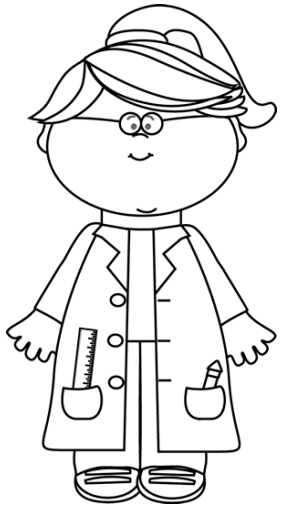
Lesson 1 Energy in Food

LO: To understand where our bodies get energy from

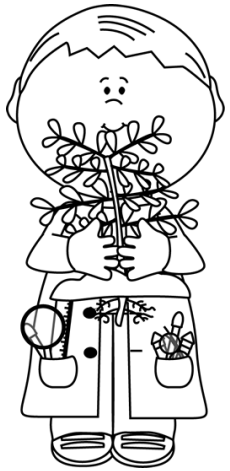
Recall where we get our energy from	
Recall the units for measuring energy is joules	
Explain why different people need different amounts of energy	

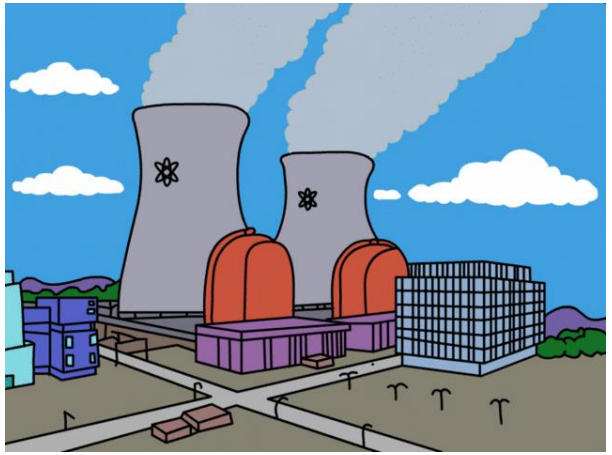
Key word

Energy

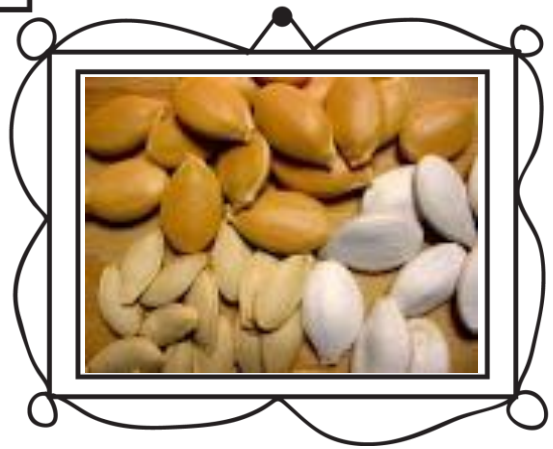


The thing that is needed to be able to do anything





These objects all contain energy



- Batteries and seeds contain stores of chemical energy
- Humans need energy to be able to live.
- Where do we get our energy from?

Why do we need energy?

- Everything we do requires energy
- Even sleeping!
- We get our energy from the food we eat.

How do we know how much energy?

