Science Knowledge Organiser

Animals including humans	Yr 6	Main Foci: Biology

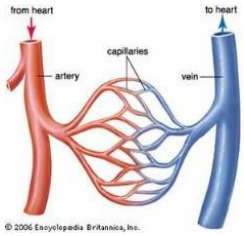
What should I already know?

- Which things are living and which are not.
- Classification of animals (e.g. amphibians, reptiles, birds, fish, mammals, invertebrates)
- Animals that are carnivores, herbivores and omnivores.
- Animals have offspring which grow into adults.
- The basic needs of animals for survival (water, food, air)
- The importance of exercise, hygiene and a balanced diet.
- Animals get nutrition from what they eat.
- Some animals have skeletons for support, protection and movement.
- The basic parts of the digestive system.
- The different types of teeth in humans.
- **Respiration** is one of the seven life processes.
- The life cycle of a human and how we change as we grow.

What will I know by the end of the unit?

What is the circulatory system?

- The **circulatory system** is made of the **heart, lungs** and the **blood vessels**
- **Arteries** carry **oxygenated blood** from the **heart** to the rest of the body
- **Veins** carry **deoxygenated blood** from the body to the **heart**
- **Nutrients, oxygen** and **carbon dioxide** are exchanged **via** the **capillaries**



Choices that can harm the circulatory system

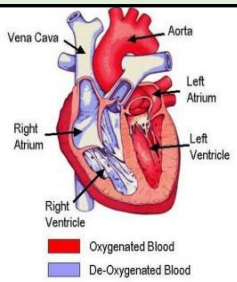
- Some choices, such as smoking and drinking alcohol can be harmful to our health.
- Tobacco can cause short-term effects such as shortness of breath, difficulty sleeping and loss of taste and long-term effects such as lung disease, cancer and death
- Alcohol can cause short-term effects such as addiction and loss of control and long-term effects such as **organ** damage, cancer and death

Why is exercise so important?

Exercise can:

- tone our muscles and reduce fat
- increase fitness
- make you feel physically and mentally healthier
- strengthens the **heart**
- improves **lung** function
- improves skin

Diagram - The Heart

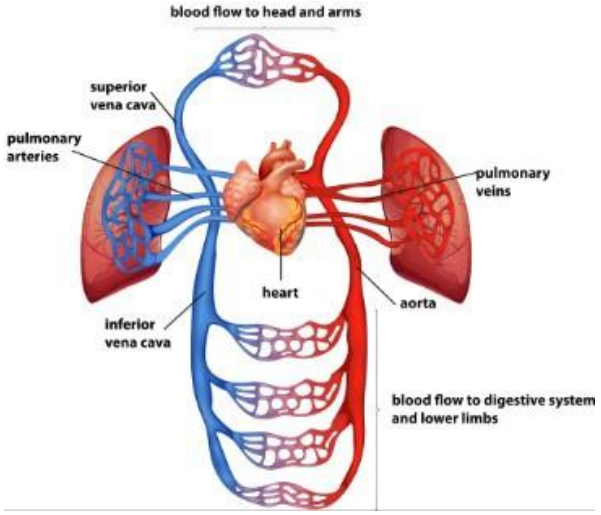


- The **heart** is composed of four chambers; the right **atrium**, the right **ventricle**, the left **atrium** and the left **ventricle**.
- How often your **heart** pumps is called your **pulse**.

Procedural Knowledge

- How does your **pulse** change with exercise? What is the most efficient way of presenting this data?
- Which exercise produces the fastest **pulse**? How would you make this a fair test?

Diagram - The Circulatory System



1. The right **atrium** collects the **deoxygenated** blood from the body, **via** the **vena cava**. It sends the blood to the right **ventricle**.
2. The right **ventricle pumps** the **deoxygenated** blood to the **lungs**. Here the blood picks up **oxygen** and disposes of **carbon dioxide**.
3. The **lungs** send **oxygenated** blood back to the left **atrium** which pumps it to the left **ventricle.**
4. The left **ventricle** pumps the blood to the rest of the body, **via** the **aorta**.

