

Nutrition

National curriculum objectives:

- identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat

Science in the news today

Scientists have grown meat in the lab, ready for you to eat !

Do you know how the meat you eat for dinner gets onto your plate? Well, it definitely wasn't grown by a scientist in a lab... but this could be the case very soon. A company in Singapore have figured out how to make clean, environmentally and animal friendly meat grown from just a few tiny cells. At the moment they are making seafood such as shrimp and crab, but soon other meats like sausages, burgers and steaks may also be available. By the end of 2020, you might be able to eat a dumpling in a restaurant made with shrimp meat that is completely grown by scientists! The meat should taste the same as it normally would but it is healthier, better for the environment and kinder to animals. However, it is currently very expensive to make so it will be a few years before it's on your plate at home.

Here is a picture of dumplings made with lab-grown shrimp

They will be available by the end of 2020 but a single dumpling will cost a whopping \$300 !!



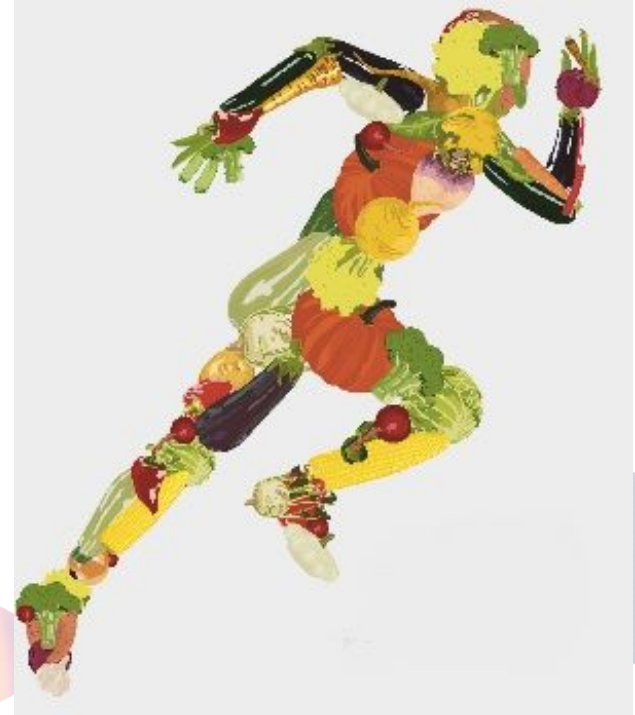
Sharas Clickz/Shiok Meats via New Scientist.

How do animals get their energy?

Food is like fuel for animals and humans, they use it to run throughout the day.

Nutrition is also important for animals to grow, reproduce, keep warm and perform normal functions.

Plants can make their own food from sunlight through a process called photosynthesis, but animals cannot do this so they must get their nutrients and energy from food.

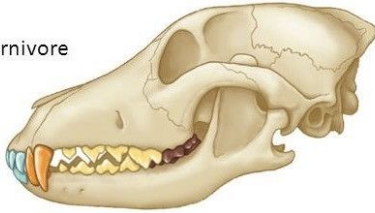


Do all animals eat the same thing?

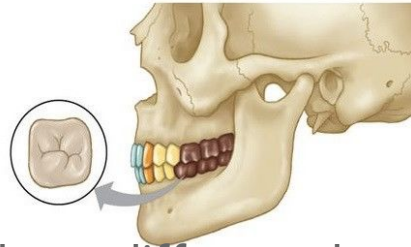
Animals can be grouped into what types of food they eat.

