

NATIONAL CURRICULUM

IDENTIFY AND NAME THE MAIN PARTS OF THE HUMAN CIRCULATORY SYSTEM, AND DESCRIBE THE FUNCTIONS OF

RECOGNIZE THE IMPACT OF DIET, EXERCISE, DRUGS AND LIFESTYLE ON THE WAY THEIR BODIES FUNCTION

DESCRIBE THE WAYS IN WHICH NUTRIENTS AND WATER ARE TRANSPORTED WITHIN ANIMALS, INCLUDING HUMANS.

WORKING SCIENTIFICALLY

PUPILS IN UPPER KEY STAGE 2 SHOULD BE TAUGHT TO:

- **PLAN DIFFERENT TYPES OF SCIENTIFIC ENQUIRIES TO ANSWER QUESTIONS, INCLUDING RECOGNIZING, AND**
- **TAKE MEASUREMENTS, USING A RANGE OF SCIENTIFIC EQUIPMENT, WITH INCREASING ACCURACY AND**
- **RECORD DATA AND RESULTS OF INCREASING COMPLEXITY USING SCIENTIFIC DIAGRAMS AND LABELS, USE TEST RESULTS TO MAKE PREDICTIONS TO SET UP FURTHER COMPARATIVE AND FAIR TESTS**
- **REPORT AND PRESENT FINDINGS FROM ENQUIRIES, INCLUDING CONCLUSIONS, CAUSAL RELATIONSHIPS AND**
- **IDENTIFY SCIENTIFIC EVIDENCE THAT HAS BEEN USED TO SUPPORT OR REFUTE IDEAS OR ARGUMENTS.**

KEY VOCABULARY:

1. **HEART** A MUSCLE THAT PUMPS BLOOD AROUND THE BODY
2. **LUNGS** SPONGY AIR FILLED ORGANS THAT PROVIDE OXYGEN TO THE BLOOD
3. **BLOOD** A LIQUID THAT CARRIES OXYGEN, WATER AND NUTRIENTS AROUND THE BODY
4. **VEINS** CARRY DEOXYGENATED BLOOD TO THE HEART
5. **ARTERIES** CARRY OXYGENATED BLOOD AWAY FROM THE HEART
6. **HEART RATE** THE NUMBER OF TIMES OUR HEART BEATS PER MINUTE

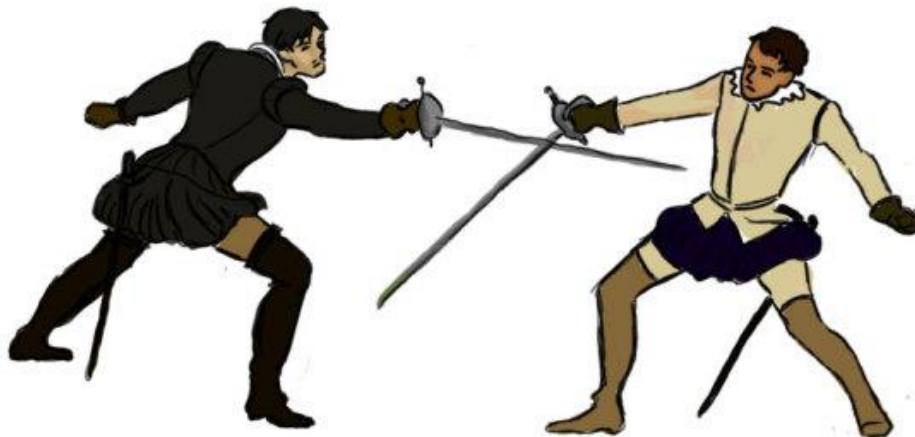
CONTEXT:

Act 5, Scene 2

The big fight arrives, and Denmark gets a new king.

Summary:

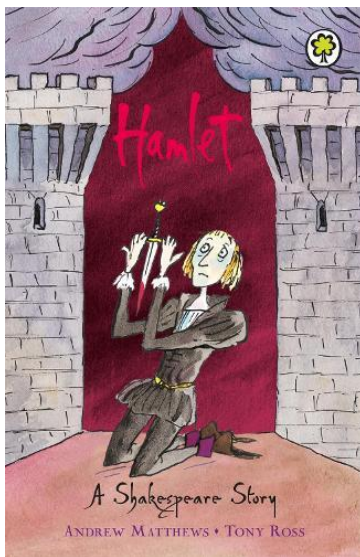
Hamlet tells Horatio that he's aware of Claudius's plot. As it turns out, Hamlet had Claudius's letters calling for the death of Hamlet altered so that Rosencrantz and Guildenstern would be killed upon their arrival in England. A courtier named Osric arrives to tell Hamlet it's time for his duel with Laertes. The court enters to watch the duel. Before they duel, Hamlet takes the opportunity to apologize to Laertes for his insane behavior, but Laertes wants to go through with the fight no matter what because his reputation is on the line. Laertes selects the poisoned and sharpened rapier, and the two go at it. When Claudius offers Hamlet the poisoned goblet of wine, Hamlet refuses, and Gertrude picks up the cup instead. Toasting Hamlet, she drinks the poison, ensuring her eventual death. Meanwhile, Laertes wounds Hamlet with the poisoned blade, and the two continue to scuffle, somehow switching swords in the process. Hamlet wounds Laertes with the poisoned blade as well. Gertrude dies, prompting Laertes to point out that this is all Claudius's fault. Finally, Hamlet seizes the opportunity and stabs Claudius with the poisoned blade. Before he dies, Laertes begs for Hamlet's forgiveness, which he grants. Hamlet, also dying, commands Horatio to tell this story, so that everyone can understand what happened. Just then, Fortinbras arrives to claim the throne and instructs the court to give Hamlet a fine funeral because he would have made a fine king.



