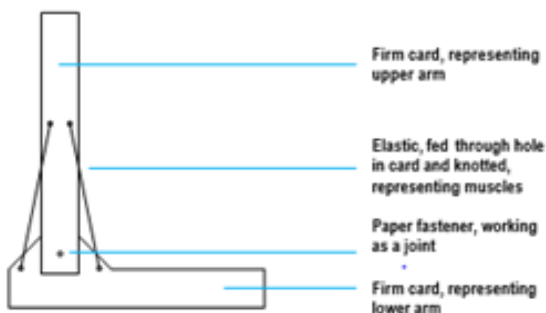
### Build It:

1. Draw and cut out two shapes like the ones below. (Right) Make holes where the circles are.
2. Put the pieces of card over each other so that the larger holes line up. Push the paper fastener through the holes and open up the tabs. You should now have a jointed arm.
3. Now push one of the pieces of elastic (a rubber band cut will work well) through one of the small holes and tie a knot so it can't come back out again. Feed the other end through a hole in the other card (look at the picture of the completed arm to see which one) and tie a knot in the other end so it can't come out either. Repeat with the other piece of elastic. You might need to adjust the lengths so that both are gently taut. (Tight)

**Test It:** Compare your model to a picture of the elbow joint. See what you have made and how it compares to the actual joint. \*Feel your upper arm and try to identify the bones and muscles in your own arm. Feel which muscles are tensed when you raise your lower arm and force your lower arm down.

**Reflect:** Could you improve your model? Could you make it look more life-like? \*Research in books and/or on the internet (**ask for permission first**)

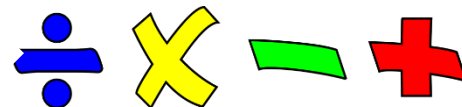
**Improve it:** Use any information from your reflection to improve your model.



Activity and images from [www.stem.org.uk/](http://www.stem.org.uk/) Clipart from [www.clipart-library.com](http://www.clipart-library.com)



# Maths & Numeracy Challenge

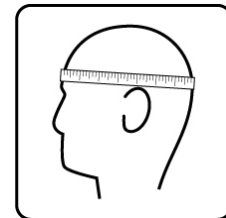


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## Measuring Our Bodies

Today you are going to be measuring various parts of your body.

**You Will Need:** a measuring tape or ruler, paper, pencil, scissors, and a partner



Write down all your measurements to the nearest cm.

**1. Your Hand** Spread your hand and fingers out as far as they will go and draw round it. Draw a line from the tip of your little finger to the tip of your thumb. Measure it in centimetres (cm) and write your answer by your picture

**2. Your Head** Work with a partner.

Get a strip of paper and put it round your partner's head. Mark the end, remove it from your partner's head and cut it. **(Be careful using scissors!)** Now repeat with your partner wrapping some paper around your head. Measure your strip in centimetres (cm) and write the answer.

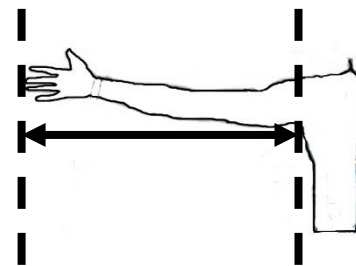
**Around my head measures** \_\_\_\_\_

**3. Your Arm** Work with a partner. Look at the picture.

Get a strip of paper and measure your partner's arm. Mark the end and cut it.

Measure your strip in centimetres (cm) and write the answer.

**My arm length is** \_\_\_\_\_



**4. Length of your foot** – put your bare foot onto paper and draw around it.

Measure the length from your heel to your big toe. **My foot is .....cm long.**

**Extension:** Measure some other body parts? Have a go at estimating lengths before measuring them? Draw a recording table so you can write down all your measurements. Try to spot any connections in the lengths of any body parts - for example, how does your arm span compare to your height?