Spinach & ricotta pizza

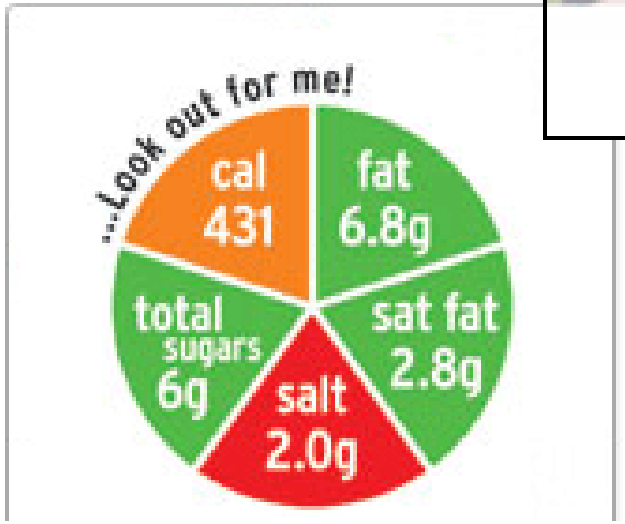
Nutrition information				Guideline daily amounts		
Typical values (cooked as per instructions)	Per 100g	Per ½ pizza	% based on 60g for women	Women	Men	Children (5-10 years)
Energy	1001 kJ 238 kcal	1977 kJ 470 kcal	23.5%	2000 kcal	2500 kcal	1800 kcal
Protein	9.3g	18.4g	40.9%	45g	55g	24g
Carbohydrate	28.7g	56.7g	24.7%	230g	300g	220g
of which sugars	2.7g	5.3g	5.9%	90g	120g	85g
of which starch	25.9g	51.2g	-	-	-	-
Fat	9.6g	19.0g	27.1%	70g	95g	70g
of which saturates	3.7g	7.3g	36.5%	20g	30g	20g
mono-unsaturates	4.0g	7.9g	-	-	-	-
polyunsaturates	1.6g	3.2g	-	-	-	-
Fibre	2.3g	4.5g	18.8%	24g	24g	15g
Salt	1.0g	2.0g	33.3%	6g	6g	4g
of which sodium	0.40g	0.79g	32.9%	2.4g	2.4g	1.4g

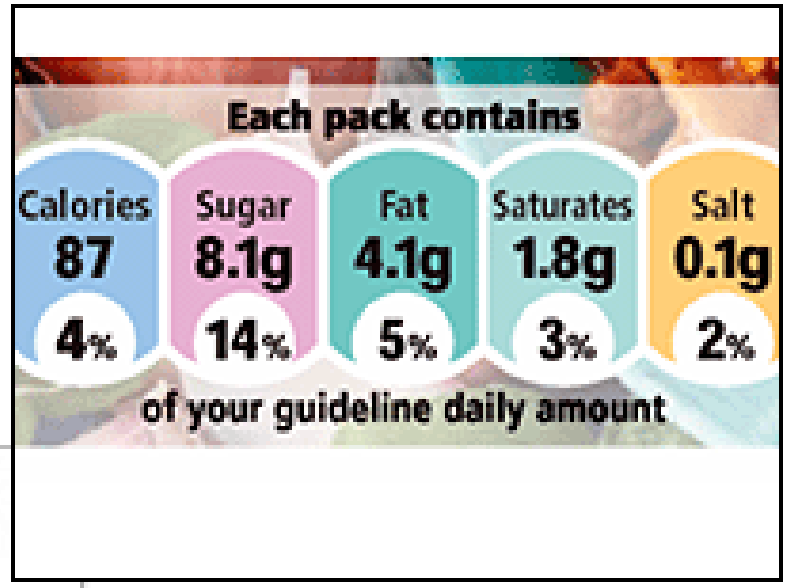
You may want to keep an eye on your **salt** intake as too much may increase your blood pressure.

It's important to watch your **calorie** intake, as without regular exercise too many may lead to weight gain.

A diet low in **fat**, particularly **saturated fat**, could help to maintain a healthy weight and a healthy heart.

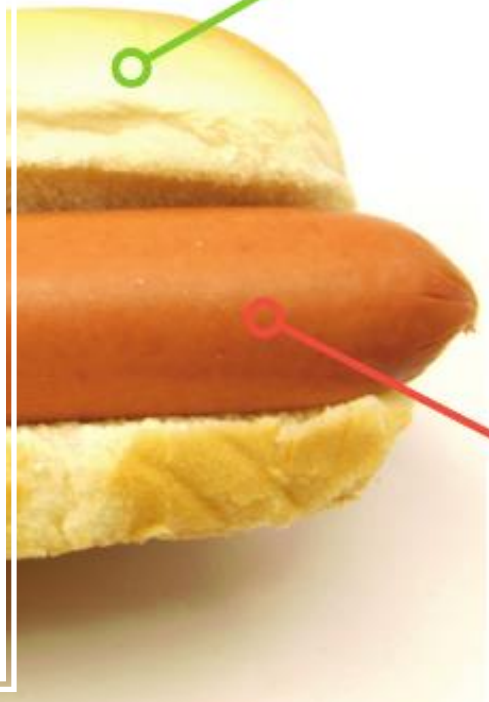
To maintain a healthy lifestyle, we recommend aiming for at least 30 minutes of moderate exercise each day, such as brisk walking.





