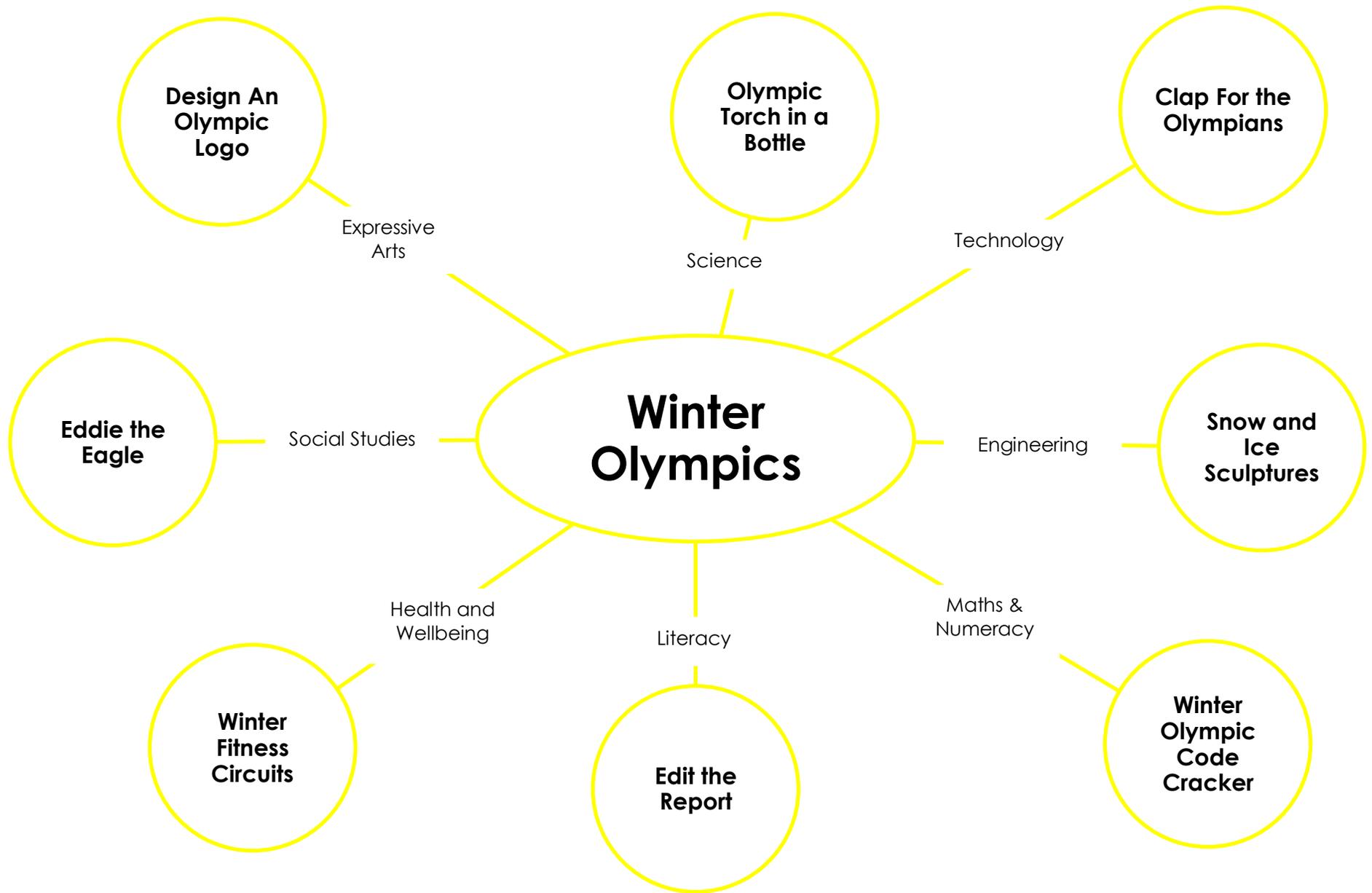


# Learning from Home



# Science Challenge



## Olympic Torch in a Bottle

### You will need:

- Plastic Water Bottle
- Food Colouring (neon and basic Colours if possible)
- Vegetable Oil
- Small Container
- Measuring Spoon
- Plastic Fork

### Method:

1. Look at the experiment sheet so you know what you need to record.
2. Put 4 tablespoons (tbsp) of vegetable oil in a small container.
3. Decide which colours to add to the oil to create the flame. Place about two drops of each colour into the container with the oil.
4. Stir the mixture lightly with a fork then pour the mixture into a bottle filled about 3/4 up with warm water.
5. The food colouring will slowly separate from the oil and begin to slip into the water creating flame like flickers of colour in the water.
6. The various colours of food colouring will drift down in their own flickers. They will mix together as they fall to form new colours.
7. Over time you may see light and darker areas of the colour.
8. Besides seeing the cool flame colours in the jar, you should also see that the oil has stayed near the top. Below you will see an explanation of why that happens.

