

The Body and Medicines



Introduction

Hi, I'm Dr Sally Freeman



I am a lecturer in Medicinal Chemistry in the School of Pharmacy at the University of Manchester which means that I teach pharmacy students about how medicines are discovered, what they are, how they are made and how they can cure disease.

I also do drug discovery research into treatment of diseases, including cancer.

When I was at primary school I used to think that pharmacists (also confusingly called chemists) were simply shop assistants and would have the same training as someone that sells you some eggs or strawberries! I now know that pharmacists study for 5 years to develop the necessary skills to advise you on your health.

I hope you have fun finding out more about medicines and how important they are.

Hello. My name is Dr. Bipasha Choudhury



I am a Senior Lecturer in Anatomy in the Faculty of Biology, Medicine & Health, here at The University of Manchester. This means I teach our students all about the human body. I used to work in hospitals as a doctor looking after poorly patients. I use the knowledge I learned there to teach our students why anatomy is so important and also fun!

We are very lucky to have a dissecting room where cadavers (dead bodies) are kept under strict rules and regulations. In this way, our students can explore and learn about anatomy first hand. We have many plastic models also to help our students learn.

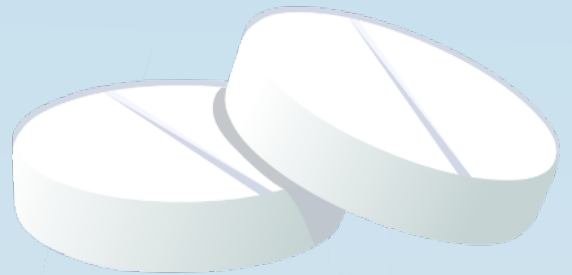
I hope you will enjoy and have fun learning all about the human body and why anatomy is so important for everybody to understand.

Pharmacy as a career.....

If you studied pharmacy at university you would become a pharmacist. Pharmacists are the experts in medicines who sometimes advise GPs or the hospital doctor on the correct treatment for a patient. On the high street, retail pharmacies or 'chemists', exchange a prescription from the doctor for the required medicine.

Pharmacists also advise the public on how to treat minor problems, for example verrucas and head lice. They also encourage people to live healthily, for example they can advise people how to stop smoking and advise why it is important to eat lots of fruit and vegetables.

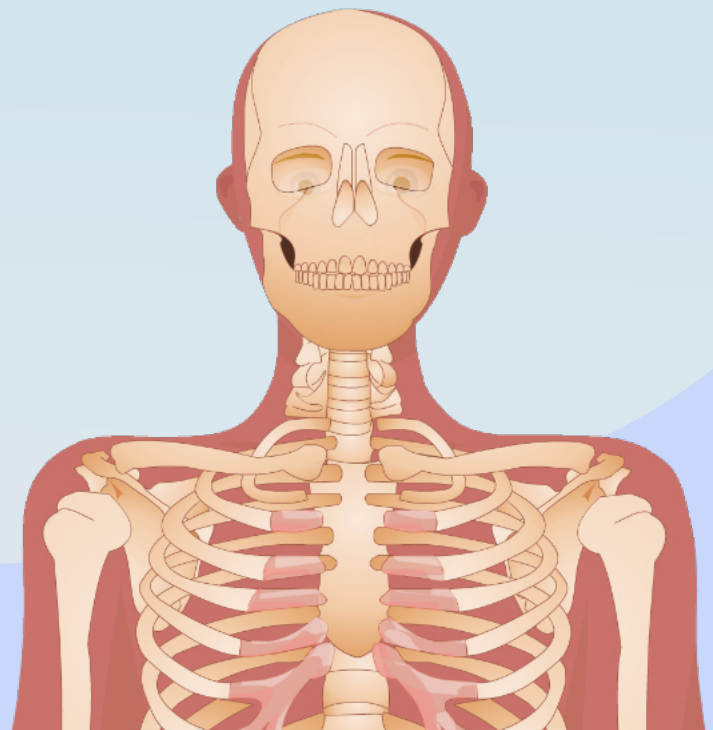
If you enjoy science and would like to contribute to keeping people healthy, then pharmacy may be the job for you. It is a good career for both men and women: 60% of the students on the University of Manchester pharmacy degree are women.



Anatomy as a career.....

It isn't only doctors who have to learn the anatomy of the human body – lots of other professionals like dentists, nurses, life scientists, physiotherapists need to know how the body is structured too, to do their jobs properly.

At Manchester we teach anatomy to students on many different degree programmes: Anatomical Sciences, Medicine, Dentistry, Optometrists, Midwives and many more.



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Diagnosing illness

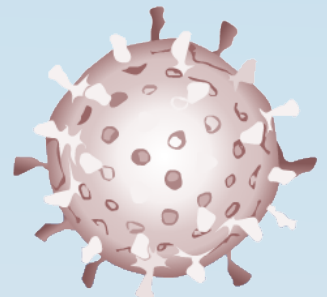
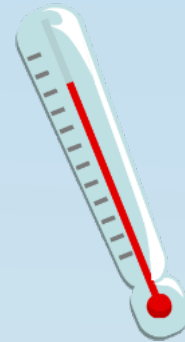
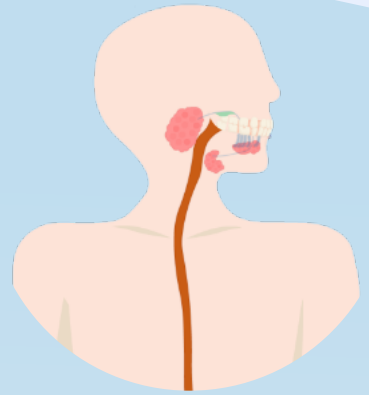
Types of illness

Treating illness

Good and bad drugs

Drugs wordsearch

Types of illness wordsearch



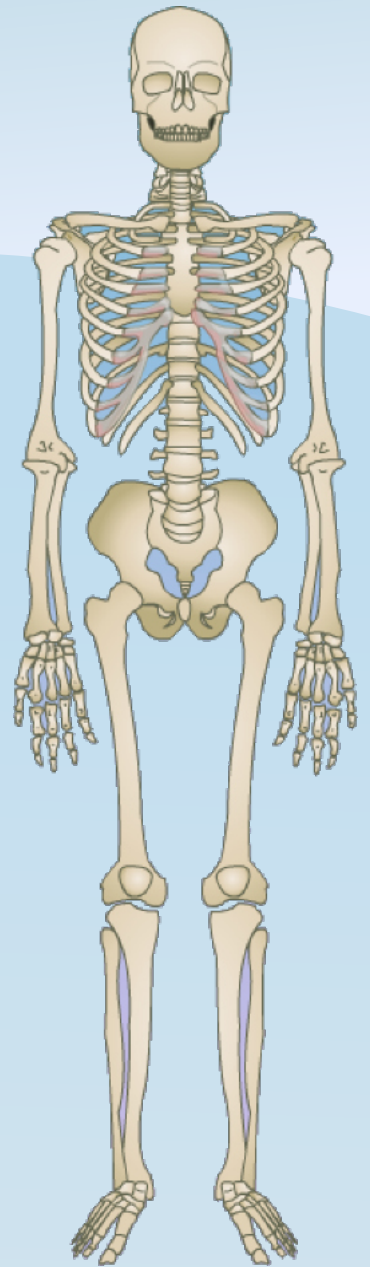
The Skeleton

Bones are rigid and strong and make up the scaffolding for your body called the skeleton. When you are fully grown your adult skeleton has 205 bones.



Learning about bones is called osteology, so you're on your way to becoming an osteologist, that's an expert in bones!

In a living person bones are not hard and brittle. They have many blood vessels that run through them and are really quite soft.



Bones come in all shapes and sizes. This is one way we sort them into groups or classify them:

Long Bones:
Like those in our limbs.



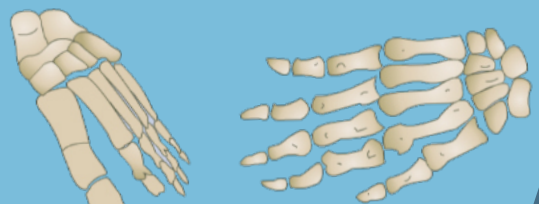
Sesamoid:
These look like sesame seeds, like the patella in the knee.



Flat Bones:
Like those in the skull.

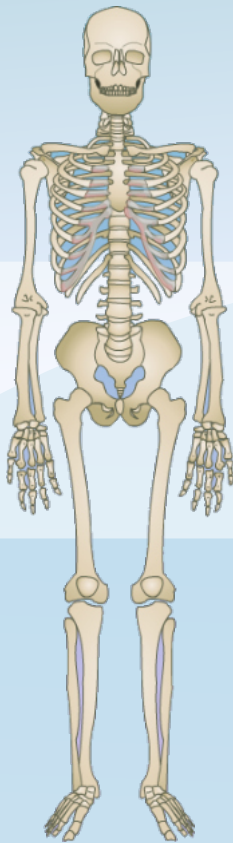


Short Bones:
Like those in the foot and wrist.

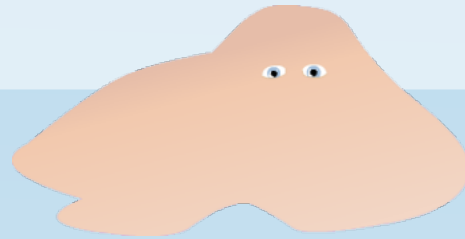


Uses of Bones

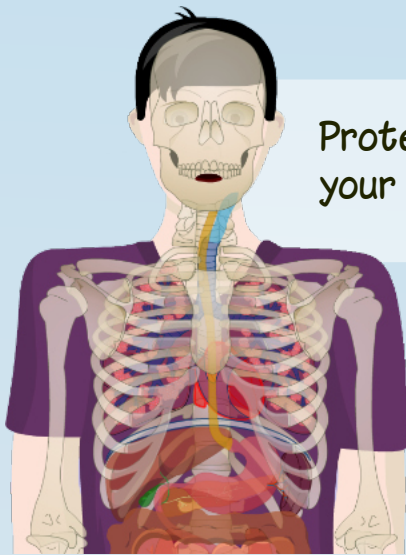
Your skeleton and bones:



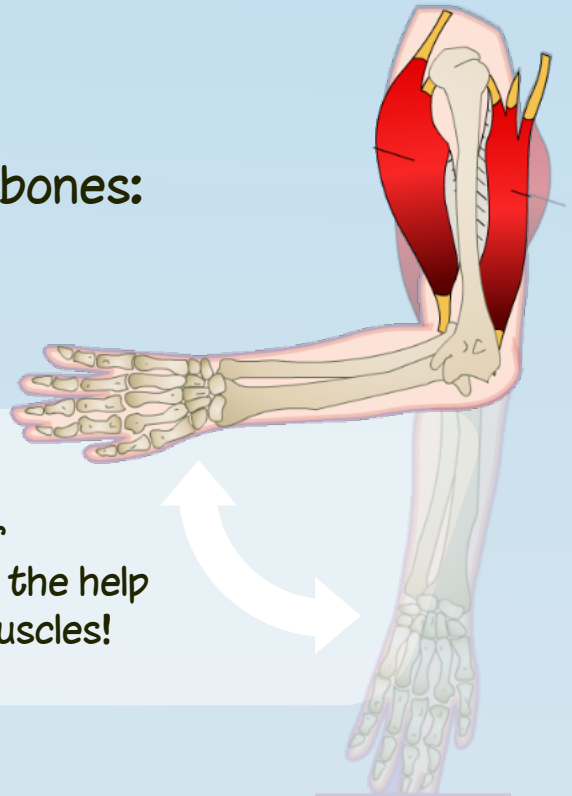
Give your body its shape and supports your body. Without it you would look very different!



Your skeleton and bones:

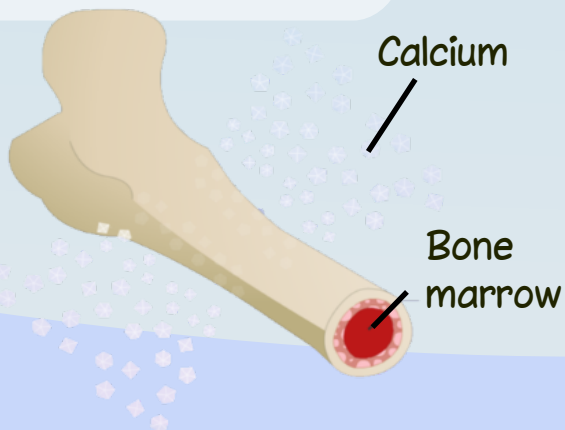


Protect your insides!

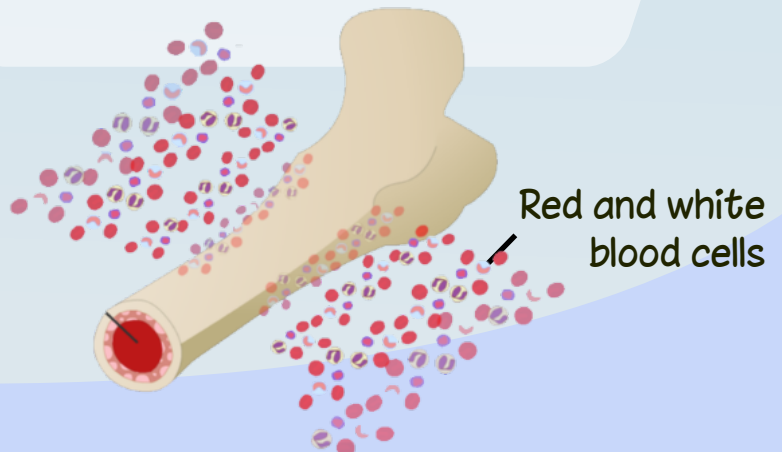


Move your body with the help of your muscles!