Vocabulary

aorta	the main **artery** through which blood leaves your **heart** before it flows through the rest of your body
arteries	a tube in your body that carries **oxygenated** blood from your **heart** to the rest of your body
atrium	one of the chambers in the **heart**
blood vessels	the narrow tubes through which your blood flows. **Arteries**, **veins** and **capillaries** are **blood vessels**.
capillaries	tiny **blood vessels** in your body
carbon dioxide	a gas produced by animals and people breathing out
circulatory system	the system responsible for circulating blood through the body, that supplies **nutrients** and **oxygen** to the body and removes waste products such as **carbon dioxide**.
deoxygenated	blood that does not contain **oxygen**
heart	the **organ** in your chest that **pumps** the blood around your body
lungs	two **organs** inside your chest which fill with air when you breathe in. They **oxygenate** the blood and remove **carbon dioxide** from it.
nutrients	substances that help plants and animals to grow
organ	a part of your body that has a particular purpose
oxygen	a colourless gas that plants and animals need to survive
oxygenated	blood that contains **oxygen**
pulse	the regular beating of blood through your body. How fast or slow your **pulse** is depends on the activity you are doing.
respiration	process of respiring; breathing ; inhaling and exhaling air. In KS3 Science, this process is referred to as **ventilation**.
veins	a tube in your body that carries **deoxygenated** blood to your **heart** from the rest of your body
vena cava	a large **vein** through which **deoxygenated** blood reaches your **heart** from the body
ventilation	The exchange of air between the lungs and the atmosphere so that **oxygen** can be exchanged for **carbon dioxide**
ventricle	one of the chambers in the **heart**
via	through

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Question 1: The heart, blood vessels and lungs make up the…	Start of unit:	End of unit:
digestive system		
circulatory system		
skeletal system		
muscular system		

Question 2: Which one of these is **not** an organ?	Start of unit:	End of unit:
heart		
lungs		
blood		

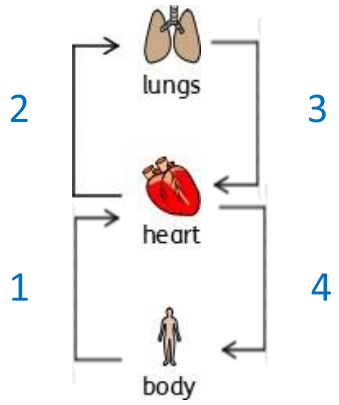
Question 3: The most effective way to show the change in pulse rate over time is by using a...	Start of unit:	End of unit:
picture		
bar chart		
pie chart		
line graph		

Question 4: You are investigating which exercise yields the highest heart rate. How can you ensure a fair test? Tick two.	Start of unit:	End of unit:
treat everybody the same		
measure the same subject's pulse before, during and after each exercise.		
ensure the starting heart rate is the same before each exercise		
complete each exercise without resting in between.		

Question 5: The veins carry _____blood.	Start of unit:	End of unit:
deoxygenated		
oxygenated		
blue		

Question 6: Tick TWO boxes below to show the two activities that would increase pulse rate the most.	Start of unit:	End of unit:
reading a book		
playing football		
drinking water		
going for a walk		

Question 7: Explain what is happening at each stage of the process.



1	
2	
3	
4	

Question 8: Which of these can harm our bodies? Tick two.	Start of unit:	End of unit:
smoking		
all drugs		
alcohol		
exercise		

Question 9: The function of the blood is to provide the body with…(tick three)	Start of unit:	End of unit:
nutrients		
water		
carbon dioxide		
oxygen		

Question 10: Arteries, veins and capillaries are examples of…	Start of unit:	End of unit:
blood		
blood vessels		
blood types		
nutrients		