DID THEY EXERCISE IN THE 1300S?

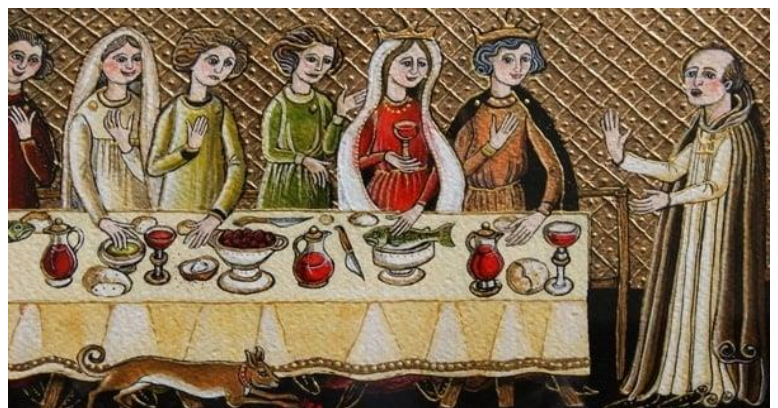
EXERCISE GENERALLY CONSISTED OF ORGANIZED ACTIVITIES SUCH AS SPORTS. DURING THE 1300'S THE PEOPLE KNEW THAT MOVING MADE THEM FEEL GOOD, SO IN THEIR DOWNTIME THEY OFTEN PARTICIPATED IN A RANGE OF ACTIVITIES INCLUDING ARCHERY, SWORD FIGHTING, HAMMER THROWING, AND WRESTLING.

WHAT FOOD DID THEY EAT IN THE 1300S?



THE FINDINGS DEMONSTRATED THAT STEWS OR POTTAGES OF MEAT BEEF AND MUTTON AND VEGETABLES SUCH AS CABBAGE AND LEEK, WERE THE MAINSTAY OF THE MEDIEVAL PEASANT DIET. THE RESEARCH ALSO SHOWED THAT DAIRY PRODUCTS, LIKELY THE 'GREEN CHEESES' KNOWN TO BE EATEN BY THE PEASANTRY, ALSO PLAYED AN IMPORTANT ROLE IN THEIR DIET.

THE WEALTHIER YOU WERE, THE BETTER YOU ATE. MORE MEAT AND GAME SUCH AS VENISON WAS AVAILABLE TO THOSE WHO COULD AFFORD IT, ALONG WITH WHITE BREAD, SPICES AND RICH SAUCES. IF YOU LIVED NEAR A BODY OF WATER, FISH WAS PROMINENT IN YOUR DIET.



LESSON 1 I CAN IDENTIFY AND NAME THE MAIN PARTS OF THE HUMAN CIRCULATORY SYSTEM.

STARTER GET THE CHILDREN UP AND PRETEND THAT YOU'RE HAVING A DUEL. THEN GET THEM TO RUN ON THE STOP FOR 60 SECONDS.

ASK THE CHILDREN "DURING EXERCISE WHAT DOES THE HEART DO?"

[HTTPS://WWW.BBC.CO.UK/BITESIZE/ARTICLES/ZTG6GDM](https://www.bbc.co.uk/bitesize/articles/ztg6gdm) WATCH THE VIDEO AND DISCUSS.

YOUR HEART IS A VERY STRONG MUSCLE AND PLAYS AN IMPORTANT PART IN BEING HEALTHY. IT KEEPS ALL THE BLOOD IN YOUR CIRCULATORY SYSTEM FLOWING.

- **YOUR HEART FIRST PUMPS BLOOD TO YOUR LUNGS. HERE, THE BLOOD PICKS UP OXYGEN FROM THE AIR THAT YOU HAVE BREATHED IN.**
- **THE BLOOD CARRYING OXYGEN THEN TRAVELS BACK TO YOUR HEART.**
- **THE HEART GIVES THE BLOOD A SECOND PUSH. THIS TIME, IT'S SENT ALL AROUND THE BODY TO THE VARIOUS ORGANS AND TISSUES.**
- **THE BLOOD TRAVELS BACK TO THE HEART AND IT ALL BEGINS AGAIN.**

EXPLAIN THAT THE HEART IS PART OF THE CIRCULATORY SYSTEM IN OUR BODIES. CIRCULATORY MEANS THE PROCESS OF CIRCULATION WHERE SOMETHING IS MOVING AROUND.

