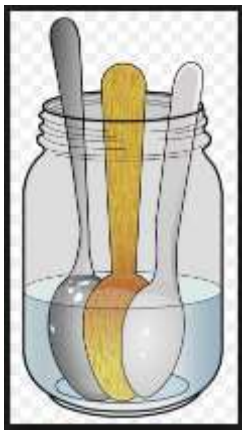
Year 5 Science – Materials

L.O To understand thermal insulators and thermal conductors.

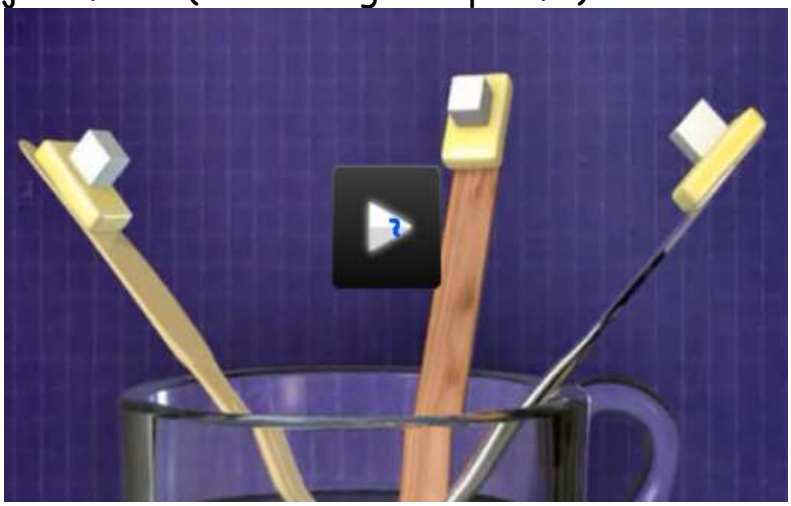
Some materials let heat move through them easily
These materials are called **thermal conductors.**

Other materials do not let heat move through them easily (they do not conduct heat well). These materials are called **thermal insulators.**



Have a go! With adult supervision!

Find a wooden spoon, metal spoon and a plastic spoon – all about the same size. Place a knob of butter on the handle of each – then place them into a jar of hot (not boiling- keep safe) water.



Observe what happens over about 20 minutes.

Which spoon allows the butter to slide first?

Why do you think that is? Make some notes and draw a diagram.

Object	Material	Thermal Insulator/Conductor	Why?
 kettle	Plastic	Insulator	To stop people burning themselves when they touch the kettle.
 baby spoon			
 table mat			
 spatula			
 oven glove			

Look at the pictures of kitchen utensils – what are they made of and why?

Have a look at this clip for a clear explanation:

https://www.youtube.com/watch?v=vfx8rVbWwmw

You could also have another look at the work we did in class on dissolving and solubility:

https://www.youtube.com/watch?v=r0nNvsB_fOw

Topic Ideas to try at home from our previous topics!

EARTH AND SPACE

- Rockets 'blast off' because hot air helps them to rise. Make a teabag rocket to see this for yourself (with adult supervision in an outdoor area). Instructions: https://www.fizzicseducation.com.au/150-science-experiments/space-science-projects/make-a-tea-bag-rocket/ Video demonstration: https://www.youtube.com/watch?v=VdzPix9CKck
- Why does the moon have craters? Model the meteorite strikes that happen on the moon at home. Instructions: https://www.fizzicseducation.com.au/150-science-experiments/space-science-projects/model-meteorite-strikes/ What do you notice about the height you drop the rock and the size of the crater you create?
- Constellations are groups of stars and/or galaxies that astronomers use to map the sky. Model the constellations in the night sky at home. Instructions: https://www.fizzicseducation.com.au/150-science-experiments/space-science-projects/constellations-in-a-canister/ (Film canister could be substituted for a toilet roll tube and a dark room – no bicarb is actually needed).

FORCES

- Gravity is a force that that pulls toward the centre of the Earth (downwards) and Isaac Newton's First Law of Motion says that once an object is moving it will continue moving in that direction unless a new force is applied. Prove this by completing the Egg Inertia challenge. Instructions: https://www.fizzicseducation.com.au/150-science-experiments/force-movement-experiments/egg-inertia/ Video demonstration: https://www.youtube.com/watch?v=6gzCeXDhUAA
- Friction is a force that happens when one surface/object meets another while moving. It opposes this and can slow objects down or stop them moving – this can be useful when designing tires on bikes and cars. Either: Test which shoes in your house create the most friction (are hardest to move) over carpet OR which surface in your house creates the most friction with a trainer.
- Air resistance (drag) is a force that acts against gravity – as an object is pulled downwards, the air resistance pushes it upwards. Air resistance is how parachutes work. Test falling paper with a small surface area (scrunched up into a ball) and a large surface area (left as a flat sheet) when dropped from the same height – what do you notice about how quickly they fall? Use what you learn to design a parachute with good air resistance. You could make your design out of anything and test it out your window (with adult supervision). https://www.youtube.com/watch?v=w4Jgh9V9gwE

BBC Bitesize has loads of good explanation videos about the different forces.