Energy is measured in joules

- The amount of energy needed to lift an apple from the floor to the table is about 1J
- Most food contains a lot more energy so we usually measure it in KJ (Kilojoules)
- 1KJ = 1000J



Typical values	Per bun (50g)
Energy	544kJ/130kcal
Protein	6g
Carbohydrate (of which sugar)	21g (4g)
Fat (of which saturates)	2.5g (0g)
Fibre	1.2g
Sodium	0.2g

Nutrition Informatic	
Typical values	**Per hot dog sausage (50g)**
Energy	628kJ/150kcal
Protein	9g
Carbohydrate (of which sugar)	0.8g (0g)
Fat (of which saturates)	15g (4g)
Fibre	0g
Sodium	0.4g

Complete task 2 on your worksheet.

Write the names of the foods the table like this one with the highest energy food at the top.

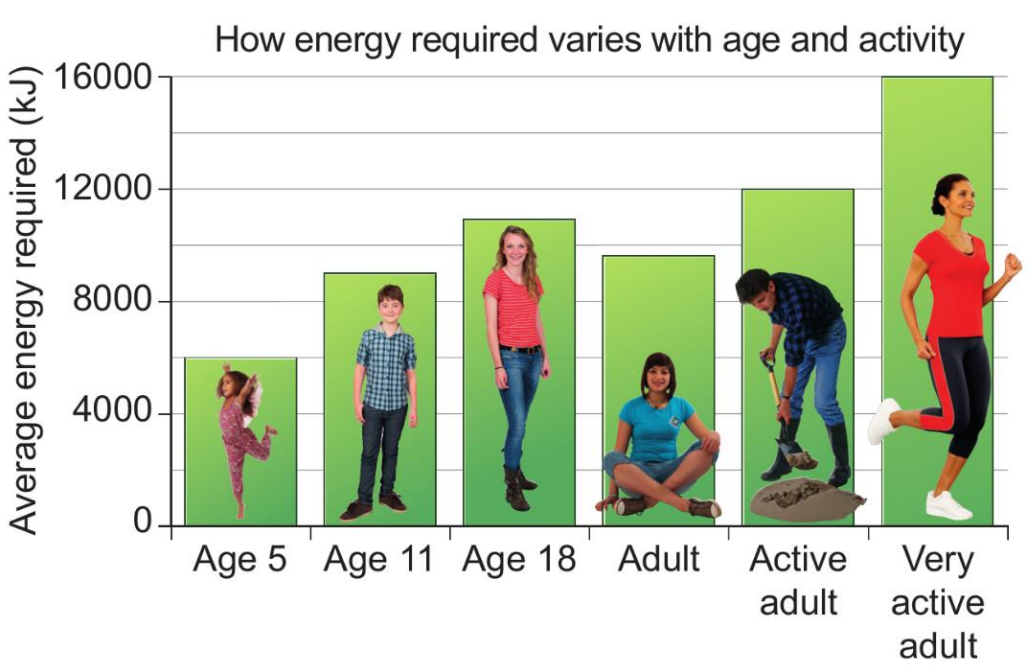
	Name of food
1	
2	
3	
4	
5	

Now read the labels and see how much energy is in each item of food.
What two units is energy given in? …….. and ……..

Not everyone is the same.....