[HTTPS://WWW.BBC.CO.UK/BITESIZE/ARTICLES/Z9W9R2P](https://www.bbc.co.uk/bitesize/articles/z9w9r2p) WATCH VIDEO.

YOUR CIRCULATORY SYSTEM HAS THREE MAIN PARTS:

1. **HEART WHICH PUMPS BLOOD AROUND YOUR BODY.**
2. **BLOOD VESSELS WHICH CARRY THE BLOOD.**
3. **BLOOD.**

[HTTPS://WWW.YOUTUBE.COM/WATCH?V=PjoxpleyniE&t=1s](https://www.youtube.com/watch?v=PjoxpleyniE&t=1s)

ACTIVITY 1 PARTNER ACTIVITY. CHILDREN HAVE THE WORD CARDS TURNED UPSIDE DOWN ON THEIR TABLE. ONE CHILD SHOULD PICK UP A CARD WITHOUT SHOWING THEIR PARTNER. THEY NEED TO EXPLAIN THE PART OF THE CIRCULATORY SYSTEM TO THEIR PARTNER WITHOUT SAYING THE NAME. THEIR PARTNER HAS TO GUESS WHICH PART THEY ARE DESCRIBING. THEN SWAP.

CHN TO COMPLETE ACTIVITY 2 LABEL THE DIFFERENT PARTS OF THE CIRCULATORY SYSTEM.

PLENARY WHAT HAPPENS WHEN THE HEART STOPS PUMPING? WHAT HAPPENED TO HAMLET?

AT THE END OF THE PLAY IN ACT 5, SCENE 2, HAMLET DIES WHEN HE IS STABBED WITH THE POISONED SWORD. EXPLAIN WHAT HAPPENS IF YOU LOSE A LOT OF BLOOD.

blood

a muscle that pumps blood around the body

veins

a liquid that carries oxygen, water and nutrients around the body

arteries

carry oxygenated blood away from the heart

lungs

carry deoxygenated blood back to the heart

heart

provide the blood with oxygen

blood

a muscle that pumps blood around the body

veins

a liquid that carries oxygen, water and nutrients around the body

arteries

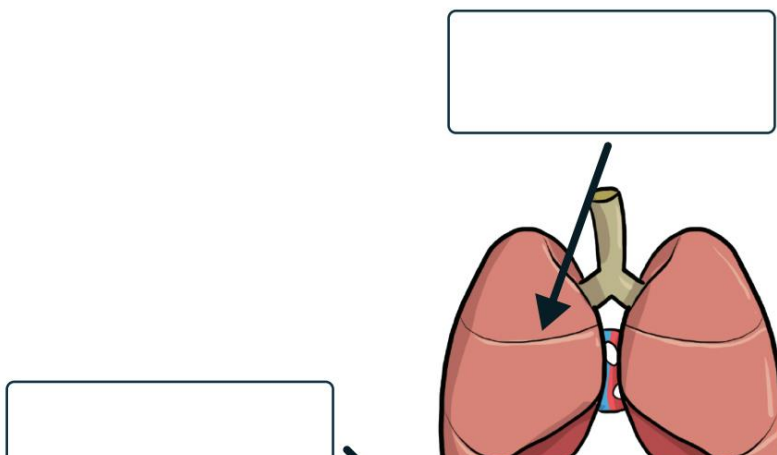
carry oxygenated blood away from the heart