You will be creating a falling flame in a jar and identifying the colours you see in the flame.

When I add the food colouring to the oil I predict \_\_\_\_\_

Fill each circle with a colour you see falling in the jar. Write the name of the colour beneath it.



Why does the food colouring separate from the oil?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



### The Science:

The food colour drops fall into the oil, but they don't dissolve. When the mixture is poured into the water bottle, the oil stays at the top. Oil is less dense than water meaning that the oil particles aren't as close together. Slowly the food colouring drops start to drop from the oil because they are heavier than it. As the food colouring drops make their way into the water, they start to dissolve. This causes the flicker or explosion of colour.

Activity and images from <https://jdaniel4smom.com/>

# Technology Challenge



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## Clap For the Olympians

When you watch others perform, whether they are acting in a play, singing onstage or playing football or other sports, it is customary to clap to applaud their efforts.

**Today's challenge** is to create a moving mechanism which will cause 2 hands to clap together which you can use to applaud the athletes taking part in this year's Winter Olympics. Follow the instructions below to make your clapping hands.

**Step 1**

Cut **two** strips of card with the measurement:

**5cm x 2cm (A and B)**

5 cm      2 cm

**Step 2**

Cut **one** strip of card with the measurement:

**7cm x 2cm (C)**

7 cm      2 cm

**Step 3**

Cut a rectangle with the measurements

**5cm x 4cm (D)**

5 cm      4 cm

**Step 4**

Make two small slits in strips A and B. Then push a split pin through the three strips of card as shown.

**Step 5**

Split pin the strips to the rectangular piece of card. Don't fix the split pins tightly. Make sure the card strips can move freely.

**Step 6**

Cut two hands out and stick to the arms.

**Step 7**

Pull the strip up and down and the hands will clap together!

**You will need:** card from a cereal box, scissors, ruler, sharp pencil, piece of blue tac or plasticine / playdough, 3 split pins

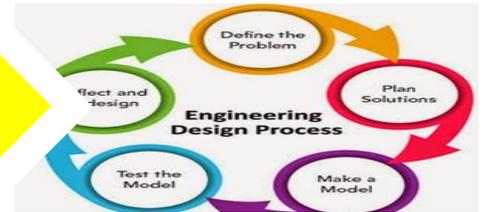
Adult support is suggested for cutting card and for piercing a hole ready for the split pins. (This is easiest done by placing the card on top of a lump of blue tac and pushing the sharp pencil point down through the card and into the tac.)

If you would like to add more detail you could draw a picture or use a photograph of your face which you could stick on to the front of your product. Do not stick it to the back as this could interfere with the moving mechanism and prevent the hands from clapping.

Activity and image from Twinkl



# Engineering Challenge



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## Snow and Ice Sculptures

A sculpture is a 3-dimensional (3D) work of art. Sculptures can be made from several different materials from stone, metal, tinfoil, sand, junk and even snow and ice! The sculptor uses many different tools to create their model including chisels, knives, hammers, drills, brushes and even blow torches and chain saws to help him or her chip, mould, chisel, carve and join different parts of the sculpture.



Sculptures are created for many different reasons - often to celebrate new buildings, successful and / or important people, or events.

Click here to see some snow and ice sculptures which have been built ready for the Winter Olympics: <https://www.youtube.com/watch?v=H32KDFvepaI>

**Your Task:** is to create your own sculpture using whatever materials you have at home. Your inspiration will be the Winter Olympics so you might want to sculpt an ice hockey player or just a hockey stick, a skier or ski lift...the choice is yours.

**Extra Challenge:** Take a photograph of your sculpture using a camera, camera phone or iPad / tablet. See if you can insert the photo into a word document and create a record of your sculpture explaining why you chose the subject, materials, how you made it and how the process went. Did anything go particularly well? How would you improve the process if you were to make another sculpture?