Store and release minerals like calcium

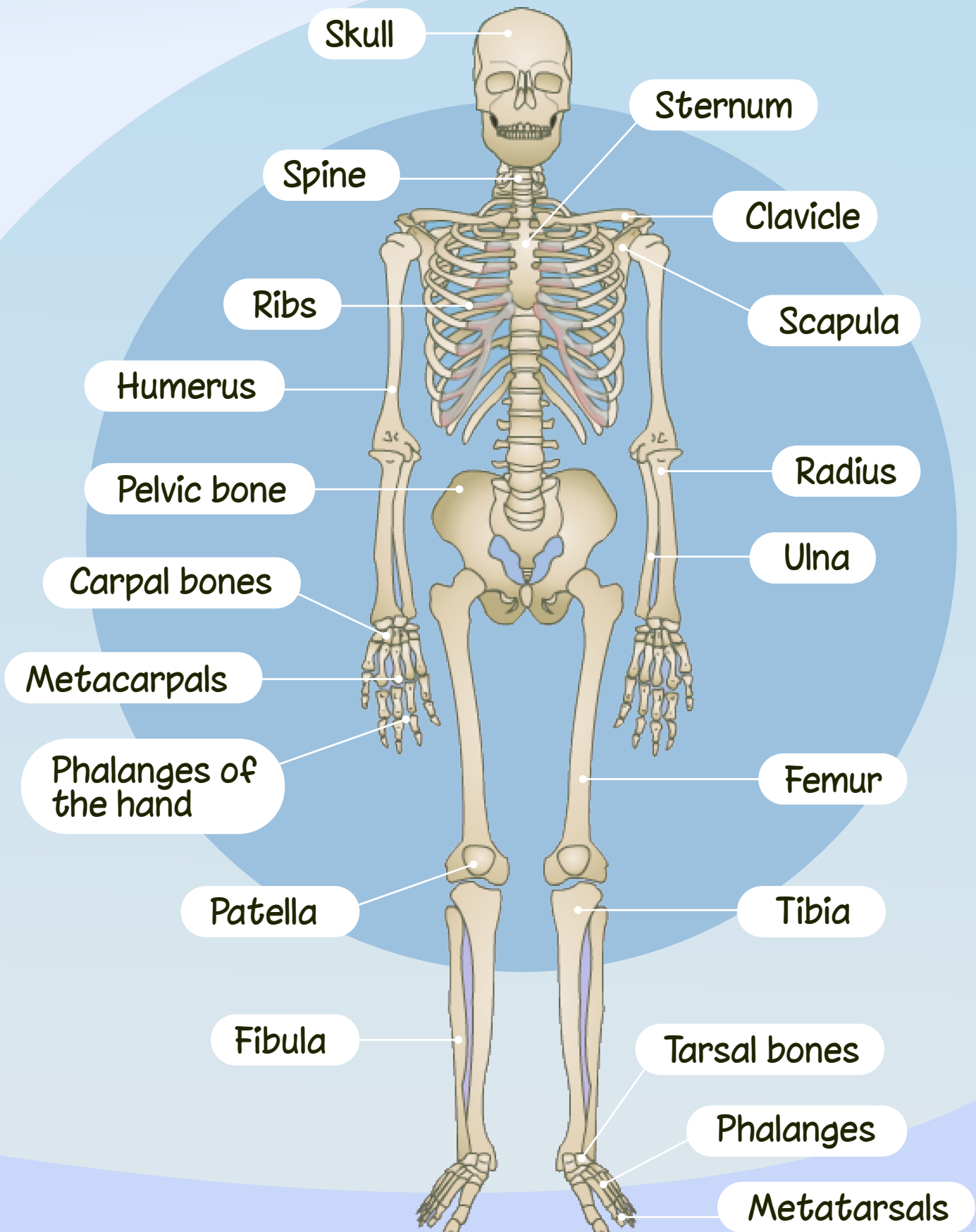


Make red and white blood cells in the bone marrow



Know Your Bones

All the bones in your body have been named by anatomists.



The Spine.

The spine is made up of 33 bones called vertebrae (plural). Each vertebra (singular) has a big hole in the middle for the spinal cord. **The spine has two natural curves - can you feel yours?**

The Skull

The skull is made up of 22 bones and is really important as it protects your brain.

The Sternum.

The sternum is also called the breast bone. Try and feel the little dip at the top of your sternum. You can also feel the bottom of your sternum. Remember, the sternum, ribs and part of the spine make up the rib cage.

The Ribs.

We have 12 pairs of ribs, that's 24 ribs in total. Some people may have an extra rib in their neck. The ribs protect many organs including the heart and lungs. You can feel your ribs moving in and out when you breathe.

The Clavicle.

The clavicle is also called the collar bone. You can feel it at the top of your body running out to your arm. The collar bone is easily fractured when you fall on an outstretched hand. Can you think why?

The Humerus.

The humerus is the largest bone in your arm. It connects to the scapula, the radius and the ulna.

The Scapula.

The scapula is also called the shoulder blade. You can feel your scapula sticking out if you reach behind your back.

The Pelvis.

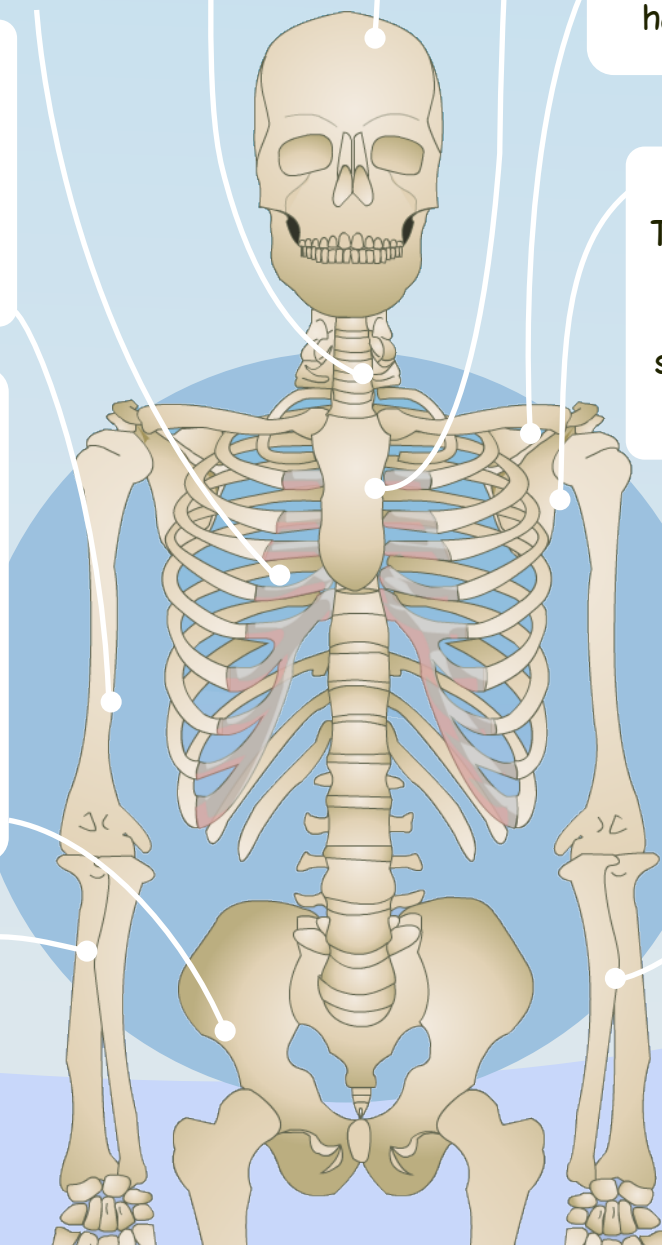
The pelvis is also known as the hip bone. It is made of many different bones joined together. A man's pelvis is much narrower than a woman's pelvis, can you think why?

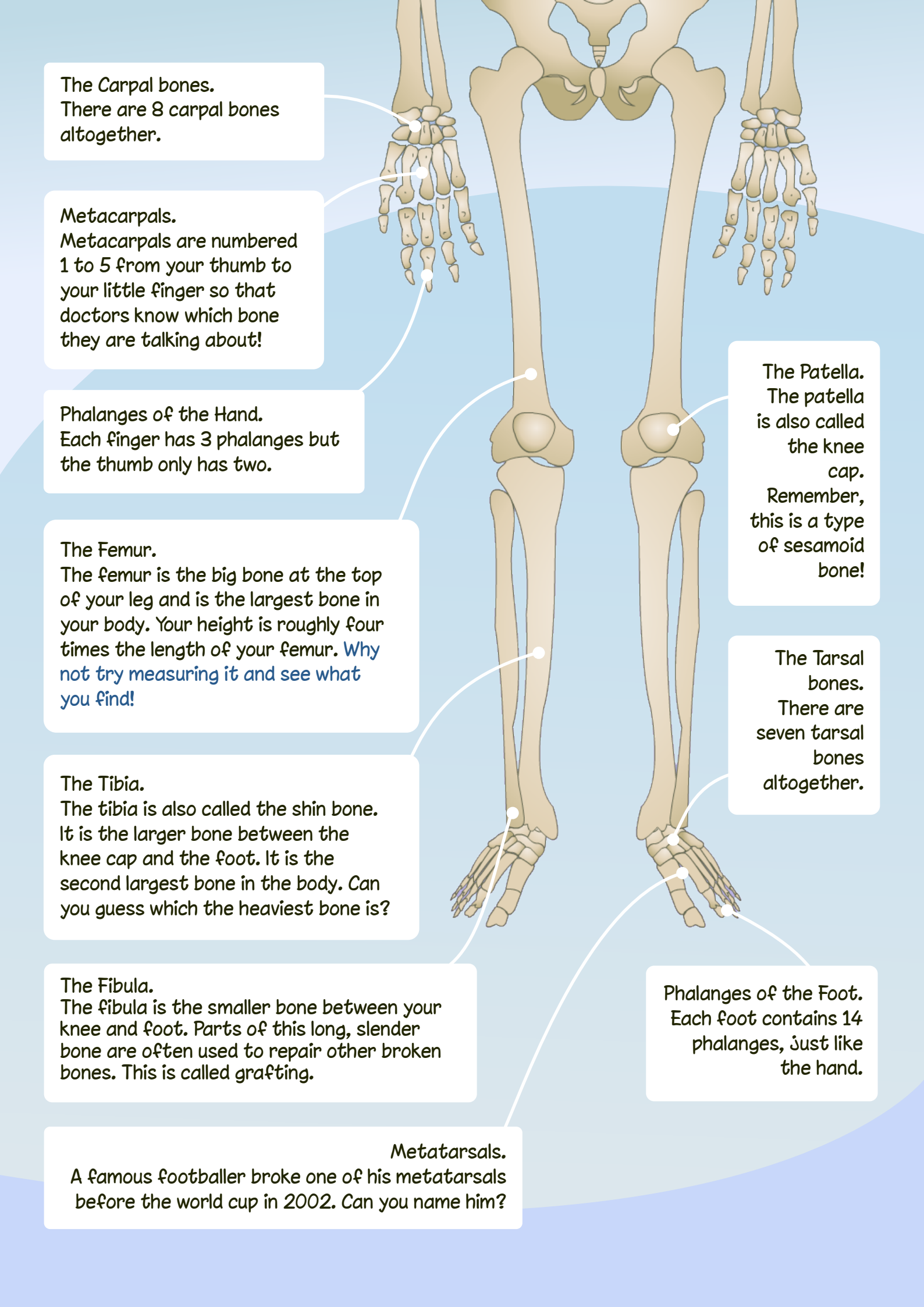
The Ulna.

The ulna is the smaller of the two bones between your elbow and your wrist. **Can you feel the pyramid shaped end of your ulna when you bend your arm?**

The Radius.

The radius is the larger of the two bones between your elbow and your wrist.





The Carpal bones.
There are 8 carpal bones altogether.

Metacarpals.
Metacarpals are numbered 1 to 5 from your thumb to your little finger so that doctors know which bone they are talking about!

Phalanges of the Hand.
Each finger has 3 phalanges but the thumb only has two.

The Femur.
The femur is the big bone at the top of your leg and is the largest bone in your body. Your height is roughly four times the length of your femur. **Why not try measuring it and see what you find!**

The Tibia.
The tibia is also called the shin bone. It is the larger bone between the knee cap and the foot. It is the second largest bone in the body. Can you guess which the heaviest bone is?

The Fibula.
The fibula is the smaller bone between your knee and foot. Parts of this long, slender bone are often used to repair other broken bones. This is called grafting.

Metatarsals.
A famous footballer broke one of his metatarsals before the world cup in 2002. Can you name him?

The Patella.
The patella is also called the knee cap. Remember, this is a type of sesamoid bone!

The Tarsal bones.
There are seven tarsal bones altogether.

Phalanges of the Foot.
Each foot contains 14 phalanges, just like the hand.

Build a Skeleton

Use the clue to find the correct bone and complete the skeleton.

Clue 1.

This is the largest bone in your arm.



Fibula



Ribs



Tibia



Humerus

Clue 2.

Also known as the shin bone, this is the larger bone between the knee cap and the foot.



Femur



Tibia



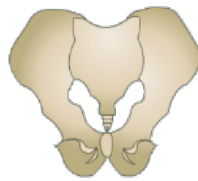
Phalanges of the hand



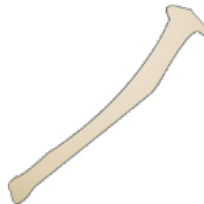
Clavicle

Clue 3.

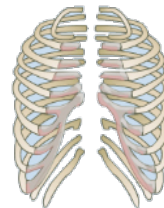
Also known as the hip bone, this bone is much narrower in a man than a woman.



Pelvic bone



Ulna



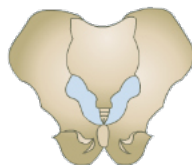
Ribs



Fibula

Clue 4.

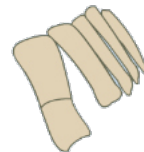
Each finger has 3 of these - except the thumb which has 2.



Pelvic bone



Patella



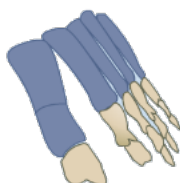
Metatarsal bones



Phalanges of the hand

Clue 5.

Often used to repair other broken bones, this is the smaller bone between knee cap and foot.



Phalanges of the foot



Radius



Humerus



Fibula

Clue 6.

You can feel these short bones sticking out just below your neck.



Metacarpal bones



Clavicle



Phalanges of the hand



Radius

Clue 7.

This is the smaller of the two bones between your elbow and your wrist.



Carpal bones



Femur



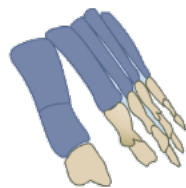
Radius



Ulna

Clue 8.

There are 8 of these bones in each hand.



Phalanges of the foot



Radius



Carpal bones



Spine

Clue 9.

You can feel these sticking out if you reach behind your back.



Scapula



Tibia



Clavicle



Tarsal bones

Clue 10.

David Beckham broke one of these short bones before the 2002 world cup.



Scapula



Ulna



Femur



Metatarsal bones

Clue 11.

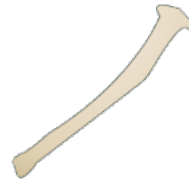
This is the largest bone in your body, its length is about one quarter of your total height.