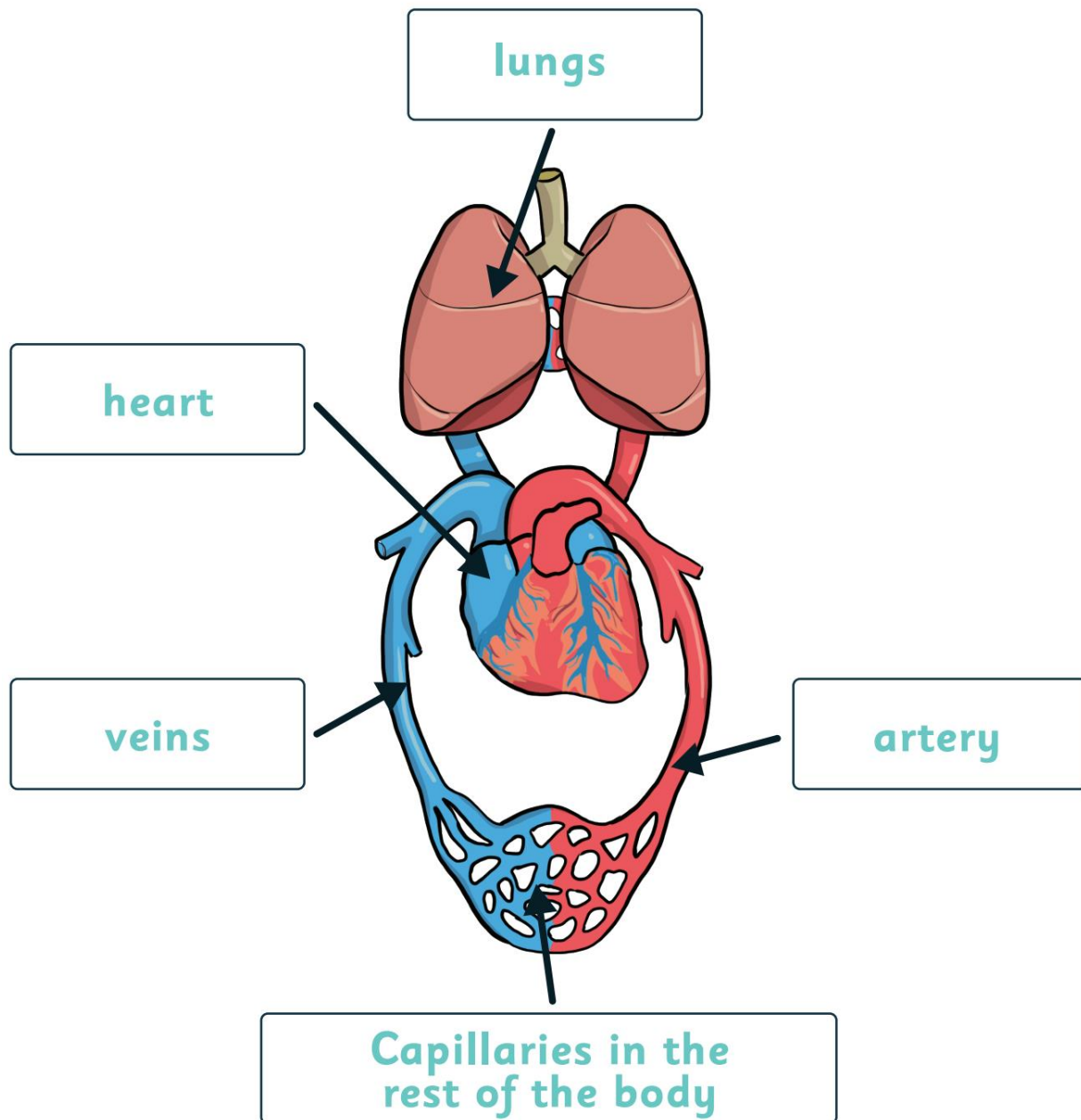
lungs

carry deoxygenated blood back to the heart

heart

provide the blood with oxygen





Keywords

heart, vein, artery, lungs, capillaries in the rest of the body

blood

**blood
vessel**

heart

vein

artery

oxygen

nutrients

lungs

Handout 1

The body's circulatory system is responsible for transporting nutrients, water and oxygen to your billions of body cells.

It also carries away waste such as **carbon dioxide** that body cells produce.

It is an amazing system that travels through your entire body connecting all your body cells.

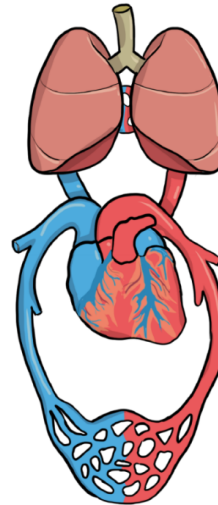
The lungs provide blood with **oxygen**.

The heart pumps **deoxygenated blood** to the lungs.

The heart pumps oxygenated blood through blood vessels called **arteries**.

Deoxygenated blood and nutrients travel back to the heart through blood vessels called **veins**.

The blood travels to all other body parts, delivering oxygen, water and nutrients.

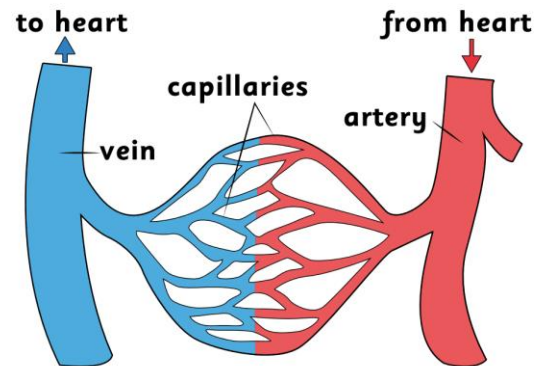


The blood moves through many tubes called arteries and veins, which together are called blood vessels.

These blood vessels are attached to the heart.

The blood vessels that carry blood away from the heart are called **arteries**.

The ones that carry blood back to the heart are called **veins**.



LESSON 2 I CAN IDENTIFY AND NAME THE MAIN PARTS OF THE HEART.