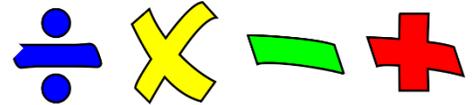
Ice and snow



Other materials

Images from [www.clipart-library.com](http://www.clipart-library.com)  
YouTube and [www.en.eikipedia.org](http://www.en.eikipedia.org)

# Maths & Numeracy Challenge



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## Winter Olympic Code Cracker

Work out the answers to the following and find the letter which corresponds to the answer in the table below. Write it in the box to reveal some Winter Olympic sports.

1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M
14	15	16	17	18	19	20	21	22	23	24	25	26
N	O	P	Q	R	S	T	U	V	W	X	Y	Z



1.

	$9 \div 3$	$3 \times 7$	$4 \times 4 + 2$	$25 - 13$	$3 \times 3$	$28 \div 2$	Half of 14
<b>Answer</b>							
<b>Letter</b>							



2.

	Number of sides on a triangle times 4	Pence in £1 $\div$ 5 then add 1	Sides on a heptagon	$1/5$ expressed as a percentage then divided by 4
<b>Answer</b>				
<b>Letter</b>				



3.

	Minutes in half an hour take away 11	Minutes in a quarter of an hour minus 4	Minutes in an hour divided by 6 minus 1	Hours in a day take away 15	Months in a Year add 2	Seasons in a year doubled then subtract 1
<b>Answer</b>						
<b>Letter</b>						



Now look up some of the other sports taking place. Make up your own clues and ask a grown up at home if they can work out which sport you have chosen.

<b>Answer</b>								
<b>Letter</b>								

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

# Literacy Challenge



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## Edit the Report

Oh dear! Sophie has written a report about the Winter Olympics for her local newspaper, but she forgot to check for spelling, grammar or punctuation mistakes.



**Task:** Can you help edit the report below before the newspaper is published? Write out the edited report neatly on a piece of paper or type up a new report on a **Word** document using a computer.

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

**Clue:** Sophie has missed out capital letters at the start of sentences, for words in a title, the names of places, months and people / characters. She has also missed out full stops at the end of sentences and she has missed out some commas in a list. There are also several spelling mistakes.

### the Winter olympics

the current Winter Olympics are being held in the city of beijing in china. beijing also hosted the 2008 Summer Olympic Games and this is the first time that the Winter Olympics and Summer Olympics will have been held in the same city

the event got underway on the 4th of february with an opening ceremony and will last for 17 days altogether, concluding on the 20<sup>th</sup> of February with a closing ceremony

there will be 80 different nations competing in 15 different winter sports. the events will be held in 26 various indoor and outdoor venues around the city of beijing. some events will also take place in the towns of the neighbouring Hebei province - 140 miles from beijing.

the 2022 Winter Olympic mascot is a panda wearing a helmet made from ice that resembles an astronaut's suit. The Panda, which is china's national animal, is called bingwen wenwen. 'Bing' means ice and symbolises purity and strength. 'Wenwen' represents children

the 2022 Winter Olympic sports include: alpine skiing, biathlon, bobsleigh, cross country skiing, curling, figure (ice) skating, freestyle skiing, ice hockey, luge, Nordic combined, short-track speed skating, skeleton, ski jumping, snowboarding and speed skating

the next Winter Olympics is due to take place in 2026 will take place in italy

Click here to watch a video about the history of the games: <https://www.youtube.com/watch?v=og91u9L9Dp0>





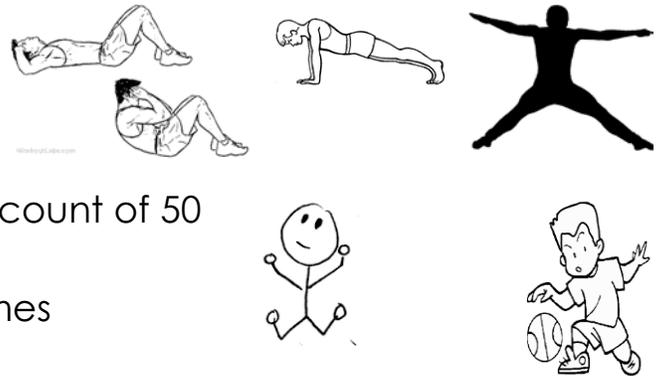
# Health & Wellbeing Challenge

## Winter Fitness Circuits

With the Winter Olympics taking place, it's time for us to do some exercise of our own. Today we are going to be doing some circuit training – this is where you do several short exercises in a certain order. We spend a bit of time on each exercise or do a certain number of tasks (repetitions) before moving on to the next exercise.