Humerus



Patella



Ulna



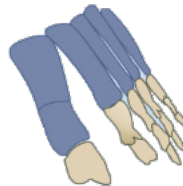
Femur

Clue 12.

Protecting your spinal cord, this is made of 33 bones called vertebrae.



Patella



Phalanges of the foot



Tarsal bones



Spine

Clue 13.

This is the largest of the two bones between your elbow and your wrist.



Humerus



Radius



Metatarsal bones



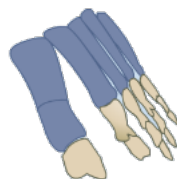
Ribs

Clue 14.

There are 14 of these short bones in your feet.



Patella



Phalanges of the foot



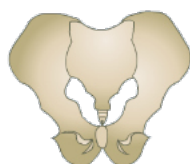
Sternum



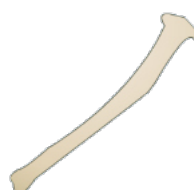
Humerus

Clue 15.

Protection for your heart and lungs, you have 12 pairs of these so 24 in total.



Pelvic bone



Ulna



Ribs



Fibula

Clue 16.
Also called the
breastbone, this
makes up part of the
rib cage.



Skull



Metacarpal
bones



Sternum



Tibia

Clue 17.
There are seven of
these bones in each
foot.



Tarsal
bones



Carpal
bones



Ulna



Fibula

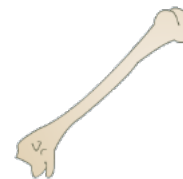
Clue 18.
Protection for your
brain, this is made of
22 bones!



Metacarpal
bones



Skull



Humerus



Clavicle

Clue 19.
This sesamoid
bone is also called
the knee cap.



Metacarpal
bones



Spine



Carpal
bones



Patella

Clue 20.
The doctor
numbers these
bones in your
hand 1 to 5 so
they know
which is which.



Clavicle



Femur



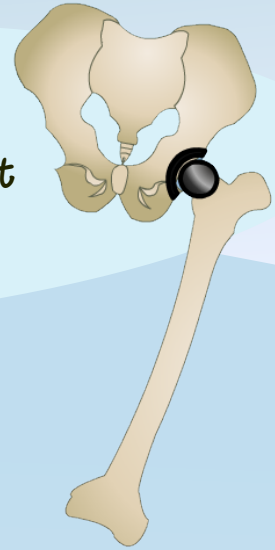
Metacarpal
bones



Phalanges of
the hand

Did You Know?

A Professor from Manchester called John Charnley invented the hip replacement procedure in the early 1960's.



Quiztime!

1. There are 12 pairs of these making 24 in total:

- A) Phalanges
- B) Ribs
- C) Metatarsals

2. How many bones are there in an adult skeleton?

- A) 205
- B) 300
- C) 305

3. Learning about bones is called...

- A) Osteology
- B) Osentatious
- C) Oswestry

4. Which type of bones look like a sesame seed?

- A) Short bones
- B) Seaweed bones
- C) Sesamoid bones

5. What are bones used for?

- A) Support, protection, digestion
- B) Support, movement, protection
- C) Support, protection, sanitation

6. Which is the largest bone in your body?

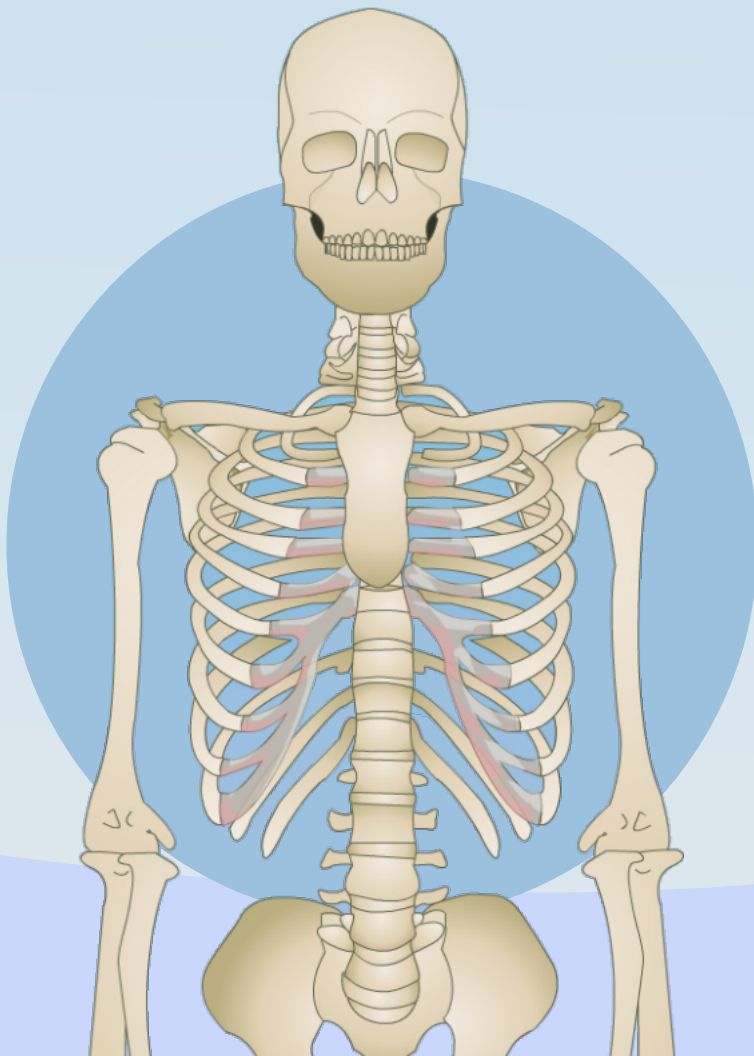
- A) Femur
- B) Radius
- C) Humerus

7. How many vertebrae are there in your spine?

- A) 22
- B) 27
- C) 33

8. What are the name of the bones in your hands?

- A) Carpals, metacarpals, phalanges
- B) Tarsals, metatarsals, phalanges
- C) Carpals, metatarsals, phalanges



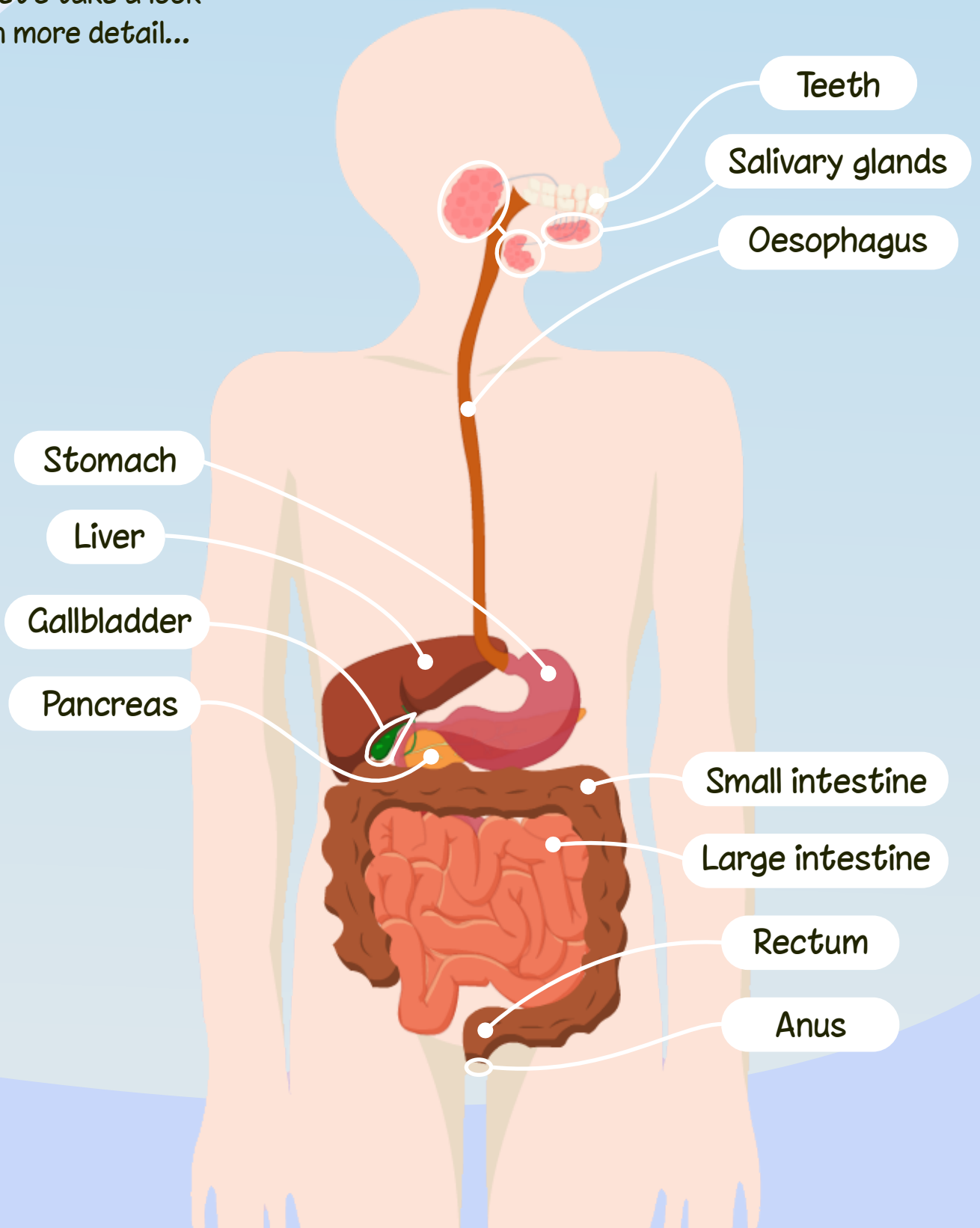
See the answers at the end of the module.

The Digestive System

The job of your digestive system is to break down the food that you eat into useful molecules.

These molecules are used to give you energy, make you grow and make your body function properly.

Let's take a look in more detail...



The Teeth

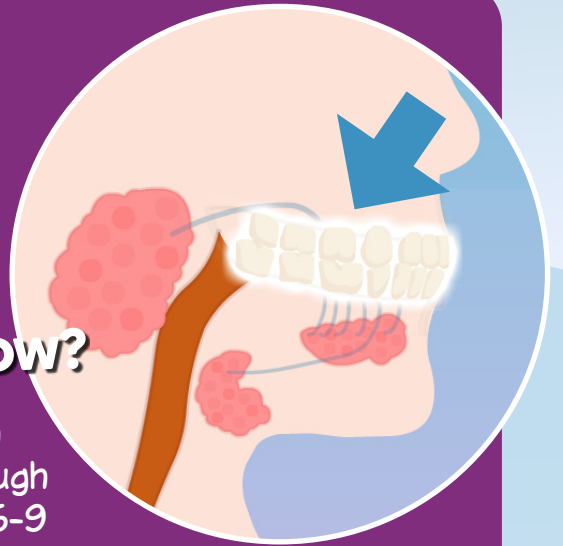
Teeth are used to chew food into small pieces and mix it with saliva with the help of the tongue, the tongue then sends this mashed up food down the oesophagus to the stomach.

Fact!

The enamel on your teeth is the hardest substance in your body.

Did you know?

Your very 1st tooth usually comes through when you are only 6-9 months old!



Salivary Glands

Saliva that contains the enzyme amylase to break down carbohydrate which mixed with food makes it softer and smoother, ready for its journey down to the stomach.

Fact!

The parotid gland, found just underneath your ear, is the largest salivary gland.

Did you know?

Large salivary glands produce between 1-1.5 litres of saliva each day!



The Oesophagus

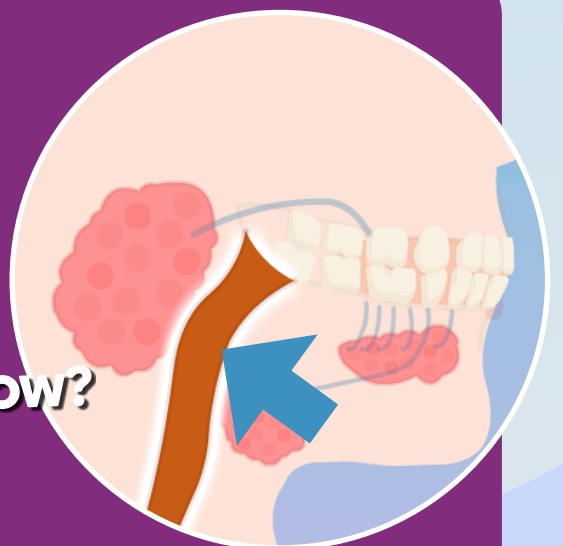
The oesophagus transports food from the mouth to the stomach. It has a band of tight muscle at the bottom to stop food from the stomach getting back into the mouth.

Fact!

The oesophagus is sometimes called the gullet.

Did you know?

The oesophagus is about 25cm long.





The Stomach

The stomach is like a food blender. It makes a milky mixture called chyme by breaking food into smaller pieces and mixing it with stomach juices. Stomach juices contain hydrochloric acid, which kills bacteria, and the enzyme protease, which breaks down most of the protein.

Fact!

The stomach is 'J' shaped.

Did you know?

The stomach can hold 2-3 litres of food.

The Liver

The liver produces bile, which neutralises stomach acid in the intestine. Bile also breaks down, or emulsifies, fats into small droplets. The liver clears the blood of waste products and makes cholesterol and substances which help us stop bleeding.

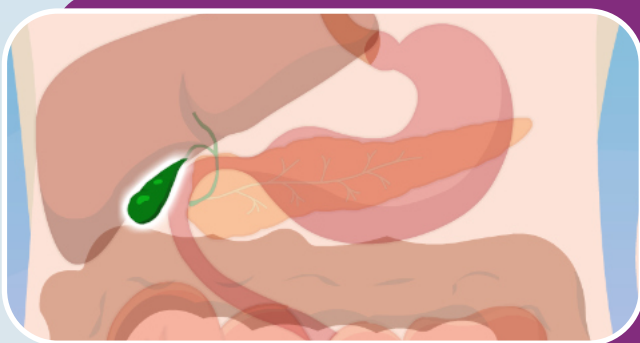
Fact!

The liver is the largest organ in the digestive system, and the second largest in the body after the skin.



Did you know?

The liver weighs about 1.4kg in a 70kg man.



