

INSULATION

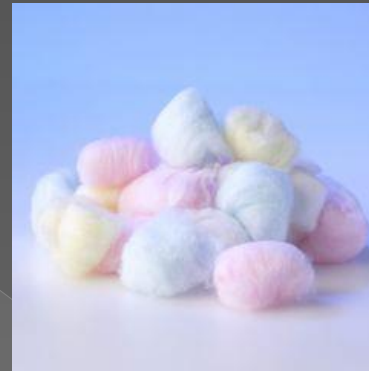
By Emily, Katrina, Elle and Isla

What is it?

- Insulation is a regular term used to describe objects that stop heat loss or heat gain by making a barrier between areas that are different in temperature.

Different Types of Insulation

- Fibre Glass
- Paper towels
- Sheep wool
- Polystyrene
- Straw
- Cotton wool
- Sand
- Pebbles
- Horse Hair



Conduction Convection and Radiation!

Radiation: 



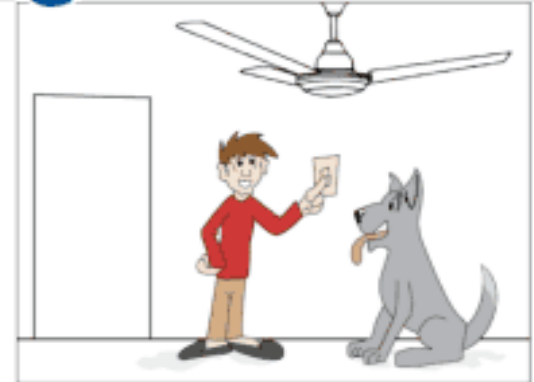
"Hey Duke, doesn't that fire feel good."

Conduction: 



"Ouch! That poker's too hot to hold with my bare hands."

Convection: 



"I'll turn on the fan. All the warmest air is up near the ceiling."

How insulation can stop these things

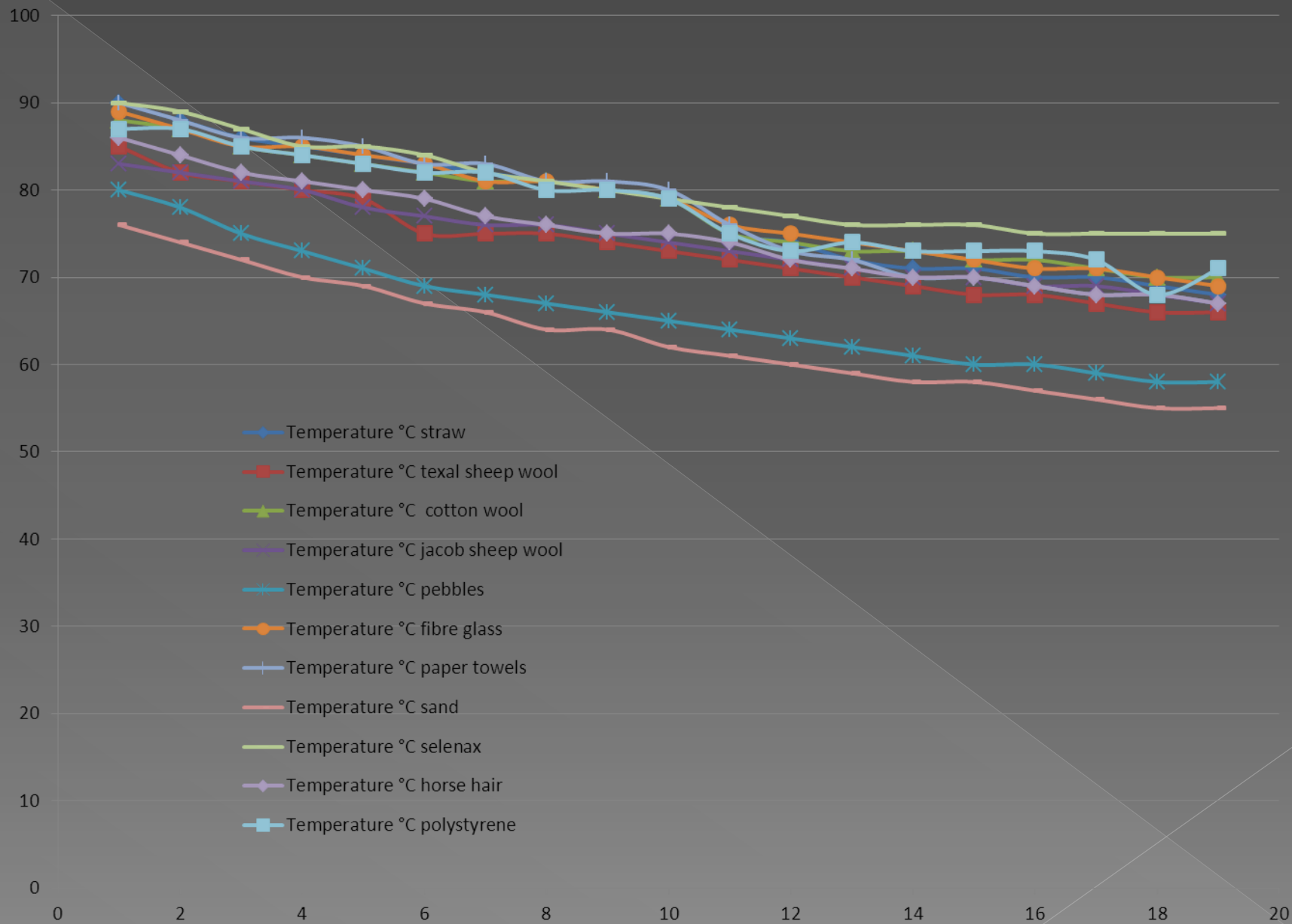
- Conduction happens in solids, Metals are good conductors and give off a lot of heat. Therefore are not good insulators!
- Convection is when heat makes the particles come apart which reduces the mass and so the lighter hotter rises. This is why putting a good insulator in the loft/ attic is really important as a lot of heat is lost through roofs.
- Convection waves make draughts so its good to block draughts form under doors to reduce heat loss!