RECAP LAST LESSON. WHAT DOES THE HEART DO?

[HTTPS://WWW.BBC.CO.UK/BITESIZE/ARTICLES/ZTG6GDM](https://www.bbc.co.uk/bitesize/articles/ztg6gdm) WATCH THE VIDEO AND DISCUSS.

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WATCH THE VIDEO BELOW AND STOP AT KEY POINTS TO DISCUSS.

[HTTPS://WWW.YOUTUBE.COM/WATCH?V TG0BDJEAG0](https://www.youtube.com/watch?v=TG0BDJEAG0)

LABEL THE HEART INTERACTIVELY

[HTTPS://WORDWALL.NET/RESOURCE/2296021/SCIENCE/LABEL THE DIAGRAM OF THE HEART](https://wordwall.net/resource/2296021/science/label-the-diagram-of-the-heart)

OR

[HTTPS://WWW.SCIENCELEARN.ORG.NZ/LABELLING INTERACTIVES/1 LABEL THE HEART](https://www.sciencelearn.org.nz/labelling-interactives/1-label-the-heart)

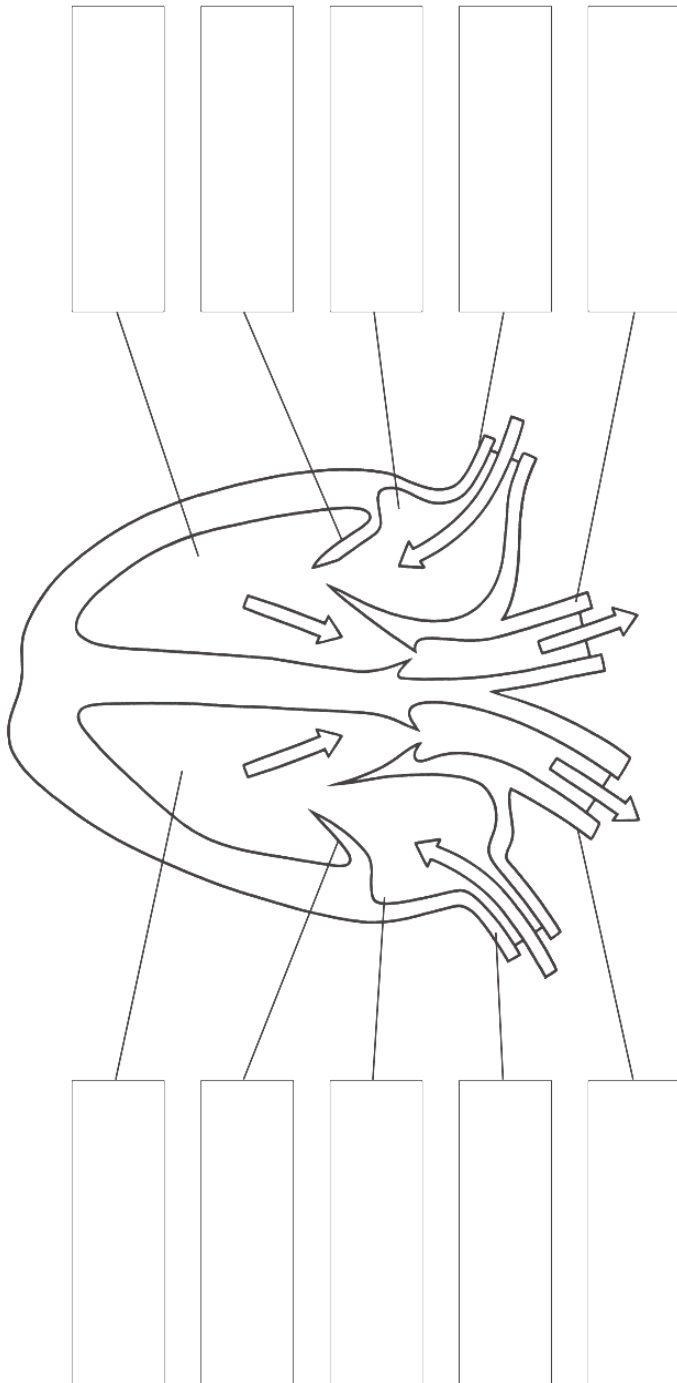
OR

ACTIVITY 1 LABEL THE HEART BELOW CHN TO EITHER CUT OR STICK OR WRITE THE KEY WORDS.