They are split into : Carnivores, Herbivores and Omnivores

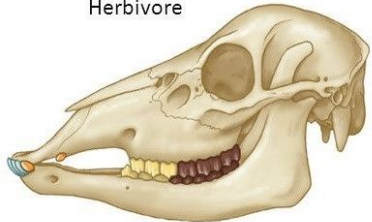
Carnivore



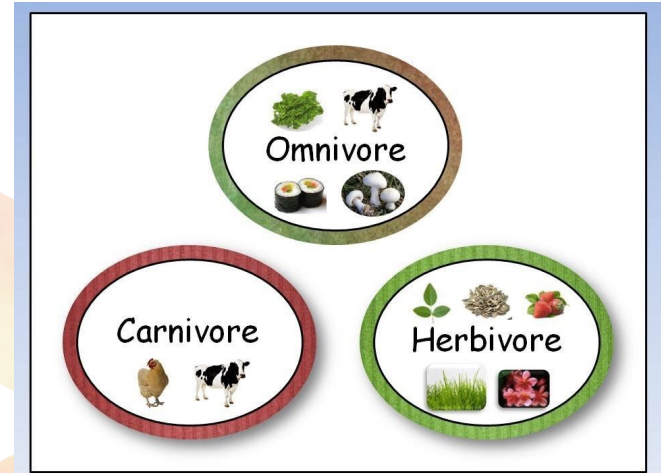
Omnivore



Herbivore



Look how the teeth are different, depending on what that animal eats.



Herbivores

Herbivores eat only plants.



Crickets, cows, elephants and giraffes are all herbivorous.



Carnivores



Carnivores only eat meat; they have to hunt other animals for food.

Lions, sharks, eagles and spiders are carnivorous.



Omnivores

Omnivores eat both plants and meat.

Humans, bears, pigs and chickens are all omnivores.



The human diet

Humans need certain food groups to stay fit and healthy.

We also need to keep a balanced diet, which means we need different amounts of each group in each meal.

The three main food groups are carbohydrates, proteins and fats.
Other essential nutrients include vitamins, minerals, fibre and water.



carbs



proteins



fats

The food pyramid

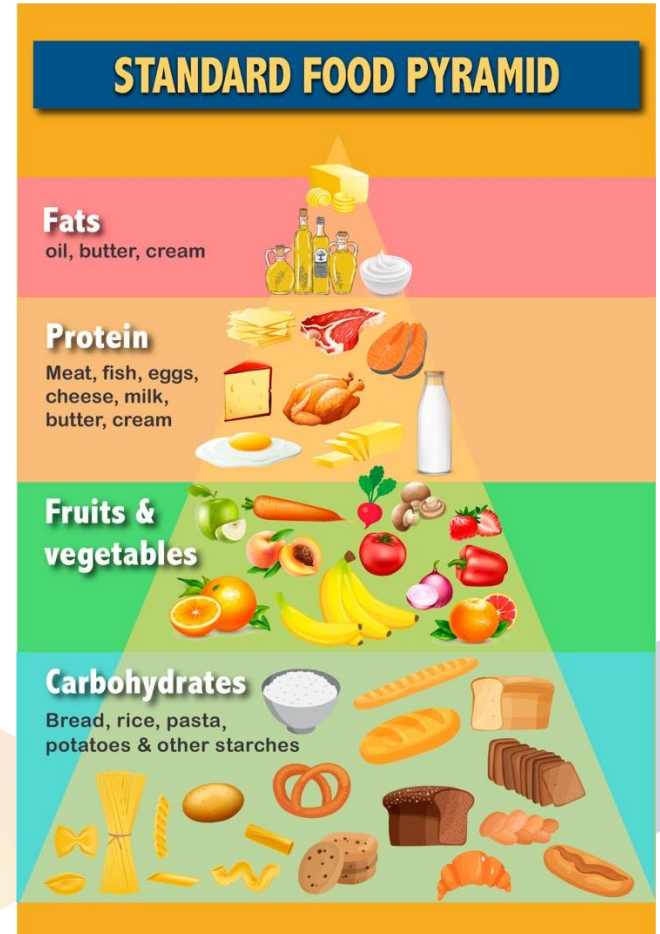
Foods like butter and cream contain lots of fats.

Foods like meat, fish and eggs contain lots of protein.

Foods like bananas, onions, mushrooms and carrots a good source of vitamins and minerals.

Foods like grains, cereals, vegetables and fruits contain lots of carbohydrates.

We should eat more of the food groups at the bottom of the pyramid and less of the ones at the top.