Our Experiment!

- In our experiment we used a few metal cylinders and got a small beaker of hot water and put it in the cylinder. We then surrounded each with a different type of insulator and covered the top. We then measured the temperature every minute for 20 minutes!

Our Results...

Time	Temperature °C																					
mins	straw	texal	sheep	wool	cotton	wool	jacob	sheep	wool	pebbles	fibre	glass	paper	towels	sand	Celanex	horse	hair	polystyr	ene		
0	90		85		88		83			80		89		90		76		90		86		87
1	88		82		87		82			78		87		88		74		89		84		87
2	86		81		85		81			75		85		86		72		87		82		85
3	85		80		84		80			73		85		86		70		85		81		84
4	84		79		83		78			71		84		85		69		85		80		83
5	83		75		82		77			69		83		83		67		84		79		82
6	82		75		81		76			68		81		83		66		82		77		82
7	81		75		81		76			67		81		81		64		81		76		80
8	80		74		80		75			66		80		81		64		80		75		80
9	79		73		79		74			65		79		80		62		79		75		79
10	75		72		75		73			64		76		76		61		78		74		75
11	74		71		74		72			63		75		73		60		77		72		73
12	72		70		73		71			62		74		72		59		76		71		74
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15	70		68		72		69			60		71		69		57		75		69		73
16	70		67		71		69			59		71		68		56		75		68		72
17	69		66		70		68			58		70		68		55		75		68		68
18	68		66		70		67			58		69		67		55		75		67		71
19	68		65		70		67			58		69		67		54		74		66		70







Emily



Elle



Katrina

Pipe Insulation



Draught Excluder



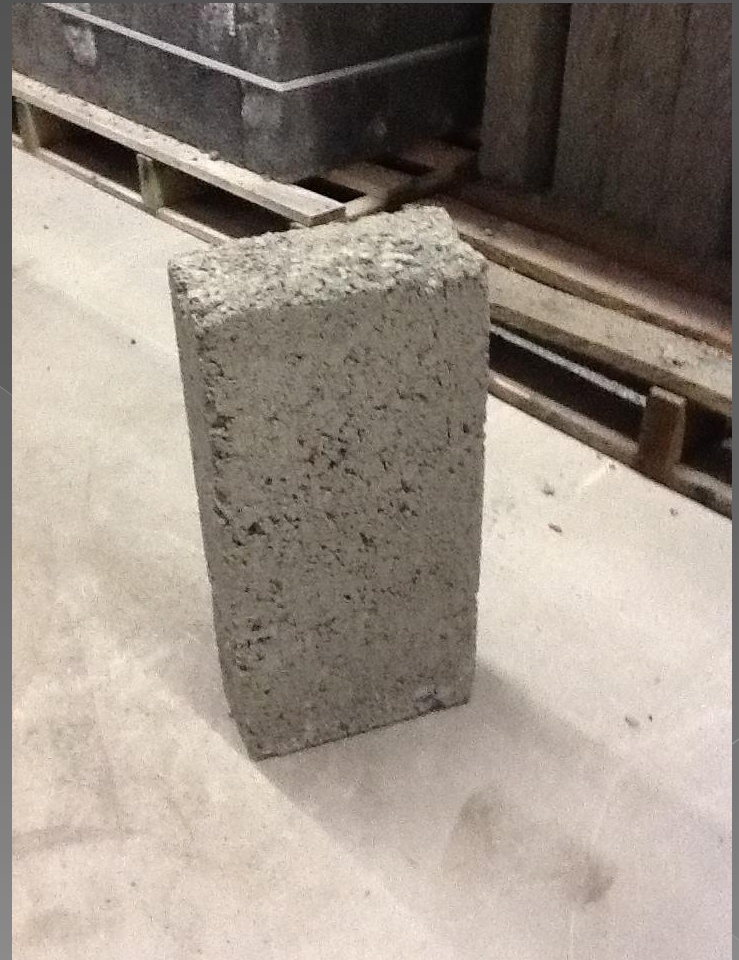
Space Blanket





Internal block (lighter)

External block (heavier)



Polystyrene





Polystyrene

Celetex

Thermal Insulation>



What we proved

- The best Insulator we found are polystyrene and cotton wool. There may have been others if we tested more insulators.



☺THANK YOU FOR
WATCHING AND
LISTENING. ☺