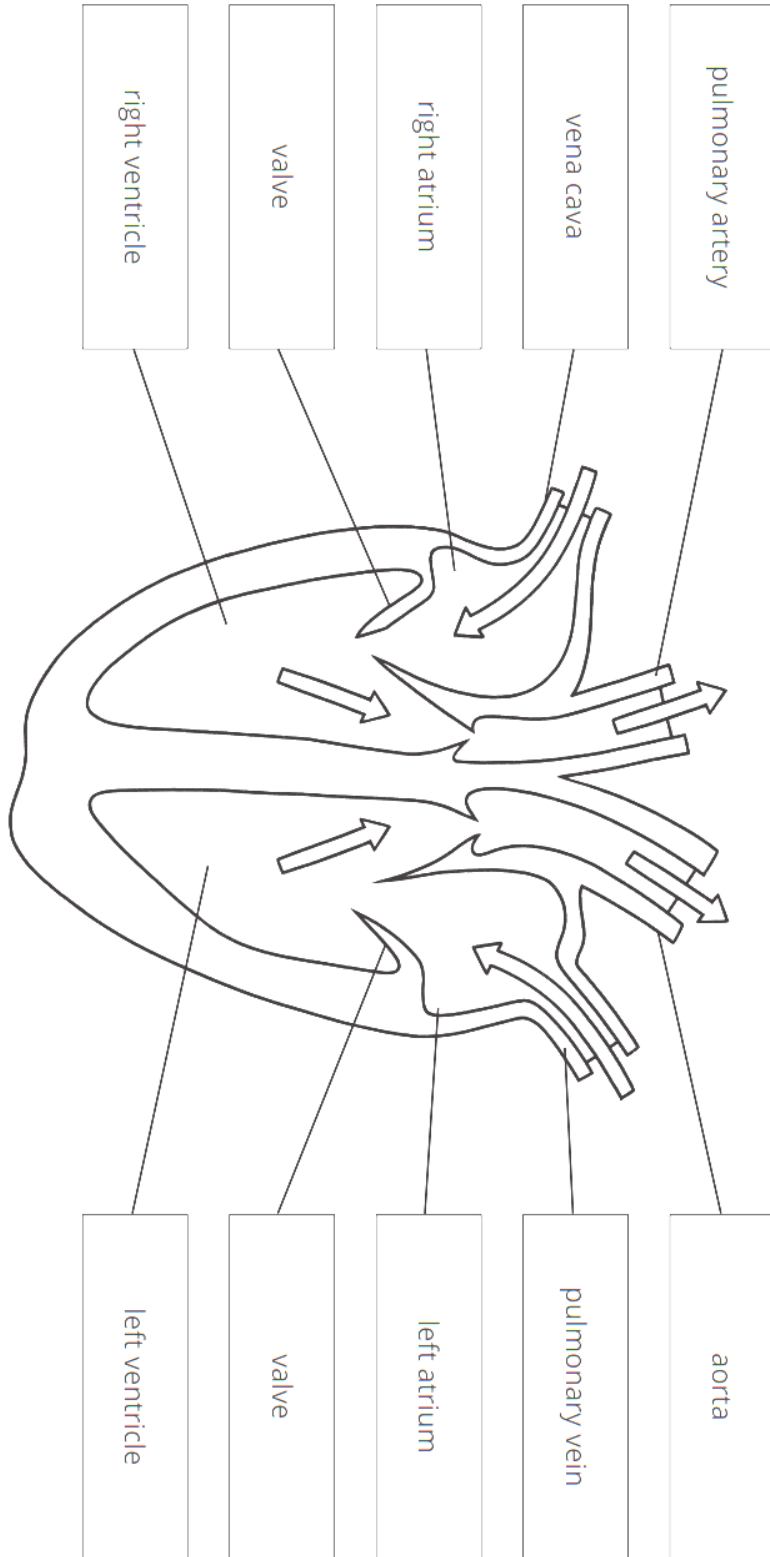
PLENARY GO THROUGH ACTIVITY AS A CLASS. WERE YOU ABLE TO IDENTIFY AND NAME THE MAIN PARTS OF THE HEART?

The Heart Cut and Stick

Label the parts of the heart in the diagram below.



aorta	left atrium	left ventricle	pulmonary artery	pulmonary vein
right atrium	right ventricle	vena cava	valve	valve



HORSES, PLAYED GAMES, AND GARDENED. THEY ALSO OFTEN PARTICIPATED IN FALCONRY, WHICH IS THE ART OF TRAINING BIRDS OF PREY TO HUNT SMALL GAME.

RECAP LAST LESSON. CAN YOU REMEMBER THE DIFFERENT PARTS OF THE HEART? GIVE CHILDREN TIME TO DISCUSS WITH PARTNERS/GROUPS BEFORE FEEDING BACK AS A CLASS.

WHEN WE TALK ABOUT OUR HEART, WE OFTEN TALK ABOUT OUR PULSE. WHAT IS A PULSE?

A PULSE IS A STEADY BEAT. IT CAN BE MEASURED BY COUNTING THE NUMBER OF BEATS PER MINUTE. THIS IS OUR HEART RATE.