- Different people need different amounts of energy

- If you do lots of exercise you will need lots of energy

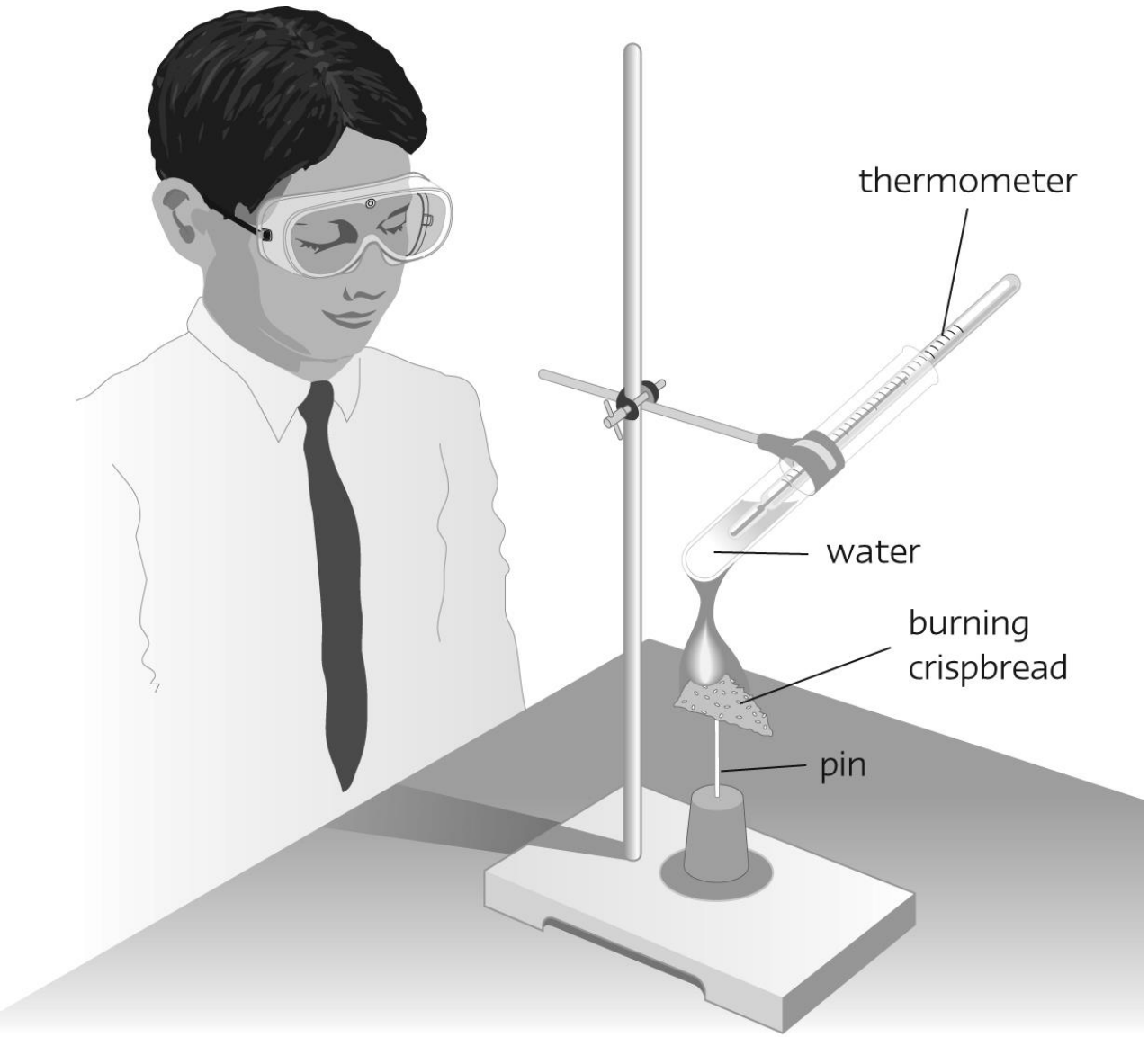


Which food had the most energy?

Possible experiment lesson 2

How to measure energy in food

- Weigh a sample of the food from your list
- Make sure you have the same mass of each food
- Put a measured volume of water into a test tube; make sure it is the same volume every time.
- Clamp the test tube securely in place, making sure that it is pointing away from you and everyone else.
- Put the first sample of food onto a pin in a cork and place it below the test tube of water (make sure it is not touching or too close).
- Take the temperature of the water.
- Your teacher will light the food sample for you.
- Watch carefully as the food burns.
- As soon as it stops burning take the temperature of the water again and record it in your table.
- Collect a fresh test tube with the same volume of water and repeat for the other food.
- Calculate how much each of the two foods made the temperature of water rise.


thermometer
water
burning
crispbread
pin

Results

Type of fuel	Mass (g)	Volume of water (cm^3)	Start temperature (°C)	End temperature (°C)	Temperature rise (°C)