The Gallbladder

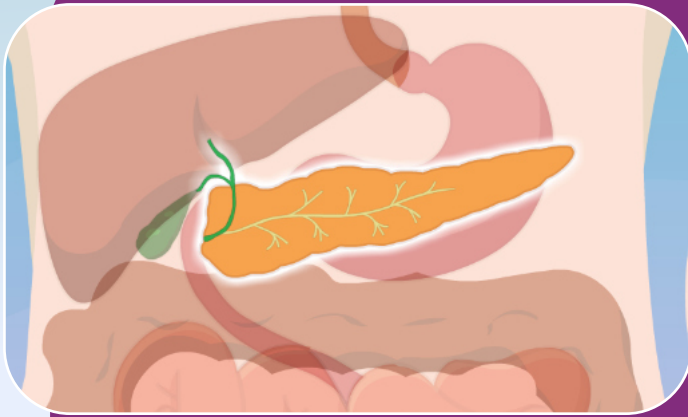
The gallbladder stores the bile that is made in the liver. When needed, bile is released into the small intestine to aid the digestion of fats.

Fact!

Food does not pass through the gallbladder or pancreas. Their job is to provide the chemicals needed to digest food.

Did you know?

Stones in the gallbladder are really common.



The Pancreas

The pancreas produces the enzymes amylase, protease and lipase, which are released into the small intestine to help break down starch, proteins and fats. The pancreas also produces insulin, a hormone which helps to control sugar levels in the blood.

Fact!

The pancreas produces 1.5 litres of pancreatic juice each day.

Did you know?

Diabetes occurs when the pancreas does not produce enough insulin. Without enough insulin, less glucose is moved from the blood into the body's cells. Diabetics often feel tired because glucose is normally broken down in the cells to release energy.

The Small Intestine

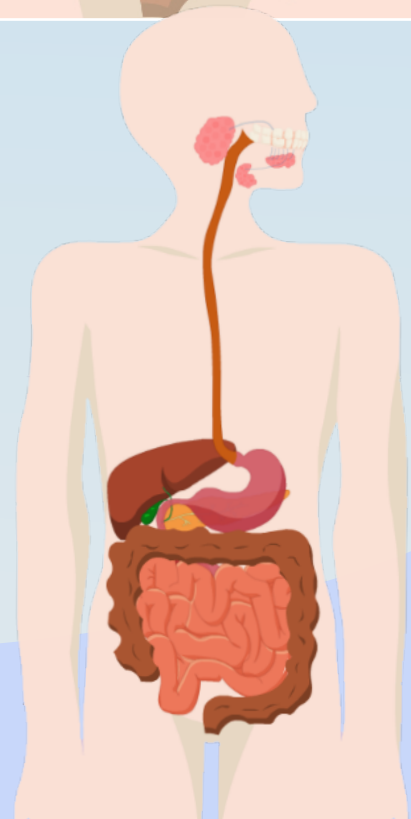
Most of the food is digested by the small intestine using enzymes from the pancreas and bile from the gallbladder. Nutrients are then absorbed through the wall of the intestine into the blood and transported around the body.

Fact!

The small intestine is made up of three parts called the duodenum, jejunum and ileum.

Did you know?

The small intestine is about 7m long. The body can still function normally even if 1/3rd of the small intestine is removed.





The Large Intestine

The large intestine removes excess water and salts from the indigestible waste material and make faeces, or poo. It contains lots of micro-organisms which help absorb vitamins from your food - as well as making some very smelly gas!

Fact!

It is made up of seven parts called the appendix, caecum, ascending colon, transverse colon, descending colon, sigmoid colon and rectum.

Did you know?

It is 1.5 metres long!

The Rectum

The rectum is the part of the large intestine which stores the faeces before they leave the body.

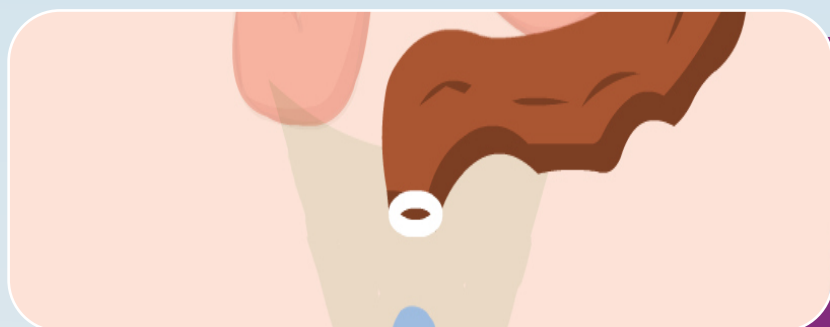
Fact!

The food has had all the useful bits taken out of it when it reaches the rectum..



Did you know?

When the rectum is full you get the urge to poo!



The Anus

The anus holds the poo in the rectum until you reach the toilet.

Fact!

When you relax the ring of muscle around the anus the poo comes out!

Did you know?

Poo contains wastes like fibre, bacteria, water and dead cells.

Quiztime!

1. Where does digestion begin?

- A) Mouth
- B) Stomach
- C) Intestine

2. Which is the largest organ in the digestive system?

- A) Liver
- B) Intestine
- C) Stomach

3. Which organ stores bile from the liver?

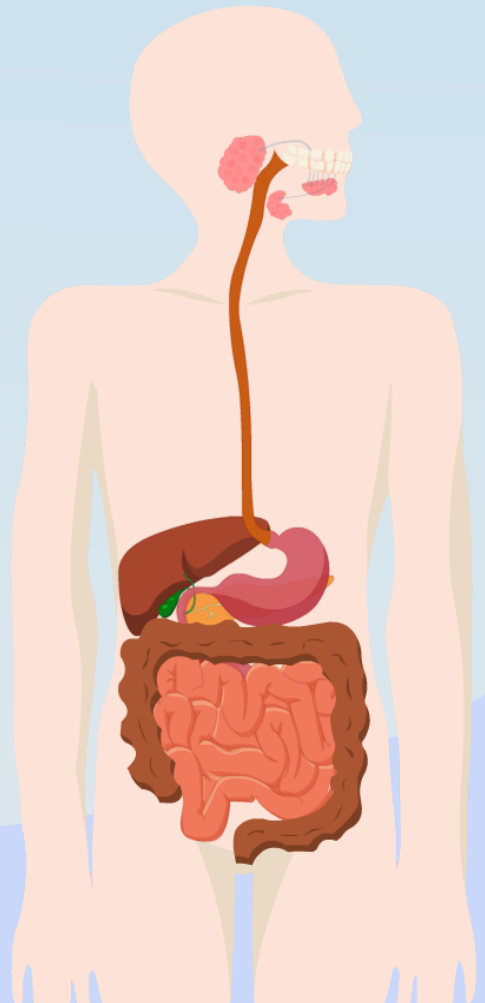
- A) Liver
- B) Gallbladder
- C) Pancreas

4. Which organ makes digestive enzymes?

- A) Gallbladder
- B) Liver
- C) Pancreas

5. Where is most of the protein digested?

- A) Stomach
- B) Small Intestine
- C) Large Intestine



6. Where does most of the digestion take place?

- A) Stomach
- B) Small Intestine
- C) Large Intestine

7. Which organ contains lots of micro-organisms?

- A) Large Intestine
- B) Pancreas
- C) Liver

8. What is the scientific term for poo?

- A) Fauna
- B) Faeces
- C) Flatulence

See the answers at the
end of the module.

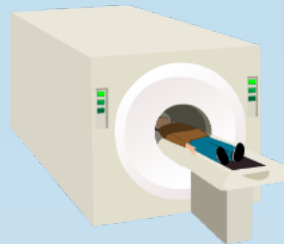


Diagnosing Illness

Have you ever been poorly?

Did you feel sick, have a headache, spots or a temperature? How can you find out what is wrong? Let's go to the doctor or perhaps to the pharmacy to find out...

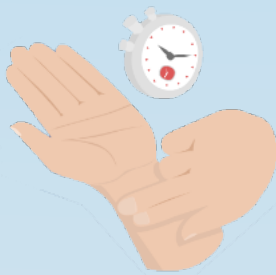
The doctor or pharmacist will ask you lots of questions and perhaps do some tests to decide what is wrong.



MRI Scan



Listen to Heart and Lungs



Pulse Rate



Peak Flow Meter



Ear and Throat Exam



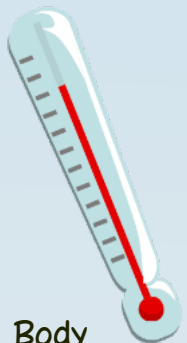
Blood pressure



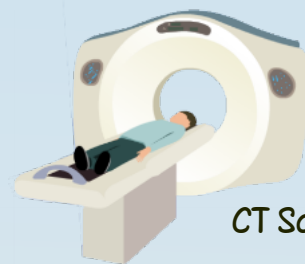
X Ray



Spots and Rashes



Body Temperature



CT Scan



Ultrasound Scan



Respiration Rate



Blood Pressure

Blood pressure is measured by an inflatable cuff placed on your upper arm.

This is called a sphygmomanometer.

When your heart contracts or beats, it pushes blood into your arteries. The pressure in your arteries is high. This is called the **SYSTOLIC** pressure.

When your heart is full of blood, there is less blood in your arteries and the pressure in your arteries is now low. This is called the **DIASTOLIC** pressure.

NORMAL blood pressure is below 120(systolic)/80(diastolic). Blood pressure between 120/80 and 139/89 is called **PRE-HYPERTENSION**. Blood pressure of 140/90 or above is considered **HIGH** blood pressure. These figures are lower for children.

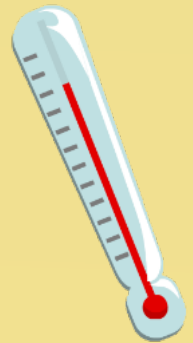


Body Temperature

Your temperature may be measured using:

- A digital thermometer in the mouth or under the armpit.
- A thermometer strip on the forehead
- An ear thermometer

Normal body temperature is 36.0-36.8 degrees centigrade. If your temperature is above 38 degrees centigrade you have a fever. A fever is also called pyrexia.



Respiration Rate

Respiration rate is the number of breaths taken per minute. Children breathe at a faster rate than adults and resting breathing rates vary considerably with age:

- For a resting adult the normal rate of breathing is 12-16 breaths per minute.
- A child in primary school typically takes between 18 and 34 breaths per minute.
- New born babies take around 50 breaths per minute.

Why not sit down and see how many breaths you take per minute?



X-Ray

X-ray machines look at what is happening below your skin. An X-ray machine can be used to take photographs of bones and the roots of teeth. The images are used to diagnose problems such as fractured or broken bones and decayed teeth.



X-ray can also be used to diagnose kidney stones and to see if the heart and lungs are the normal shape and in the right place. If children have swallowed something they should not - like ring pulls and coins - the X-ray machine can show this too!

X-ray machines are also used by security staff in airports to see what you are carrying in your suitcase!

Ultrasound Scan

When you go for an ultrasound scan, a radiographer moves a transducer, which looks like a thick pen, across your skin to get an image of what is inside your body.

An ultrasound scan uses high frequency sound waves which cannot be heard by the human ear and which are able to pass through blood, muscle or skin but not other organs. The sound waves bounce off the organs and the echo is used to create a picture or a video of the organ.



Ultrasound can also be used to detect many things such as liver and kidney cysts, count the number of unborn babies in the womb and check that the baby is healthy. The first picture of you was probably as an ultrasound scan!

Listen to Heart and Lungs

To listen to your heart and lungs, doctors use a gadget called a stethoscope which is placed on different parts of the chest.

The normal heart makes two sounds which sound like 'LUB-DUB' as the chambers of the heart contract and relax. Sometimes doctors may hear a third sound like this: LUB-SHH-DUB. This might indicate a heart murmur (which occurs if the heart valves are not opening and closing properly).



If the doctor asks you to take deep breaths in and out through your mouth, she can hear the air entering and leaving your lungs. If the lungs are full of fluid, she hears crackling sounds as air bubbles through the fluid. If they are full of infection like in pneumonia (a nasty chest infection) the lungs sound really dull, as if no air is flowing through them.

Peak Flow Meter

A peak flow meter records how fast you can breathe air out of your lungs. It is measured in litres/minute and can be used to indicate lung problems like asthma and bronchitis.



To check for asthma, a doctor may ask the patient to use a peak flow meter before and after breathing in an asthma medicine. If the peak flow rate is significantly higher after inhaling the medicine, it usually means that the patient has asthma.

Some asthma sufferers use a peak flow meter at home to monitor how well their treatment is working. To use a peak flow meter take a deep breath in, then blow hard and fast into the tube. Note the reading and then repeat this twice. All the readings should be nearly the same. Normal peak flow rates vary substantially with age, gender and size. Children have lower rates than adults.

MRI Scan

The MRI (Magnetic Resonance Imaging) scanner costs about 1 million pounds and contains a large magnet outside a big long tube which the patient has to lie in. The image from the MRI scanner is superb, it can show most organs and with a much higher picture quality than the CT scanner. It can also be used to investigate bones and joints.



The MRI scan creates a picture by measuring the amount of water in the different parts of the body.

MRI scans do not use X-ray - which can be harmful - but they are very expensive.

MRI scans cannot be used if the patient has metal in their body or if they are claustrophobic.

Pulse Rate

Pulse rate, or heart rate, measures how fast your heart is beating. Pulse rate is usually measured at the throbbing radial artery at the thumb side of the wrist.



Can you feel yours?

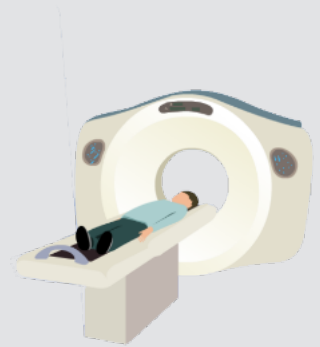
Normal resting pulse: 60-100 beats per minute.

It can be as low as 40 when asleep and as high as 220 when exercising.

CT Scan

CT stands for computerised tomography,

To have a CT scan, the patient lies down on a special bed which moves into the hole of the doughnut-shaped X-ray machine. Pictures are taken of sections of the body and this information is analysed by the computer to make a 3-dimensional image which is displayed on the computer screen.



The scan gives clear pictures of the inside of the body, for example the kidneys, liver, brain, lungs and spine so that doctors can then see whether the body is healthy or not.

The image helps the doctor to decide on the treatment for the patient.

Spots and Rashes

Different sorts of spots or rashes can help the doctor decide what is wrong with the patient.

The shape and size of the spot, where it is on your body, whether it is sore or itchy and whether it can still be seen when pressure is applied, helps the doctor or pharmacist to decide what is causing it.