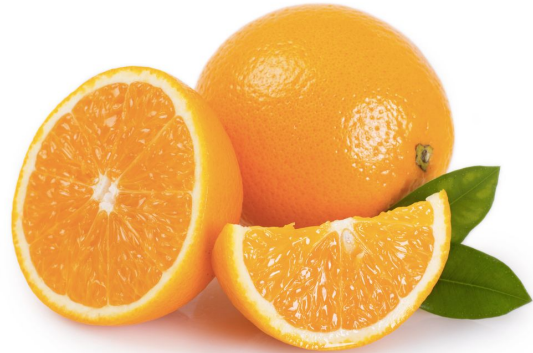
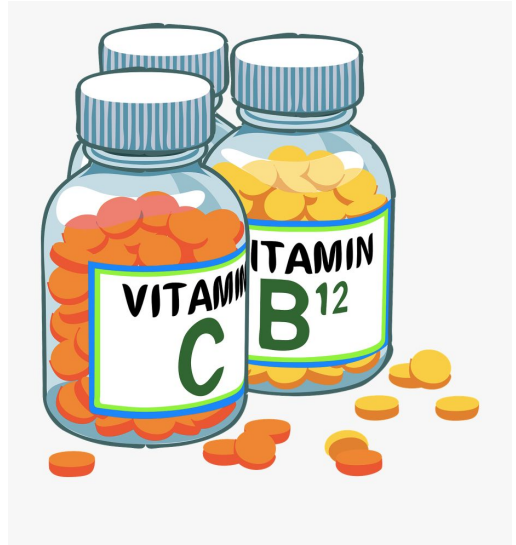
Vitamins and minerals

Different types of foods also contain special chemicals called vitamins and minerals, which keep your body strong and healthy.

Your body cannot make its own vitamins and minerals so we must get lots of them from the foods we eat.

Milk contains lots of vitamin D which helps keep your teeth and bones strong.

Citrus fruits like oranges and lemons contain lots of vitamin C which help you fight infections.



The importance of a balanced diet

It is important to eat the right amounts of each food group, and vitamins and minerals to keep your body and mind healthy, get better sleep, fight infections and have the right amount of energy.



Design a meal based on the food pyramid

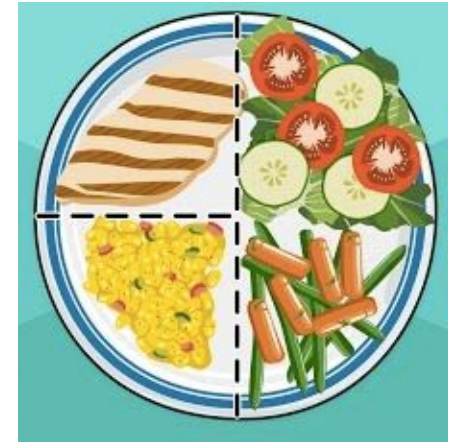
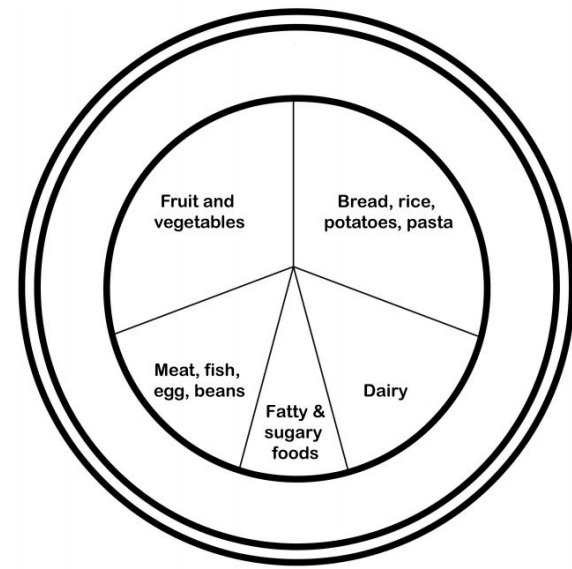
What do you need?

