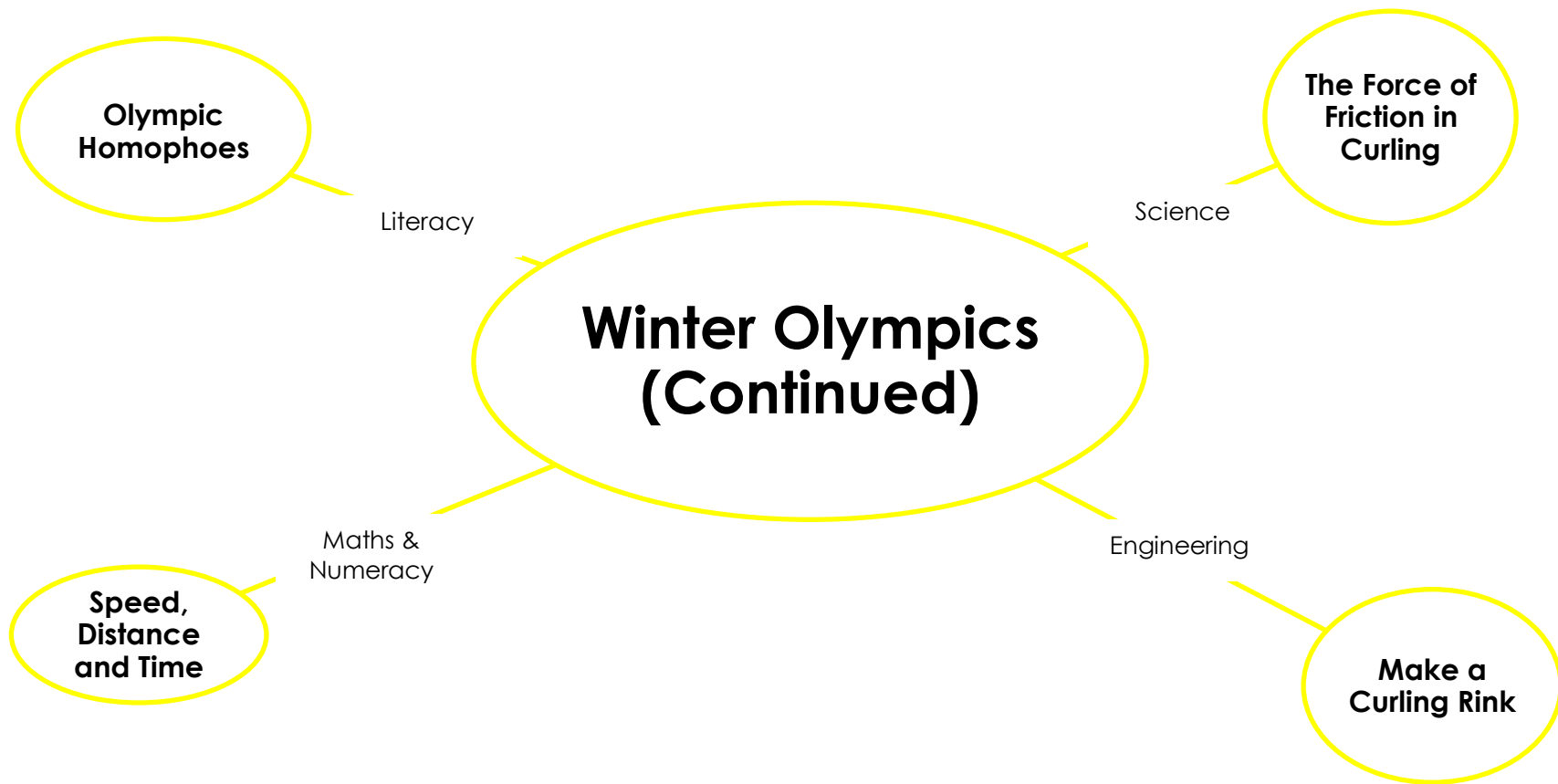


Learning from Home



Science Challenge



The Force of Friction in Curling

How do players manipulate their stones when curling? How do they get them to stop and what is all that ice brushing about? Let's investigate...



You will need: Smooth surface like a table or uncarpeted floor, a carpeted area or rug, a marble



Instructions:

1. Gently roll your marble across your smooth surface. Observe (watch) the speed and distance it travels.
2. Next, roll your marble on the carpeted area or rug. Try to roll the marble with the same 'push' force as on the smooth surface. Again, observe the speed and distance the marble travels.
3. Repeat this on any other surface you may have at home.
4. Discuss with an adult - what did you find? On which surface did your marble travel quickest / slowest / furthest? Can you explain why this was the case?

You can repeat these steps with an item that slides, something with a smooth, flat base – a ruler/a small storage box etc

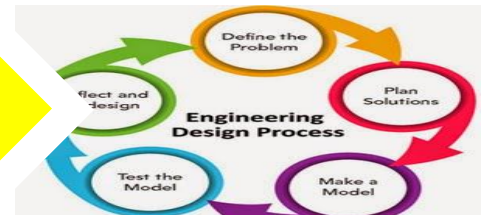
The Science:

Friction is a force between two surfaces that are sliding, or trying to slide, across each other. Friction slows a moving object down. The amount of friction depends on the materials the two surfaces are made from. The rougher the surface, the more friction is produced.