Chicken pox and meningitis are two of the many illnesses which may cause a rash. With CHICKENPOX the itchy rash is made up of lots of blisters, which burst and then form scabs.

With MENINGITIS you see a rash of red or purple spots or bruises that do not fade when you press a finger against them.

Ear and Throat Examination

The doctor uses an otoscope to look into your ears. It has a special light and magnifier that lets him look into the ear canal and also at the ear drum. The light allows them to see if the ear canal and ear drum are healthy. If the drum is healthy it looks rather shiny as the light bounces back off it.



Often doctors see lots of ear wax in the canal. Occasionally the ear drum is burst and then you can look into the inner ear.

To look into the throat the doctor will gently push the tongue down (using a tongue which looks like an ice-cream stick) and shine a light into the throat. Normal throats are light pink in colour.

If you have a sore throat sometimes it looks really red. People with tonsillitis have red throats and sometimes a white pus infection) can be seen too.



Can you find the test which matches the following descriptions?



Draw a line to match the test to the description...

1. Examines bones, joints and organs using the water in your body.

2. Find out if body temperature is normal using this device.

3. Take a close look at these to diagnose measles and meningitis.

4. Measures systolic and diastolic pressures with the sphygmomanometer.

5. Use this to hear LUB DUB or LUB-SHH-DUB.

6. Measures a normal respiration rate normal at 18-34 breaths per minute.

7. Is your pulse rate normal? Use the artery in your wrist.

8. A doughnut to examine internal organs.

9. Use this to examine bones or the contents of a suitcase.

10. Use this otoscope to diagnose ear infections.

11. Check unborn babies are healthy using this ultrasound scanner.

12. Lung capacity is checked by blowing into this device.

Ear and
Throat
Exam

MRI Scan

X Ray

Blood
Pressure

Peak
Flow
Meter

Pulse
Rate

CT Scan

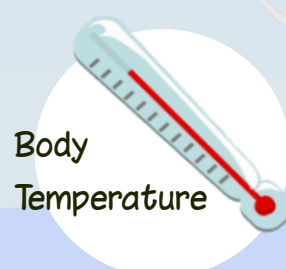
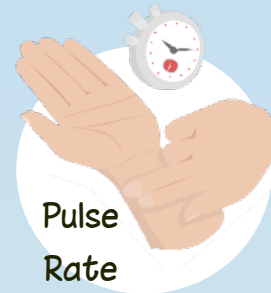
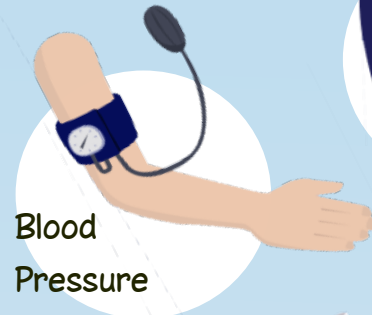
Spots
and Rashes

Listen to
Heart
and
Lungs

Ultrasound
Scan

Body
Temperature

Respiration
Rate



Quiztime!

1. Which device is used to measure blood pressure?

- A) Sphygmomanometer
- B) Endoscope
- C) Otoscope

2. Which device is used to look in your ears?

- A) Sphygmomanometer
- B) Endoscope
- C) Otoscope

3. Which device can detect a heart murmur?

- A) Endoscope
- B) Stethoscope
- C) Microscope

4. What does MRI stand for?

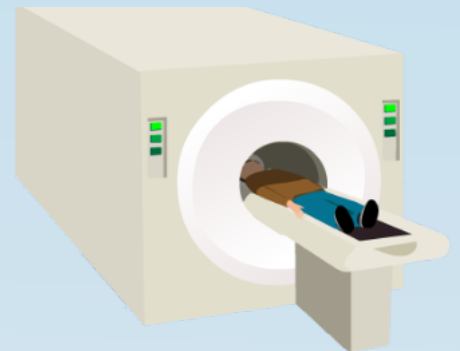
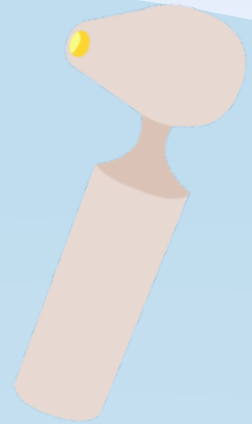
- A) Magnetic Resonance Imaging
- B) Magnetic Retro Insight
- C) Magic Roundabout Image

5. Which diagnostic machine is doughnut shaped?

- A) MRI scanner
- B) CT Scanner
- C) Ultrasound Scanner

6. Which device might be found in a hospital, dental surgery or airport?

- A) Ultrasound scanner
- B) X-Ray machine
- C) CT scanner



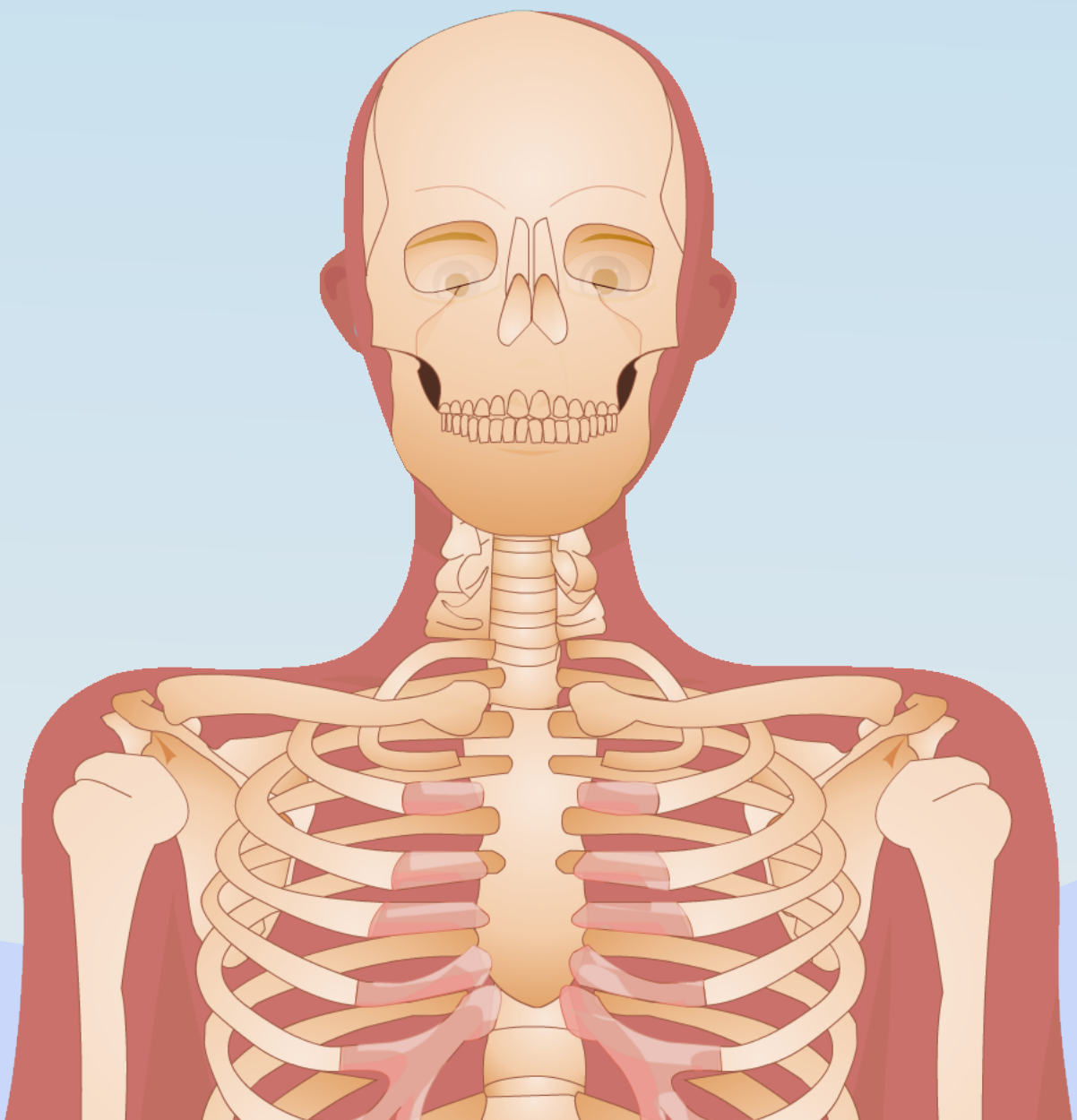
7. What is normal body temperature?

- A) 35°C
- B) 37°C
- C) 39°C

8. Which machine is usually used to look at unborn babies?

- A) CT scanner
- B) MRI scanner
- C) Ultrasound scanner

See the answers at the end of the module.



Types of Illness

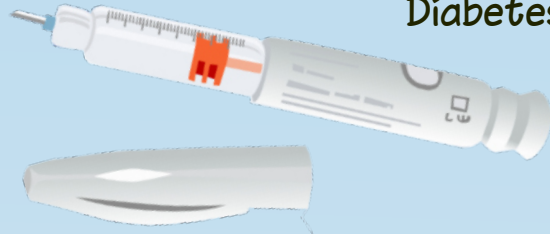
How many different illnesses do you know about?

Let's have a look at asthma, headaches and diabetes and some infections caused by bacteria and viruses...

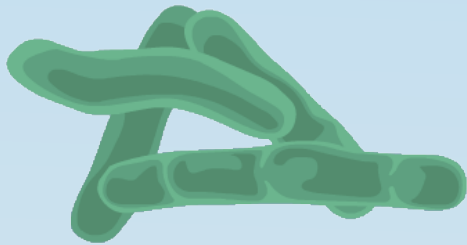
Headaches



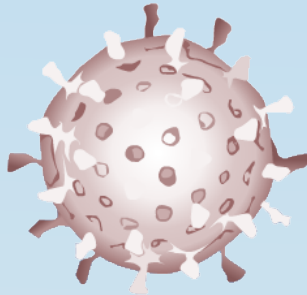
Diabetes



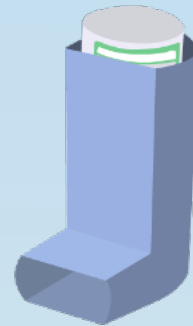
Bacteria



Viruses



Asthma



Headache

There are many different types of headaches, with many different causes. The most common is a tension headache.

Common causes of tension headaches are:

- *Lack of sleep
- *Hunger
- *Stress
- *Eyestrain



Diabetes

Diabetes affects about 2 million people in the UK and is caused by the body not being able to control the levels of sugar in the blood. Symptoms include increased thirst, more frequent passing of water, blurred vision and increased tiredness.





Insulin, which is formed by the pancreas, controls the amount of sugar in the blood. If the body does not make enough insulin, the concentration of the sugar in the blood becomes too high. This may lead to many health problems including heart attacks and damage to eye sight. If sugar levels become too low, diabetics can slip into a coma. Treatment often involves the patient checking their glucose level and taking insulin to lower the sugar levels in the blood.

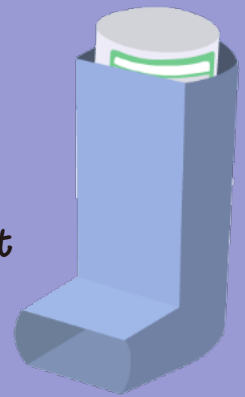
Asthma

In an asthma attack the person finds it difficult to breathe. The person wheezes, coughs and their chest feels tight.

The bronchi and bronchioles, or breathing tubes, become narrow and covered with mucus making it difficult for air to get into the lungs.

Asthma is becoming more common in children possibly because of an increase in pollution.

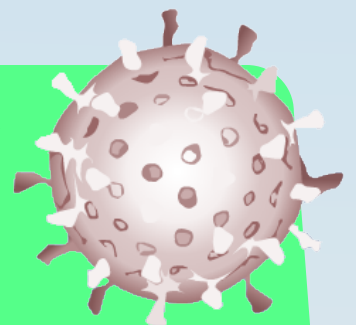
It is important that asthma sufferers follow the doctors instructions and take their inhalers regularly. This will help to keep asthma attacks at bay.



Viruses

Viruses are a major cause of illnesses such as flu, AIDS, mumps, chicken pox, warts and glandular fever. Viral infections are more difficult to cure than bacterial infections because antibiotics don't work on them.

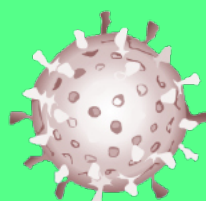
Sometimes with chicken pox the virus lies dormant (asleep) and reawakens when the person is older to give them shingles.



Chickenpox



Sore Throat



Influenza (flu)

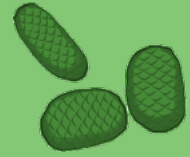


AIDS

Types of Viruses

Chickenpox

In children, CHICKENPOX is usually a mild illness with a fever and a rash. The virus spreads very readily through the air by coughing. The rash appears about two weeks after catching the virus and is made up of lots of very itchy blisters, which burst and then form scabs. You must try not to scratch the spots as this may cause scars. You are infectious 2 days before and 5 days after the rash appears and so you will need to be absent from school for approximately 1 week.



In adults, chickenpox can be more serious. It can be very dangerous to pregnant women as it can harm their unborn baby. To avoid giving chickenpox to pregnant women, children infected with the virus may not be allowed to fly.

Sore Throat

When you have a SORE THROAT, the back of your throat is swollen and red, and it can be painful to swallow food. Most sore throats are caused by viruses, for example a COMMON COLD or INFLUENZA (flu) virus.

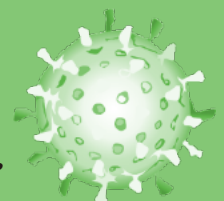


The tonsils are the small glands found at the back of the throat behind the tongue. If the tonsils are inflamed, sometimes with a white discharge too, then the sore throat is called TONSILLITIS. If a person gets tonsillitis often, then sometimes the tonsils are removed by surgery (tonsillectomy).

A sore throat can be caused by the Epstein Barr virus, which causes GLANDULAR FEVER. Symptoms may include swollen glands, a high temperature and lack of energy.

Influenza (flu)

INFLUENZA or FLU gives you a high temperature, shivers, aching muscles and makes you cough, but most people make a full recovery.



In 1918-1919 however, a really nasty sort of flu, known as Spanish Flu, killed 20-40 million people.

It is this experience that makes scientists very scared of BIRD FLU which is also called Avian Flu.