Activity and images from TES

# Literacy Challenge



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## Body Parts

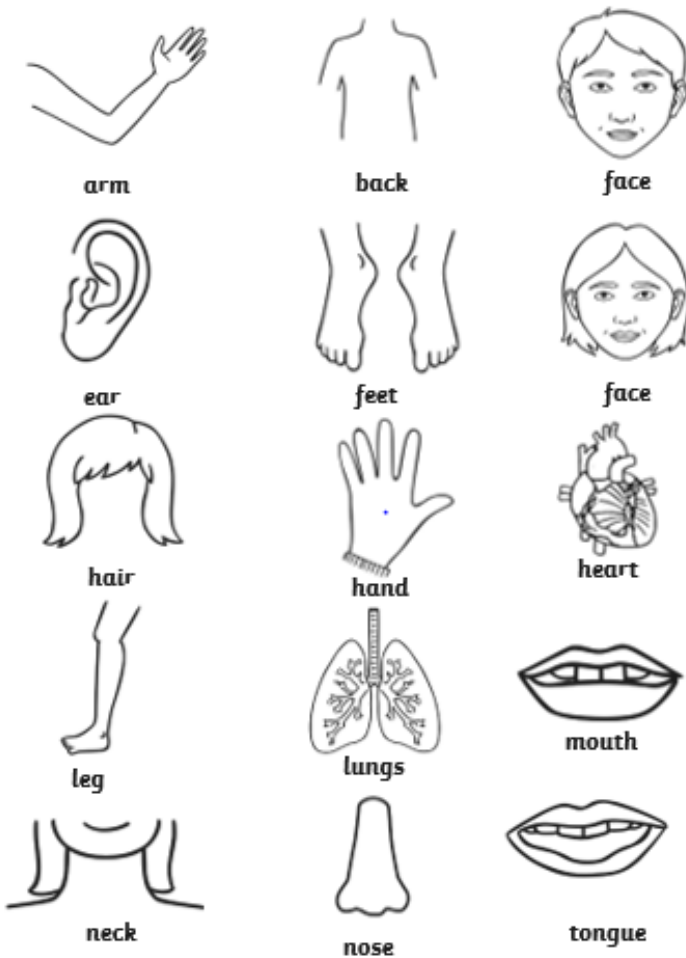
a b c d e f g h i j k l m n o p q r s t u v w x y z

**Your Task:** is to put the names of the body parts, shown in the image below, into alphabetical order and write a definition for each one. (Explain what it means) If you have a dictionary at home, you could use it to help you write the definitions. Alternatively, you could type the word into a search engine and make use of the internet but remember to ask for permission first.

**Make yourself a table like this one.**



Word	Definition
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	



**Extension:** Which other body parts do you know? Write them down too and add them to your alphabetical list.

Images from Twinkl



# Health & Wellbeing Challenge

## A Good Night's Sleep

Everybody needs to sleep. If we didn't sleep, we would not be able to survive.

### What does sleep give you?

- \*Energy
- \*Brain power
- \*Time to grow
- \*Time to digest food
- \*Restores & mends the body
- \*Better skin and hair
- \*Happier mood

**Click here to find out more about sleep:**

<https://www.bbc.co.uk/cbbc/findoutmore/help-me-out-sleep>

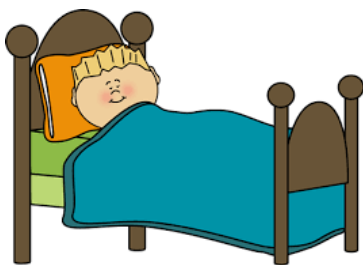
**Click here to watch a video about why sleep is so important:**

[https://www.youtube.com/watch?v=\\_aAmaCeq9v4](https://www.youtube.com/watch?v=_aAmaCeq9v4)

### How can you get a good night's sleep?

- \*Have a routine
- \*Relax & wind down before bed – turn off the phone, computer, TV.
- \*A dark & quiet room
- \*A comfy pillow
- \*Focus on breathing etc.