- Paper plate or a piece of paper cut into a circle
- Pen
- Coloured pencils (optional)

Instructions:

1. First draw sections onto your plate as shown in the diagram
Top tip – Draw the biggest sections for the fruits, vegetables and carbohydrates!
2. Next, draw different types of foods into each section making sure they are part of the right food group
Top tip – make sure the foods also have a good mix of protein, carbohydrates, and fats!
3. Then, colour in your foods to make your plate come to life !

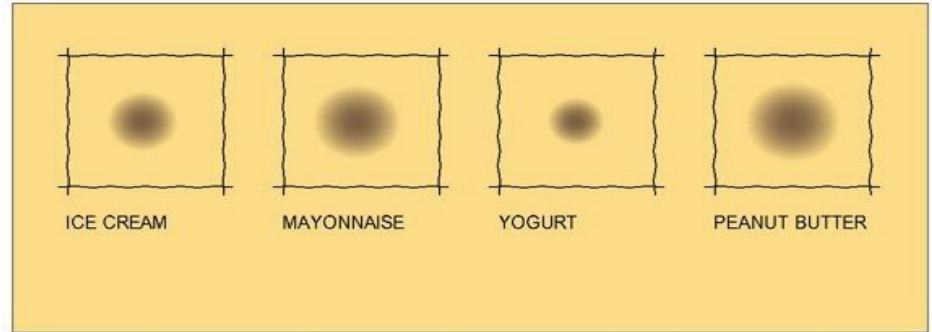
We would love to see the ones you've made, so please take a photo and send it to outreach@sciencecreates.co.uk.



Try it at home- How much fat is in your foods?

What do you need?

- Food items (a mixture of solid and liquid ones)
- Cutting board and knife (always ask an adult)
- Brown paper bags or white or brown paper
- Pencil
- Marker pen
- Timer
- Ruler



Instructions:

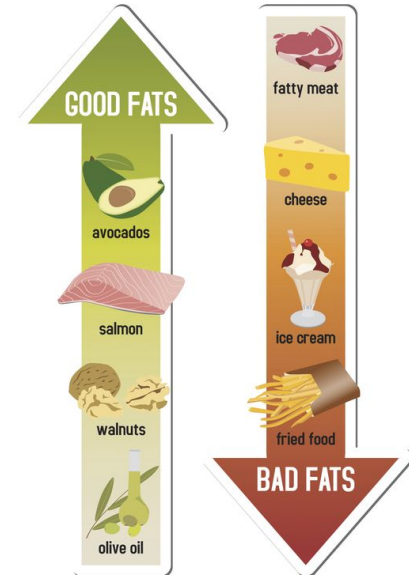
1. First, ask an adult for supervision as you slice up the solid food items into similar sized pieces (you could even measure out eat food item to be more precise).
2. Next, divide your brown paper bag into squares with a marker pen, and label each square with a different food.
3. Then, place each food item in the corresponding square and start the timer.
Top tip – if the food is a liquid, drop a small amount into the square, making sure each liquid makes roughly the same size drop.
1. Let the food sit on the paper bag for 5-10 minutes.
2. After this, take the foods off the bags and let the paper sit for around 30 minutes.
3. Finally, measure the diameter of the circles created by the fats in the food and note them down
Top tip- you can also note down the colour of each circle to see what type of fat the food contains

SEE THE NEXT PAGE FOR WHAT YOUR MEASUREMENTS MEAN!

Try it at home- How much fat is in your foods?

What do your measurements mean?

- Which foods left a stain on the paper after they dried?
- Which foods left the largest circles? (The ones with the biggest stains contained the most fat).
- What colours are the fats that stained the paper? Some of them may be colourless and some may be coloured like yellow or white
- The colour of the stain may indicate whether or not the fat is a healthy fat or unhealthy fat. Foods like butter, red meat and cheese may leave a coloured stain and contain some unhealthy fats. Foods like fish and nuts contain healthy fats and may leave a colourless stain
- Did some of the foods contain no fat? (Foods like fruits and vegetables usually do not leave any stains).
- For an extra challenge, try testing regular versions and 'low fat' versions of the same foods and see if there is a difference in how much of a stain they leave on the paper.



GOOD FATS vs. BAD FATS