HIV/AIDS



HIV (Human Immunodeficiency Virus) is a virus that can cause a disease called AIDS (Acquired Immune Deficiency Syndrome). In the body, the immune system helps fight off nasty bugs and protects from diseases such as cancer. People who have HIV can find it harder to fight these infections because the virus can damage white blood cells in the body that help the immune system.

There is currently no cure for HIV, but there are medicines that help people with HIV to live a long and healthy life. These medicines help people with HIV so they don't develop AIDS.

Adults can get HIV through unprotected sex or sharing needles for injecting drugs. HIV is NOT transmitted through hugging, sharing food and drinks or holding hands.

Bacteria

BEFORE antibiotics, especially penicillin, became available in the 1940's, hundreds of millions of children and adults died from bacterial infections. Cholera, the Plague and Tuberculosis were very common diseases.



Cholera



Plague



Tuberculosis
(TB)



Meningitis

Types of Bacteria

Cholera

CHOLERA results in a very fast death from severe diarrhoea.

The brilliant composer Tchaikovsky died of cholera by drinking contaminated water.

After that the government realised we needed to improve the country's sanitation - a much better sewage system and cleaner drinking water were developed.



Plague

THE PLAGUE is also called the BLACK DEATH as it leaves black spots on the skin.

It is caused when fleas bite rats which are infected with the plague bacteria. The fleas then bite people and spread the plague disease to them.

The last major outbreak was the Great Plague of London in 1665-1666 which killed almost 100,000 people, about one fifth of London's population.



Tuberculosis

TUBERCULOSIS (TB) usually affects the lungs, and patients typically have a fever, feel tired, do not feel like eating and have a very bad cough. It is usually caught when someone with TB coughs or sneezes.

Many people died of TB before World War II but when vaccinations, sterilised milk and good medicines became available, the number of deaths from TB decreased dramatically.

Unfortunately TB levels are starting to rise again as bacteria are becoming resistant to the antibiotics. It is important to take the full course of any antibiotics you are given so that the bacteria do not become resistant.



Meningitis

MENINGITIS can be either a bacterial or viral infection which leads to inflammation of the coverings around the brain. Meningitis caused by bacteria is very serious and needs urgent medical treatment with antibiotics.

Early symptoms include: Fever, headaches, nausea, cold hands and feet, leg pains and abnormal skin colour.

Later symptoms include: Stiff neck, rash of red or purple spots or bruises that does not fade when you press a finger against it and sensitivity to bright light.

If you suspect meningitis you should seek help immediately.



Play at Being a Doctor

Can you match the illness with its symptom?

Illness

Asthma

Influenza
(flu)

Verruca
Virus

Stomach
Bug

Diabetes

Chicken Pox
Virus

Athletes
Foot

Head Lice

Symptoms

Difficulty
Breathing

High
Temperature

Red
Spots

Tired and
Thirsty

Tender
Black Spot

Itchy
Scalp

Sore
Itchy Feet

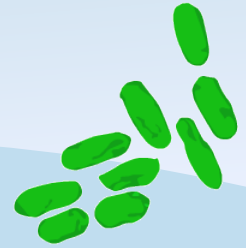
Diarrhoea



Quiztime!

1. Which bacterial infection is called the Black Death?

- A) The Plague
- B) Blackheads
- C) Tuberculosis

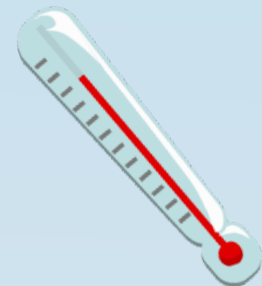


2. Which illness did the famous composer Tchaikovsky die from?

- A) Meningitis
- B) Cholera
- C) The Plague

3. Which illness causes a swelling of the coverings around the brain?

- a) The Plague
- b) Cholera
- c) Meningitis



4. How long is chickenpox usually infectious?

- a) 1 day
- b) 7 days
- c) 17 days

5. How many people died from the flu virus in 1918 and 1919?

- A) 20-40 million
- B) 120-140 million
- C) 220-240 million



6. Which illness makes it difficult to breathe?

- A) Headache
- B) Diabetes
- C) Asthma

7. Which virus causes AIDS?

- A) HIV
- B) HIB
- C) HIM

8. Which illness can lead to too much sugar in the blood?

- A) Asthma
- B) Meningitis
- C) Diabetes

See the answers at the end of the module.

Treating Illness

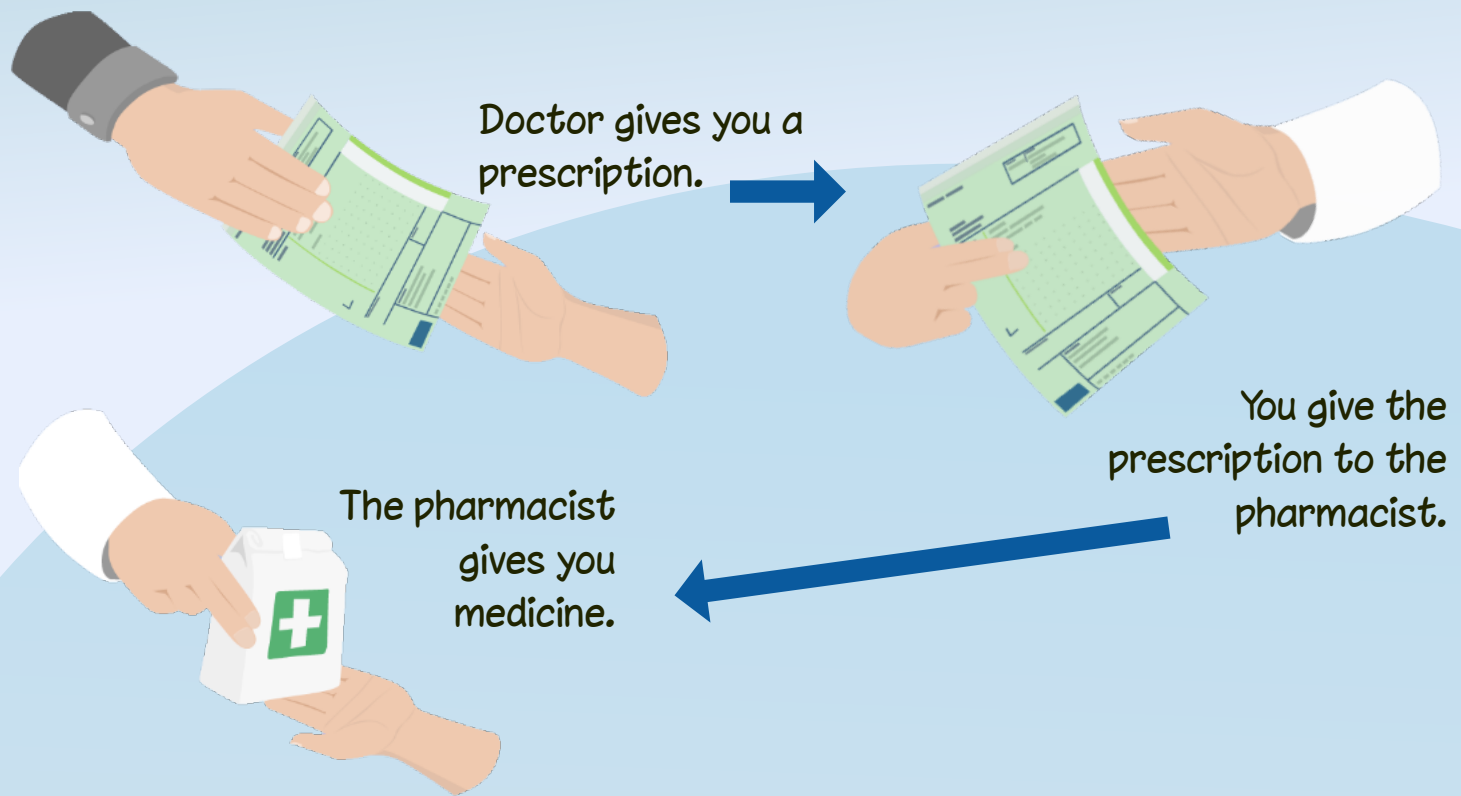
What is a prescription?

Once the doctor has decided what is wrong with you, he/she may give you a prescription. The prescription is like a voucher for the MEDICINE that will make you better.

The prescription is written by the doctor, it tells the pharmacist which medicine you need, how much you need to take and how often you should take it.



What shall I do with the prescription?



Where do medicines come from?



Scientists (e.g. chemists, biologists, pharmacists) in pharmaceutical companies make medicines.



Pharmaceutical companies supply medicine to the pharmacy, ready for you to pick up when you take your prescription.

What are medicines made from?

Most medicines are made in the laboratory by chemists, biologists and pharmacists. They need to make about 10,000 compounds before they find a medicine with all the correct properties to cure the disease.

Some medicines originally come from natural sources, for example plants and trees:



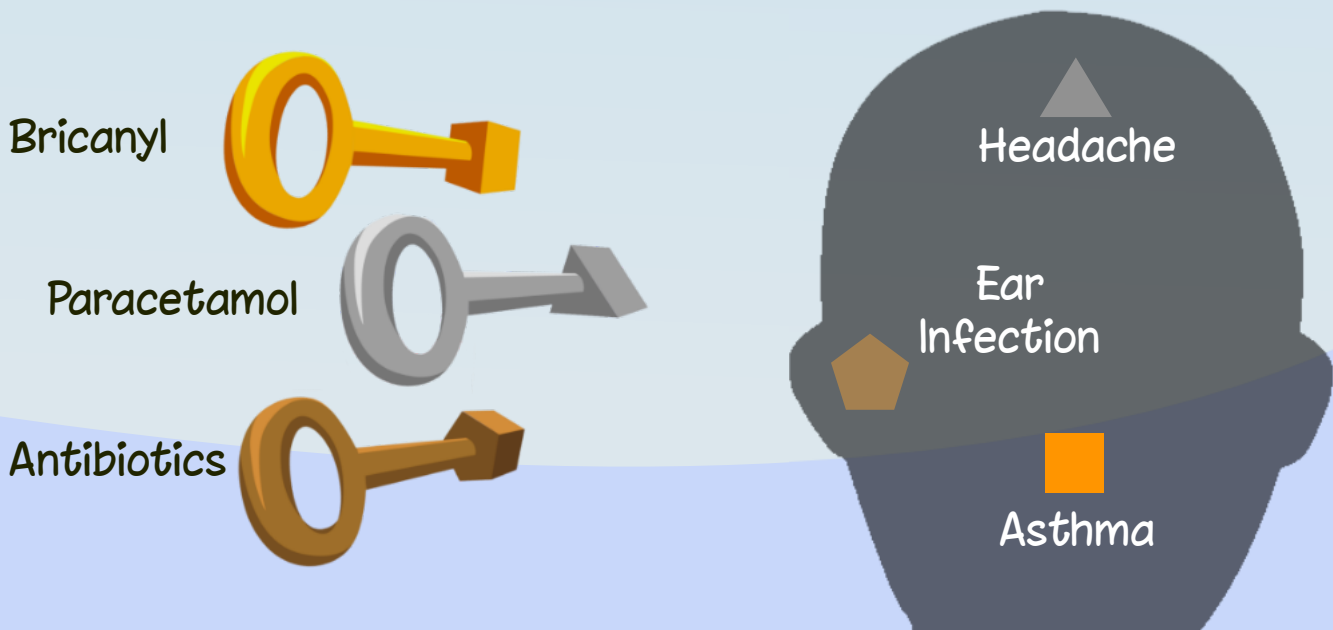
The pain relieving medicine ASPIRIN was developed from the willow tree.

The cancer medicine TAXOL was first found in the yew tree.

The heart medicine DIGOXIN was first found in the foxglove flower.

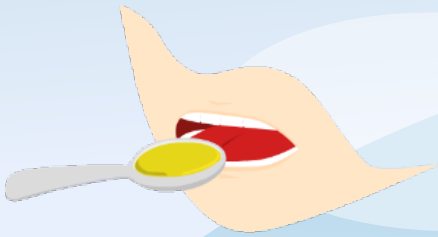
How do medicines work?

Different parts of the body have key cells called receptors which are different shapes. When something is wrong with part of your body you take a medicine which is like a key. The medicine is designed to fit perfectly into the correct receptor to make you better.



How do we take the medicine?

Medicines come in different forms. How a medicine is taken depends on the medicine, illness and patient.



By mouth as a tablet or syrup
e.g. Calpol.

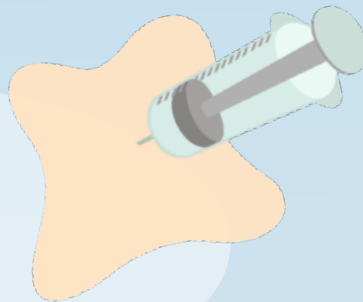
As a patch on the skin for slow diffusion into the blood
e.g. travel sickness.



As an inhaler to get the medicine straight to the lungs eg Bricanyl inhaler for asthma.



As a cream to cure skin problems e.g. Dipravan for eczema.

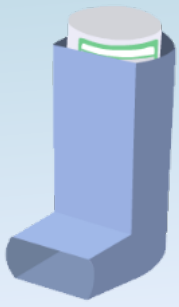


As an injection usually in the arm or bottom Insulin is injected under the skin (as opposed to in a blood vessel) to treat diabetes.

Can you match the drug to the illness?

Inhaler (Bricanyl)
Calpol (Paracetamol)
Calamine lotion (to minimise scratching)
Salicylic acid (Bazuka)
Antibiotics
Antifungal cream (Fucidin)
Nit comb
Insulin

Chest infection
Asthma
Influenza (flu)
Athlete's foot fungus
Head lice
Verucca virus
Diabetes
Chicken pox virus



Inhaler
(Bricanyl)

An inhaler is used to get the medicine straight to the lungs so that the person with asthma can breathe easily again.



Calpol
(paracetamol)

Calpol, which contains paracetamol, is used to relieve the pain and fever associated with headaches, teething, immunisations and other illnesses.



Calamine lotion
(to minimise
scatching)

Calamine lotion has a cooling and soothing effect on itchy skin caused by chicken pox, eczema, sunburn and insect bites...



Salicylic acid
(Bazuka)

Bazuka gel which contains salicylic acid is used to treat veruccas.

Antibiotics are used to treat illnesses like really bad chest infections (pneumonia) and ear infections.

Antibiotics are only used when the doctor thinks there may be a harmful bacteria involved. They do not work with viruses.



Antibiotics



Antifungal cream
(fucidin)

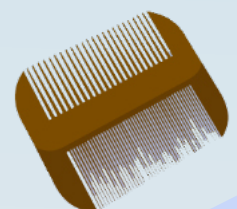
Fucidin is an antifungal cream which contains Fusidic acid and is used to treat athletes foot.