**Task:** This is David and Eddy. David is fast asleep but poor Eddy can't get to sleep at all. Talk to an adult about what might be affecting how well David and Eddy sleep. What could Eddy try to help him sleep better?



David



Eddy

Images from [www.clipart-library.com](http://www.clipart-library.com)

# Social Studies Challenge



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## Disability

### What Is a Disability?

A person with a disability may be limited in terms of their movement, senses or activities. There are many different types of disabilities.



**Task 1:** What do you think being disabled looks like? **Talk to an adult** about it.

Sometimes disabilities are hidden. This means that you might not be able to tell that somebody has a disability just by looking at them. Can you think of a disability that might be hidden? People with disabilities may or may not look different, act differently or just might not be able to do things as well or as quickly. However, they are still people, just like us.

Some people today and in the past have achieved great things despite having disabilities. Can you think of any? Read about just a few incredible people with disabilities below, there are many more – maybe you can research some?

**Ludwig van Beethoven** was a world-famous musical composer who wrote some of his most important music when he was deaf.



**Louis Braille** lost his sight at the age of three after an accident. Louis went on to invent a new raised code for letters called Braille, which is used by millions of people with visual impairments throughout the world.



**Albert Einstein** had what could be considered a hidden disability - dyslexia, which meant he had great difficulty reading. Yet, he is regarded as the greatest scientist of the 20th century. He was a genius in maths and physics. His thinking is still the basis for modern science and our understanding of the universe.

**Ade Adepitan** is perhaps best known for his wheelchair basketball routine on BBC TV, he is a presenter on Children's BBC TV. Ade contracted polio (a serious disease caused by a virus) as a child, he now uses a wheelchair. Ade played wheelchair basketball and was a member of team GB at the Sydney Olympics.



**Task 2:** Click on these links to some story books about disability written by young people with disabilities:

[http://worldofinclusion.com/res/alleg/21223\\_Elliott.pdf](http://worldofinclusion.com/res/alleg/21223_Elliott.pdf)

[http://worldofinclusion.com/res/alleg/21223\\_Scarlet.pdf](http://worldofinclusion.com/res/alleg/21223_Scarlet.pdf)

[http://worldofinclusion.com/res/alleg/THE\\_PLACE\\_REV.pdf](http://worldofinclusion.com/res/alleg/THE_PLACE_REV.pdf)

(Ask an adult to help you read them)

Information and photos from [www.diseed.org.uk](http://www.diseed.org.uk)

Clipart from [www.clipart-library.com](http://www.clipart-library.com)





# Expressive Arts Challenge



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## Julian Opie

### About the Artist:

Julian Opie was born in London in 1958. He is part of the **Pop Art** genre. He works with both digital art and sculpture. Many of his works depict faces, and people pictured in a state of movement.

A **portrait** is a picture of a person – usually their face.

### Features of Julian Opie's Portraits:

Minimal colour palette – only uses 2 or 3 colours at a time.  
Colours are flat (all the same shade) with bright backgrounds  
Reduced amount of detail in the facial features – eyes, nose, mouth etc., hair and clothing



### Portrait Characteristics - Let's look closely at each feature:

The Nose - Nostrils only

The Eyes - Pupils only and simple eyebrows

The mouth - The shadow under the mouth and the line where the top and bottom lip meet



The features in this picture are in proportion and correctly placed. The lines are the same thickness as Julian Opie's. It is recognisably in the style of Julian Opie.

← This is the cover of a music album by the band Blur. It was created by Opie.

**Your Task:** Create your own self portrait (picture of your own face) or a portrait of someone at home. Keep the style simple – avoid details for eyes, nose and mouth. Focus on the shapes that you are using and the colours – try to make them contrast. (Stand out when used next to each other) Use any media you like, although paint is best.

**Tip:** If you have tracing paper, you might want to trace over a photo of yourself – including only the main shapes. (Not details)

**Click here to find out more:** <https://www.youtube.com/watch?v=sgO2NHHjcA8>

Images from and activity adapted from TES and <https://classroom.thenational.academy/>