**Your Task:** Choose 6 different exercises to include in a fitness circuit, complete the circuit then teach it to someone else. Here are some examples of exercises you could include:

1. Running on the spot for a count of 50.
2. 25 sit ups
3. Skip around the room (or garden) for a count of 50
4. 25 star jumps
5. Throw and catch a ball or soft toy 30 times
6. 25 press ups
7. Jumping up and down on the spot for a count of 30
8. Jogging up and down stairs for 1 minute – how many times can you go up and down? (You must take care not to fall, use a handrail for support if available, and ask an adult for permission first.)
9. Bouncing a football 50 times swapping hands with each bounce.
10. Bouncing a football 40 times while standing on one leg.
11. Bouncing a football 25 times while standing on one leg and swapping hands each bounce.



**Things to Think About:** Try to select exercises which use different muscle groups e.g., arms or legs, consider balance and speed and hand to eye coordination.

You can complete more than 1 circuit if you feel strong enough.

Now teach a brother or sister, or a grown up at home how to complete your circuit. You will also need to explain to them the reasons for exercising and staying fit and demonstrate each activity, so they know what to do.

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

# Social Studies Challenge



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## Eddie the Eagle

Michael Edwards was born on the 5<sup>th</sup> of December 1963. He loved sports and tried hard at everything he did. When he was 10, Michael (Eddie) hurt his knee playing football and spent the next three years with his leg in plaster. At the age of 13, he tried a new sport – skiing. After joining his local dry ski slope, he quickly became a very good downhill skier. A few years later, Eddie narrowly missed out on being chosen for Great Britain at the 1984 Winter Olympics.



Click here to see Eddie in action:  
<https://www.youtube.com/watch?v=L1aWsFpg3To>

Eddie was determined not to miss out on the next Olympics, so he moved to Lake Placid in America to improve his chances. Whilst there, he decided to switch to ski jumping instead as it was cheaper and there were no other British ski jumpers to compete against for a place on the Olympic team.

Eddie quickly ran out of money as he had no sponsorship deals or funding, so he had to work doing odd jobs to get by. He also slept in his car or in empty old buildings to avoid paying rent in hotels. He often struggled to buy food.

\* Eddie wore very thick glasses because he was longsighted. (Struggle to see close up) When he did his ski jumps, his glasses fogged up so much he couldn't actually see!

In 1987, Eddie represented Great Britain in the World Championships, where he was ranked 55th in the world. This meant he qualified for the 1988 Winter Olympics. The Winter Olympics made Eddie the Eagle a household name. Despite coming last in the 70m and 90m ski jump events, he became the British record holder.

After the 1988 Olympics the rules were changed so that minimum standards had to be achieved before you can compete in the games. This means that if Eddie had tried today, he wouldn't have been able to jump far enough to enter, despite being the best from Team GB. However, Eddie's story shows us that we should always try our best to achieve our dreams no matter how unlikely they seem. Nobody thought Eddie could ever compete in the Olympic games and although he came last, he achieved his aim with very little help from anybody else. What a hero!



**Task:** What would be your dream achievement? What would you have to do to achieve it? Chat about it with a grown up at home.

Information and images of Eddie from [www.en.wikipedia.org](https://www.en.wikipedia.org)  
 Clip art from [www.clipart-library.com](https://www.clipart-library.com)

# Expressive Arts Challenge



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## Design An Olympic Logo

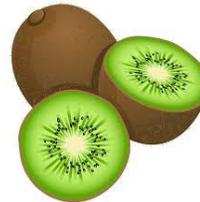
Here are some pictures of previous Olympic logos. Do you like them? Do you think they could be improved in any way? What features stand out?



**Your Task:** Design your own logo to complement the current Winter Olympics. The logo should contain the 5 coloured Olympic rings (blue, black, red, yellow and green) which represent the continents of the world and all athletes united from across the globe, plus the name of the host city (Beijing) and the year. (2022)

You can use any media you like and can use any design, as long as the specified elements are included.

It might be useful to look up Chinese national symbols and animals to give you a starting point for your design.



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