Nit combs and conditioner are used to treat headlice or the pharmacist may recommend treatment with a special shampoo.

Insulin, which lowers the sugar levels in your blood, is used to treat diabetes.



Insulin



Nit comb

Quiztime!

1. What is a voucher for medicine called?

- A) A prescription
- B) A transcription
- C) A subscription

2. Which medicine was first found in the foxglove flower?

- A) Taxol
- B) Aspirin
- C) Digoxin

3. How does the medicine in a patch enter the blood?

- A) Slowly
- B) Quickly
- C) It doesn't

4. Who makes medicines?

- A) Pharmacists, chemists and geologists
- B) Pharmacists, chemists and biologists
- C) Pharmacists, hydrologists and biologists

5. Which of these is linked to the discovery of aspirin

- A) Fox glove
- B) Yew Tree
- C) Willow Tree

6. Which part of the body does the medicine attach to?

- A) Receptor
- B) Reactor
- C) Transducer

7. How is asthma usually treated?

- A) Cream
- B) An inhaler
- C) An injection

8. How is eczema usually treated?

- A) Cream
- B) An injection
- C) A patch

Good and Bad Drugs

So what is a drug?

The word drug is sometimes used instead of the word medicine ...but drugs may also be substances which can make you poorly.

Good Drugs

Medicines are always 'good drugs' that help you get better or stay healthy. Examples are Calpol, antibiotics and insulin. Remember though: If you take too much medicine it could make you very poorly.

Always read the label:
Take the correct dose for the correct number of times per day.



Bad Drugs

Bad drugs are substances that can make you very poorly. Examples of bad drugs are nicotine, alcohol, solvent and illegal drugs like cannabis, amphetamines, cocaine and heroin. Some of these drugs are addictive, and the user may turn to crime to get money to buy the drug. If a user is caught with illegal drugs they are likely to go to jail. ALWAYS SAY NO!

Remember: Never take bad drugs as they can be VERY dangerous and may even cause DEATH.



Do you know which are good and bad drugs?



Quiztime!

1. What is a drug?

- A) Medicine.
- B) A harmful substance.
- B) Both.

2. Which of these is a good drug?

- A) Solvents.
- B) Insulin.
- C) Nicotine.

3. Which of these drugs contains salicylic acid?

- A) Amphetamines.
- B) Bazuka.
- C) Antibiotics.

4. Which type of drug are Speed and Ecstasy?

- A) Amphetamines.
- B) Cocaine.
- C) Cannabis.

5. Which of these is a bad drug?

- A) Nicotine.
- B) Calpol.
- C) Antibiotic.

6. What is Bricanyl used to treat?

- A) Diabetes.
- B) Influenza.
- C) Asthma.

See the answers at the
end of the module.



Drugs Wordsearch

Find the hidden words...

Insulin

Antibiotics

Alcohol



Cocaine

Solvents

Inhaler



Calpol

Nicotine

Bazuka



Diagnosing Illness Wordsearch



Find the hidden words...

Stethoscope

Thermometer

Ultrasound

Otoscope

CTScan

Pulse

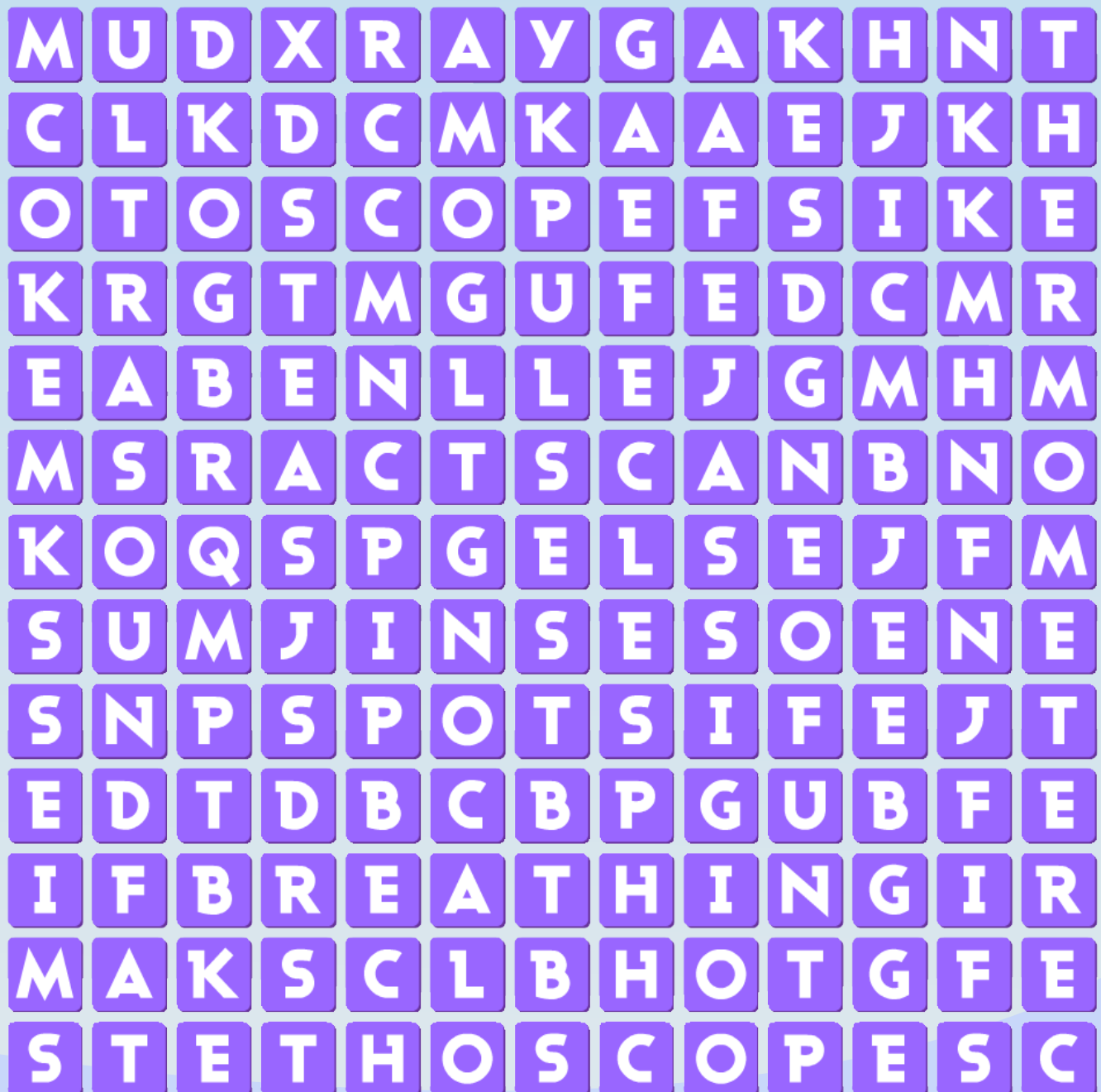
Xray



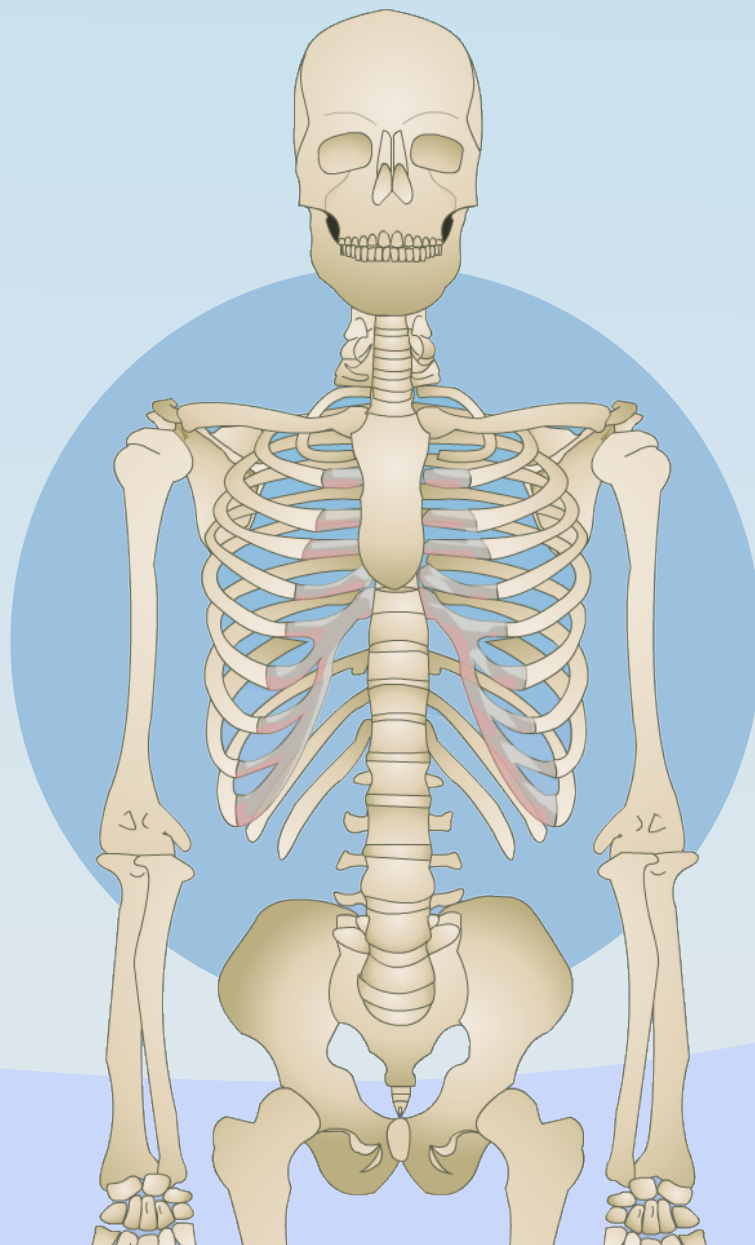
Breathing



Spots



Answers



Build a Skeleton (Answers)

Clue 1.

This is the largest bone in your arm.

The Humerus.



Clue 2.

Also known as the shin bone, this is the larger bone between the knee cap and the foot.

The Tibia.



Clue 3.

Also known as the hip bone, this bone is much narrower in a man than a woman.

The Pelvic bone



Clue 4.

Each finger has 3 of these - except the thumb which has 2.

Phalanges of the Hand.



Clue 5.

Often used to repair other broken bones, this is the smaller bone between knee cap and foot.

The Fibula.



Clue 6.

You can feel these short bones sticking out just below your neck.

The Clavicle.



Clue 7.

This is the smaller of the two bones between your elbow and your wrist.

The Ulna.



Clue 8.

There are 8 of these bones in each hand

The Carpal bones.



Clue 9.

You can feel these sticking out if you reach behind your back.

The Scapula.



Clue 10.

David Beckham broke one of these short bones before the 2002 world cup.

The Metatarsals.



Clue 11.

This is the largest bone in your body, its length is about one quarter of your total height.



The Femur.

Clue 12.

Protecting your spinal cord, this is made of 33 bones called vertebrae.



The Spine.

Clue 13.

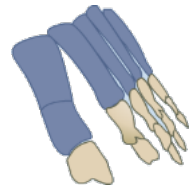
This is the largest of the two bones between your elbow and your wrist.



The Radius.

Clue 14.

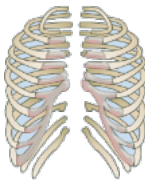
There are 14 of these short bones in your feet.



Phalanges of the Foot.

Clue 15.

Protection for your heart and lungs, you have 12 pairs of these so 24 in total.



The Ribs.

Clue 16.

Also called the breastbone, this makes up part of the rib cage.



The Sternum.

Clue 17.

There are seven of these bones in each foot.



The Tarsal bones

Clue 18.

Protection for your brain, this is made of 22 bones!



The Skull

Clue 19.

This sesamoid bone is also called the knee cap.



The Patella.

Clue 20.

The doctor numbers these bones in your hand 1 to 5 so they know which is which.



Metacarpals.

Know your Bones (answers)

1) There are 12 pairs of these making 24 in total:

- A) Phalanges B) Ribs ✓ C) Metatarsals

There are 12 pairs of ribs in your body making 24 in total. They provide protection for many organs including your heart, lungs and liver.

2. How many bones are there in an adult's skeleton?

- A) 205 ✓ B) 300 C) 305

There are 205 bones in an adult's skeleton. How many bones can you name?

3. Learning about bones is called...

- A) Osteology ✓ B) Ostentatious C) Oswestry

Learning about bones is called osteology. Someone who knows a lot about bones is called an osteologist.

4. Which type of bones look like a sesame seed?

- A) Short bones B) Seaweed bones C) Sesamoid bones ✓

Sesamoid bones like the knee cap or patella are shaped like a sesame seed. Can you feel the shape of your knee cap?

5. What are bones used for?

A) Support, protection, digestion

B) Support, movement, protection ✓

B) Support, protection, sanitation

The bones are used for support, movement and to protect your organs. They also make red and white blood cells and store and release calcium.

6. Which is the largest bone in your body?

A) Femur 

B) Radius

C) Humerus

The femur, at the top of your leg, is the largest bone in your body. Its length is approximately one quarter of your height.

7. How many vertebrae are there in your spine?

A) 22

B) 27

C) 33 

There are 33 vertebrae in your spine. The spinal cord runs through a hole in centre of the vertebrae taking messages to and from your brain.

8. What are the name of the bones in your hands?

A) Carpals, metacarpals, phalanges 

B) Tarsals, metatarsals, phalanges

C) Carpals, metatarsals, phalanges

The bones in your hand are called carpals, metacarpals and phalanges. Can you remember how many of each there are?

The Digestive System (answers)

1. Where does digestion begin?

- A) Mouth  B) Stomach C) Intestine

Digestion begins in the mouth. Here, food is chewed into small pieces by the teeth and mixed with saliva from the salivary glands with the help of the tongue.

2. Which is the largest organ in the digestive system?

- A) Liver  B) Intestine C) Stomach

The liver is the largest organ in the digestive system and the second largest organ in the human body after the skin. The liver produces bile which neutralises stomach acid and breaks down fat into small droplets in the intestine.

3. Which organ stores bile from the liver?

- A) Liver B) Gallbladder  C) Pancreas

The gallbladder stores the bile that is made in the liver and releases it when it is needed to break down, or emulsify, the fats in the small intestine.

4. Which organ makes digestive enzymes?

- A) Gallbladder B) Liver C) Pancreas 

The digestive enzymes amylase, protease and lipase are made in the pancreas and help break down starch, protein and fat in the intestine.