[HTTPS://WWW.YOUTUBE.COM/WATCH?V AHR8oNU90Y](https://www.youtube.com/watch?v=AHR8oNU90Y)

WATCH THE VIDEO AND CHN TO TAKE THEIR PULSE RATE. CAN YOU FIND YOUR PULSE? ONCE YOU HAVE FOUND YOUR PULSE, CAN CHILDREN MEASURE THEIR HEART RATE? RECORD THE HEART RATES OF CHILDREN IN YOUR GROUP ON THE 'PARTNER ACTIVITY' WORKSHEET. CHALLENGE ACTIVITY IS BASED ON THESE MEASUREMENTS

IT IS IMPORTANT THAT WE EXERCISE OUR HEARTS TO KEEP THEM HEALTHY. WHEN WE EXERCISE, OUR HEART RATE NEEDS TO INCREASE.

TODAY WE WILL BE INVESTIGATING TO SEE WHICH EXERCISE INCREASES OUR HEART RATE THE MOST.

CHILDREN WILL FIRST PLAN OUT THEIR INVESTIGATION. THEY CAN COMPLETE THIS AS PARTNERS OR IN SMALL GROUPS. THEY WILL THEN NEED TIME TO CONDUCT THEIR INVESTIGATION. CHN MUST CHOOSE SPORTING ACTIVITIES FROM THE 1300'S.

- 1. RUNNING RUN ON THE SPOT**
- 2. SWORD FIGHTING USE WOODEN SPOONS**
- 3. PRETENDING TO RIDE A HORSE GALLOPING**
- 4. WALKING**
- 5. HUNTING PLAYING HIDE AND SEEK**
- 6. HAMMER THROWING THROWING A BALL ONTO THE GROUND REPEATEDLY**

PLENARY. LESSON REFLECTION. WHAT DID YOU MOST ENJOY ABOUT THIS LESSON? TELL ME ONE THING YOU HAVE LEARNT.

Variables – (What are we going to change each time?)

Fair test – (What will we keep the same?)

Method

Prediction

Results

Name	Heart Rate (bpm)

LESSON 4 I CAN DESCRIBE HOW WATER AND NUTRIENTS ARE TRANSPORTED IN HUMANS.

<https://www.bbc.co.uk/bitesize/articles/zsgk4xs-grunne-zanpfty-zdrttrd>

RECAP LAST LESSON.

CAN YOU REMEMBER THE DIFFERENT PARTS OF THE HEART? GIVE CHILDREN TIME TO DISCUSS WITH PARTNERS/GROUPS BEFORE FEEDING BACK AS A CLASS.

THINKING TIME. WHAT DOES THE BLOOD TRANSPORT AROUND THE BODY? BLOOD TRANSPORTS OXYGEN, NUTRIENTS AND WATER. HOW DO YOU THINK IT DOES THIS? THE TRANSPORTATION OF WATER AND NUTRIENTS IN OUR BODIES STARTS WITH THE FOOD WE EAT. WE NEED TO PROVIDE OUR BODIES WITH WATER AND NUTRIENTS FOR THE BLOOD TO BE ABLE TO TRANSPORT THEM. SHOW THE CHILDREN THE 'EATWELL PLATE' BELOW.

CHILDREN WILL HAVE SEEN THIS BEFORE IN LKS2. CAN THEY REMEMBER THE DIFFERENT FOOD GROUPS?

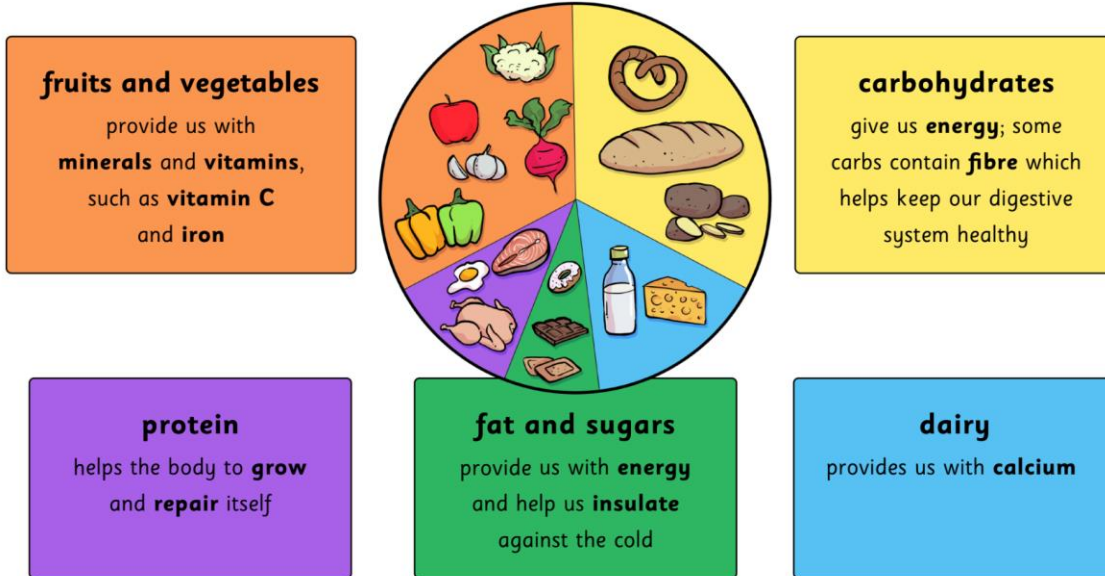
EXPLAIN THE DIFFERENT VITAMINS AND MINERALS WE GET FROM EACH FOOD GROUP USING THE DIAGRAM.