During a curling match, the players will brush slowly, or not at all, immediately after the stone is launched because they are trying to guide the stone towards the target (the house) and working out how fast it is going. As the stone travels nearer, they may brush very quickly to get the stone closer to the target by removing ice pebbles from the surface of the ice. The ice pebbles make the ice surface rougher, and this increases friction. The vigorous sweeping also warms the ice and causes it to melt slightly. The resulting water film reduces the surface friction between the stone and the ice sheet. The lower the friction, the further the curling stone will travel and vice versa. If the players think the stone is going too fast, they won't brush as they don't want to speed it up any further.

Click here for a short video clip about friction :
https://www.youtube.com/watch?v=P6_VUfHzaaM

Engineering Challenge



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Make a Curling Rink

Our region has a great track record in the sport of curling. Several local players have been parts of successful Teams representing GB at previous Winter Olympics and World Championship events.

Your Task: is to make your own curling rink.

You will need: A shallow foil cooking tray, water (to freeze), crushed ice or sand, polo mints (with a hole), plastic straw, scissors, play dough, blue and red permanent markers.



Images from www.clipart-library.com and www.en.wikipedia.org

Instructions:

1. Draw the target (House) on the bottom of the tray at one end, then fill with water.
2. Place the tray (flat) into the freezer and leave until it becomes solid and turns to ice. (This may take several hours)
3. Take your straw and carefully snip short cuts (about $\frac{1}{2}$ cm long) into one end to replicate brush bristles.
4. Roll up small pieces of playdough and place them on top of the polo mints to replicate the stones. (Make sure the playdough does not go through the hole to the bottom of the mints)
5. Take your 'ice rink' from the freezer and place on a flat surface.
6. Pour a small amount of cold water across the surface to make it slick.
7. Sprinkle a bit of crushed ice or sand across the top.

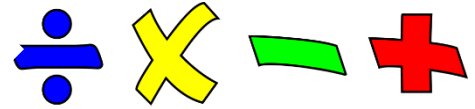


You can now play a game of curling either by yourself or ideally with a partner at home. Take turns pushing the stones towards the target (the House) while the other person sweeps the ice pebbles away. Experiment with different brushing techniques. Which one gets your stones closer to the house?

Click here to find out more about curling:

<https://www.youtube.com/watch?v=IOk9SVzqHsk>

Maths & Numeracy Challenge



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Speed, Distance and Time

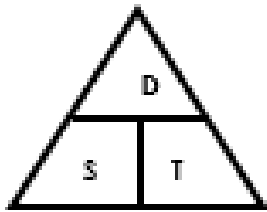
Speed, distance, and time are closely linked. If we know 2 of these values, we can work out the other one. Use the triangle below to help you calculate speed, distance, or time.

Instructions:

If you wanted to calculate distance, you would place your finger over distance (**D**) on the triangle. This shows you that you would multiply speed (**S**) and the time (**T**) together to find the distance.

For speed (**S**), cover **S** then divide distance (**D**) by time (**T**)

For Time (**T**), cover **T** then divide distance (**D**) by speed (**S**)



$$\text{Distance} = \text{Speed} \times \text{Time}$$

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}}$$



Task: The table below shows information about a men's speed skating event. Complete the missing values by calculating either the distance, time, or average speed.

(Note: You must convert time into seconds, so 1 min = 60 seconds, 3 mins 10 secs = 190 secs etc.)



The first row has been done for you. *(A calculator is allowed!)*

Name	Country	Distance (metres)	Time	Average speed (metres / sec)
Johnnie	UK	500	50	$500 \div 50 = 10 \text{ m/s}$
Carl	USA	1500	2 mins 5 secs	
Kei	China	3000	8 mins 20 secs	
Levi	Netherlands	600		10 m/s
Julien	France		3 mins 20 secs	9 m/s
Albert	Belgium		1 min 15 secs	12 m/s
Mario	Italy			

*Add your own values to the bottom row

*Who had the fastest average speed over all the races? * Who was slowest?

Images from www.clipart-library.com

Literacy Challenge



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Olympic Homophones

A homophone is a word which sounds the same as another word, but it is spelled differently and means something different. For example, blue and blew, sea and see.

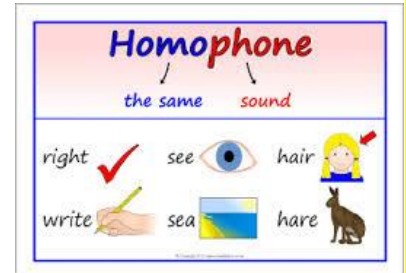


Image from www.clipart-library.com

Task 1: Read through the passage below. See if you can find all the homophones that have been used incorrectly. Underline or highlight the words that you need to change and use a dictionary to help. *If you don't have one at home, there are free ones you can use online like this one:* <https://dictionary.cambridge.org/>

Task 2: Write the edited passage out neatly on paper or type it up on a Word document. Ask an adult at home to read it over. Have you replaced all the incorrect homophones?

Team GB

Team GB stands for Team Grate Britain and our athletes have bean working very hard. They train most daze of the weak and are advised two go too bed early, often around ate O'clock. Their often up and busy before the son is up and the heir is still chilli. They must train hard whatever the whether but they must also have regular brakes so they don't get two tired.

The Olympians have to watch what they eat, avoiding two much read meet and sugar and they never drink whine.

The Team GB official sports kit is read, blew and white, no other kits are aloud.

The Winter Olympics are very exciting, and eye can't weight too sea them.