5. Where is most of the protein digested?

A) Stomach ✓

B) Small Intestine

C) Large Intestine

Most of the protein is broken down in your stomach, where it is mixed with acid and digested by the enzyme protease.

6. Where does most of the digestion take place?

A) Stomach

B) Small Intestine ✓

C) Large Intestine

Most of the food is digested in the small intestine. Nutrients are then absorbed into the blood through the wall of the intestine and transported around the body.

7. Which organ contains lots of micro-organisms?

A) Large Intestine ✓

B) Pancreas

C) Liver

The large intestine, or large bowel, contains lots of micro-organisms which help to remove vitamins from the indigestible waste material. It also makes some very smelly gas!

8. What is the scientific term for poo?

A) Fauna

B) Faeces ✓

C) Flatulence

The scientific term for poo is faeces. It contains waste materials, bacteria, fibre, water and dead cells. It is stored in the rectum and sent out through the anus when you go to the toilet!

Match the test to the description (answers)

1. Examine bones, joints and organs using the water in your body?



MRI Scan

2. Find out if body temperature is normal using this device?



Body Temperature

3. Take a close look at these to diagnose measles and meningitis?



Spots and Rashes



Blood Pressure

4. Measure systolic and diastolic pressures with the sphygmomanometer?



Listen to Heart and Lungs

5. Use this to hear LUB DUB or LUB-SHH-DUB?



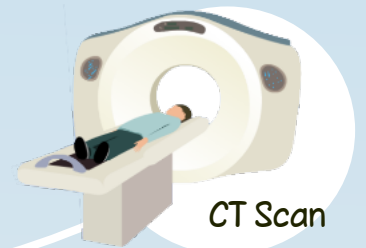
Respiration Rate

6. Measure a resting respiration rate normal at 18-34 breaths per minute?



Pulse Rate

7. Is your pulse rate normal? Use the artery in your wrist?



CT Scan

8. Use this doughnut to examine internal organs?



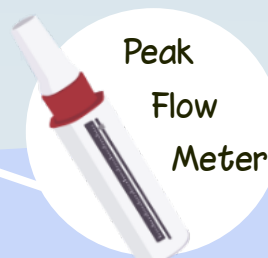
X Ray

9. Use this to examine bones or the contents of a suitcase?



Ear and Throat Exam

10. Use this otoscope to diagnose ear infections?



Peak Flow Meter

11. Check unborn babies are healthy using this ultrasound scanner?



Ultrasound Scan

12. Check lung capacity by blowing into this device?

Diagnosing Illness (answers)

1. Which device is used to measure blood pressure?

- A) Sphygmomanometer ✓ B) Endoscope C) Otoscope

A sphygmomanometer is used to measure systolic and diastolic blood pressure. For an adult normal blood pressure is below 120 (systolic)/80 (diastolic). For children it is lower.

2. Which device is used to look in your ears?

- A) Sphygmomanometer B) Endoscope C) Otoscope ✓

An Otoscope with a special light and magnifier is used to look inside your ear. The doctor can see whether your ear canal and ear drums are healthy.

3. Which device can detect a heart murmur?

- A) Endoscope B) Stethoscope ✓ C) Microscope

The doctor uses a stethoscope to listen to your heart. LUB-DUB is normal, LUB-SHH-DUB could mean a heart murmur.

4. What does MRI stand for?

- A) Magnetic Resonance Imaging ✓ B) Magnetic Retro Insight

C) Magic Roundabout Image

MRI stands for Magnetic Resonance Imaging used detect problems in your bones, joints and organs.

5. Which diagnostic machine is doughnut shaped?

A) MRI scanner

B) CT Scanner ✓

C) Ultrasound Scanner

The Computerised Tomography (CT) scanner is a doughnut shaped machine which the patient slides through to detect whether their organs are healthy.

6. Which device might be found in a hospital, dental surgery or airport?

A) Ultrasound scanner

B) X-Ray machine ✓

C) CT scanner

An X-ray machine may be used to detect problems with bones and teeth or to see what's inside your suitcase!

7. What is normal body temperature?

A) 35°C

B) 37°C ✓

C) 39°C

Normal body temperature is about 37°C (36-36.8° to be precise). If your temperature is above 38°C you have a fever.

8. Which machine is usually used to look at unborn babies?

A) CT scanner

B) MRI scanner

C) Ultrasound scanner ✓

An ultrasound scanner is used to count the number of unborn babies in the womb and make sure they are healthy.

Play at Being a Doctor (answers)

Can you match the illness with its symptom?

Asthma

Difficulty
Breathing



Head Lice

Itchy
Scalp



High
Temperature

**Influenza
(flu)**



Diarrhoea

**Stomach
Bug**



**Chicken Pox
Virus**

Red
Spots



**Verruca
Virus**

Tender
Black Spot



**Athletes
Foot**

Sore
Itchy Feet



Diabetes

Tired and
Thirsty



Types of illness (answers)

1. Which bacterial infection is called the Black Death?

A) The plague ✓

B) Blackheads

C) Tuberculosis

The Black Death is another name for the plague. The symptoms include black spots on the skin.

2. Which illness did the famous composer Tchaikovsky die from?

A) Meningitis

B) Cholera ✓

C) The Plague

Tchaikovsky is thought to have died from cholera after drinking a glass of contaminated tap water.

The main symptom of cholera is very severe diarrhoea.

3. Which illness causes a swelling of the coverings around the brain?

A) The plague

B) Cholera

C) Meningitis ✓

Meningitis causes inflammation of the coverings around the brain.

Symptoms may include sensitivity to bright light, headaches, fever and a rash which does not disappear when you apply pressure.

4. How long is chickenpox usually infectious?

A) 1 day

B) 7 days ✓

C) 17 days

Chickenpox is usually infectious for 2 days before the spots appear and 5 days after. You will need to be off school for about 1 week.

5. How many people died from the flu virus in 1918 and 1919?

A) 20-40 million

B) 120-140 million

C) 220-240 million

Around 20-40 million people died from flu in the 1918 and 1919 pandemic. Symptoms of flu include a high temperature, shivers and aching muscles.

6. Which illness makes it difficult to breathe?

A) Headache

B) Diabetes

C) Asthma ✓

People with asthma find it difficult to breathe. Their airways become narrow and covered with mucus making it difficult for air to get into their lungs.

7. Which virus causes AIDS?

A) HIV ✓

B) HIB

C) HIM

AIDS or Acquired Immune Deficiency Syndrome is caused by the HIV or Human Immunodeficiency Virus. It affects the immune system and patients are more susceptible to infections.

8. Which illness can lead to too much sugar in the blood?

A) Asthma

B) Meningitis

C) Diabetes ✓

Diabetes occurs when the body does not produce enough Insulin to take the sugar out of the blood.

Symptoms include increased thirst, tiredness, blurred vision and more frequent passing of water.

Treating Illness (answers)

1. What is a voucher for medicine called?

- A) A prescription ✓ B) A transcription C) A subscription

The doctor will give you a prescription to take to the pharmacist. It tells you which medicine, how much and how often you should take it.

2. Which medicine was first found in the foxglove flower?

- A) Taxol B) Aspirin C) Digoxin ✓

The heart medicine Digoxin was first found in the foxglove flower. Taxol the cancer medicine was first found in the yew tree.

3. How does the medicine in a patch enter the blood?

- A) Slowly ✓ B) Quickly C) It doesn't

The medicine in a patch diffuses slowly through the skin and into the blood. They are used to treat illnesses like travel sickness.

4. Who makes medicines?

- A) Pharmacists, chemists and geologists

- B) Pharmacists, chemists and biologists ✓

- C) Pharmacists, hydrologists and biologists

Pharmacists, chemists and biologists make medicines in a laboratory. They usually test about 10,000 compounds before they find one which will cure the illness!

5. Which of these is linked to the discovery of aspirin

A) Fox glove

B) Yew Tree

C) Willow Tree ✓

Aspirin was first made from the willow tree. It is a pain relieving medicine which is used to treat aches and pains, fever and inflammation.

6. Which part of the body does the medicine attach to?

A) Receptor ✓

B) Reactor

C) Transducer

The medicine finds the right shaped receptor in your body and slots into it like a lock and key to make you better.

7. How is asthma usually treated?

A) Cream

B) An inhaler ✓

C) An injection

Asthma is usually treated using an inhaler which sends the medicine straight to the lungs so that it can work very quickly.

8. How is eczema usually treated?

A) Cream ✓

B) An injection

C) A patch

Eczema is usually treated with a cream which is rubbed onto the affected area of the skin.

Do you know which are good and bad drugs? (answers)

Good Drugs

Calpol

Calpol, which contains paracetamol, is used to relieve the pain and fever associated with headaches, teething, immunisations and other illnesses.



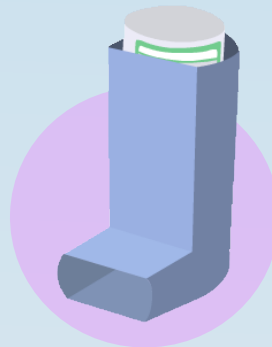
Bazuka

Bazuka gel which contains salicylic acid is used to treat veruccas. Veruccas and warts are both caused by a viral infection and are very contagious.



Bricanyl

An inhaler is used to get the medicine Bricanyl straight to the lungs so that the airways re-open allowing the person with asthma to breathe normally again.



Insulin

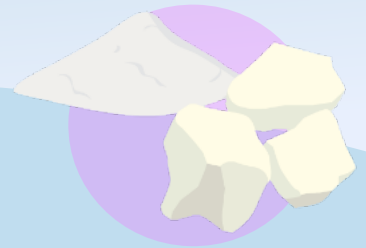
Insulin, which lowers the sugar levels in your blood, is used to treat diabetes. It is usually given by injection.



Bad Drugs

Cocaine

Cocaine can either be snorted up the nose or injected. Crack is a form of cocaine that can be smoked. It is highly addictive and has many side effects, including high blood pressure and heart failure.



Cannabis

Cannabis or marijuana comes from a plant and it is usually smoked like tobacco. It is also known as pot, grass or weed. If cannabis is used on a regular basis, health problems like lung cancer, asthma and high blood pressure can occur.



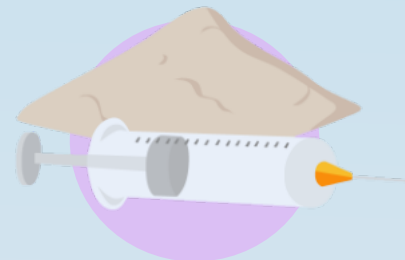
Amphetamines

Amphetamines, for example Speed and Ecstasy, are often available illegally in nightclubs, they make you energetic and it makes you dance all night. However this makes you very dehydrated and you can become very ill. In the last 10 years. Ecstasy has caused the deaths of 200 young people in the UK.



Heroin

Heroin samples may be very impure as there is no quality control in the illegal drugs market. It is possible for users to take too much (overdose) and die due to heart failure. Heroin is a very addictive drug and many addicts turn into criminals and ultimately end up in jail.



Solvents

Solvent abuse involves sniffing solvents, for example cigarette lighter fluid (butane), aerosols and glue. Solvent abuse is very dangerous: You see things that are not there, and it may cause you to have an accident.

Explosions can occur and you can get badly burnt. It can cause rapid death by heart failure: 50 to 60 young people die each year. It can cause long-term damage to the body, including the brain, eyes, lungs and testicles.



Good and Bad Drugs (answers)

1. What is a drug?

A) Medicine

B) A harmful substance

B) Both ✓

A drug can be a medicine or a harmful substance or both! Medicines make you better but if you take too much it can also make you very poorly. Bad drugs like alcohol, solvent and nicotine are always harmful.

2. Which of these is a good drug?

A) Solvents

B) Insulin ✓

C) Nicotine

Insulin is a good drug like Calpol and antibiotics. But remember if you take the wrong dosage or don't complete a course of antibiotics that may be harmful too.

3. Which of these drugs contains salicylic acid?

A) Amphetamines

B) Bazuka ✓

C) Antibiotics

Bazuka gel, which contains salicylic acid, is used to treat verrucas. Verrucas are caused by a viral infection and are very contagious

4. Which type of drug are Speed and Ecstasy?

A) Amphetamines ✓

B) Cocaine

C) Cannabis

Speed and Ecstasy are Amphetamines which are illegal drugs that can make you very poorly.

Wordsearch (answers)

C	A	L	P	O	L	F	E	C	H	G	R	D
C	L	E	G	F	M	D	D	D	B	F	S	R
F	C	O	C	A	I	N	E	S	B	F	D	A
C	O	N	V	N	S	I	F	B	A	F	A	T
S	H	P	O	T	M	C	H	E	C	G	L	A
K	O	A	M	I	O	O	J	E	C	S	O	L
F	L	F	A	B	U	T	B	G	C	O	T	I
K	I	B	B	I	S	I	N	S	U	L	I	N
B	N	A	O	O	M	N	J	D	Q	V	B	H
Q	M	Z	J	T	F	E	E	H	K	E	E	A
B	K	U	M	I	E	N	A	O	S	N	R	L
B	G	K	S	C	A	A	L	M	S	T	E	E
A	A	A	Q	S	A	M	V	L	A	S	S	R

G	U	S	X	R	A	Y	R	M	B	G	F	T
A	L	E	E	S	S	H	U	H	I	V	F	H
O	T	O	S	C	O	P	E	E	F	D	B	E
L	R	G	F	D	A	U	C	J	L	G	F	R
B	A	O	C	I	F	L	A	P	S	F	C	M
K	S	S	I	C	T	S	C	A	N	R	K	O
E	O	J	C	D	F	E	T	I	S	X	P	M
B	U	H	F	C	A	E	F	C	J	E	L	E
J	N	F	S	P	O	T	S	V	D	A	N	T
M	D	J	I	D	S	N	M	A	K	S	F	E
I	M	B	R	E	A	T	H	I	N	G	S	R
E	D	M	C	B	E	H	M	J	B	E	N	R
S	T	E	T	H	O	S	C	O	P	E	A	I

5. Which of these is a bad drug?

A) Nicotine



B) Calpol

C) Antibiotic

Nicotine is found in cigarettes and causes lung damage. It is addictive which means that once you start smoking you find it difficult to stop.

6. What is Bricanyl used to treat?

A) Diabetes

B) Influenza

C) Asthma



Bricanyl is used in an inhaler to treat asthma. It works by opening up the airways so the asthma sufferer can breathe easily again.

**Thanks for
completing
this module!**