DISCUSS THE ROLE OF THE DIGESTIVE SYSTEM IN TRANSPORTING WATER AND NUTRIENTS. WHEN WE DIGEST FOOD, WE USE A LOT OF DIFFERENT INTERNAL ORGANS. EACH ORGAN HAS AN IMPORTANT JOB IN ENSURING OUR FOOD IS DIGESTED PROPERLY. CHILDREN WILL HAVE LEARNT ABOUT THE DIGESTIVE SYSTEM IN LKS2. THIS WILL BE A RECAP BUT ALSO EXPLAINS MORE ABOUT THE TRANSPORTATION OF NUTRIENTS AND WATER.

ACTIVITY 1 GROUP ACTIVITY. CREATE A PRESENTATION TO EXPLAIN HOW THE BODY ABSORBS NUTRIENTS AND WATER AND THEN PRESENT IT TO THE REST OF THE CLASS. YOU COULD DO A POSTER, A POWERPOINT PRESENTATION, A DRAMA PRESENTATION IT'S UP TO YOU! CHILDREN CAN USE THE ORGAN NAME CARDS TO HELP THEM REMEMBER THE DIFFERENT ORGANS.

ACTIVITY 2 PLENARY. MATCH THE ORGAN TO ITS DEFINITION.

We get different nutrients from different types of food.



1. mouth
2. teeth
3. tongue
4. oesophagus
5. stomach
6. small intestine
7. large intestine
8. rectum
9. anus

- A. this is a muscular tube where peristalsis happens, which moves the bolus
- B. this is a muscular bag that mixes the food
- C. these rip, tear and chew the food
- D. this is a long, thin tube that absorbs nutrients
- E. this is where the digestive system starts
- F. this muscle creates a bolus and pushes it to the top of the oesophagus
- G. this is where all 'food' that our bodies do not want is stored as poo
- H. this is what we push the poo out of
- I. this short, thick tube squeezes excess water from the 'food'

4. oesophagus	A. this is a muscular tube where peristalsis happens, which moves the bolus
5. stomach	B. this is a muscular bag that mixes the food
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ANSWERS

LESSON 5 I CAN IDENTIFY HOW HUMANS CAN LIVE A HEALTHY LIFESTYLE.

RECAP THE PREVIOUS LESSON. DISCUSS THE EAT WELL PLATE AND THE DIGESTIVE SYSTEM. THEN DISCUSS HEALTH AND FITNESS.

WATCH THE VIDEO BELOW AND DISCUSS AS A CLASS. [HTTPS://WWW.BBC.CO.UK/BITESIZE/ARTICLES/ZMJKHRK](https://www.bbc.co.uk/bitesize/articles/zmjkhrk)

WHAT IS YOUR FAVOURITE TYPE OF EXERCISE? HOW DOES EXERCISING MAKE YOU FEEL? EXERCISE IS IMPORTANT TO KEEP OUR BODIES HEALTHY. PARTNER ACTIVITY. WHY IS IT IMPORTANT TO EXERCISE? CHN TO WRITE ON THE WHITEBOARD AS MANY REASONS AS THEY CAN. DISCUSS THE ANSWERS THE CHILDREN HAVE.

HAVING A HEALTHY DIET IS ALSO IMPORTANT. DISCUSS A HEALTHY PACKED EXPLAIN THAT PERSONAL HYGIENE IS ALSO IMPORTANT. WHAT DO WE MEAN BY PERSONAL HYGIENE? HOW CAN WE HAVE GOOD PERSONAL HYGIENE? WHY IS THIS IMPORTANT?

EXPLAIN HOW PEOPLE CAN BECOME ILL AND WHAT THEY MIGHT DO TO MAKE THEMSELVES FEEL BETTER.

HOWEVER, IF PEOPLE EXERCISE, EAT A HEALTHY DIET AND HAVE GOOD PERSONAL HYGIENE THIS GIVES THEM A BETTER CHANCE OF LEADING A HEALTHY LIFESTYLE.

WATCH AND RECAP BELOW.

[HTTPS://WWW.BBC.CO.UK/BITESIZE/ARTICLES/ZTS0FCW](https://www.bbc.co.uk/bitesize/articles/zts0fcw)

INDEPENDENT ACTIVITY CHN TO CREATE A POSTER ABOUT LEADING A HEALTHY LIFESTYLE.

Create a **poster** that we could put up around school that explains how we can lead a healthy lifestyle.

PLENARY. LESSON RECAP. HOW CAN WE LEAD A HEALTHY LIFESTYLE?
