

## **NATIONAL CURRICULUM:**

### **ANIMALS INCLUDING HUMANS**

Pupils should be taught to:

- identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
- recognise the impact of diet, exercise, drugs and lifestyle on the way their body's function
- describe the ways in which nutrients and water are transported within animals, including humans

## **WORKING SCIENTIFICALLY:**

During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations
- identifying scientific evidence that has been used to support or refute ideas or arguments

## **CONTEXT**

The Romans' approach to fitness was based on earlier traditions, principally the ancient Greek belief that a healthy mind and a healthy body were two sides of the same coin. But for the ever-practical Romans, the emphasis was always on the physical. Prevention was known to be far better than any available cure and taking care of one's body through cleanliness and exercise was the starting point for leading a healthy life in the Roman era.

While the ancient authors had not correctly understood the workings of the hidden interior of the body — what actually happens during digestion, or the existence of the circulatory system pumping blood around the body — they certainly knew about and wrote a great deal about other dietary-related issues. This included the need for a varied diet, the effects of eating wholemeal bread and cabbage, obesity, the results of drinking too much alcohol and the need for sufficient hydration. These are health topics that have been pertinent throughout much of human history.

As they often were, you might consider Romans ahead of the curve in their approach to health.



## LESSON 1

### KEY QUESTION: WHAT IS THE CIRCULATORY SYSTEM?

Vocabulary:

- Blood
- Blood vessel
- Heart
- Veins
- Artery
- Nutrients
- Lungs

**LO: I am learning to explain the circulatory system.**

#### **Starter-**

KWL grid. What do the chn already know about the human body (Activity 1a)

Go through the key word cards. Chn to draw diagrams on the word cards to help them to remember their function. (Activity 1b)

#### **Main-**

Watch a video about the circulatory system and children to take down notes.

<https://www.bbc.co.uk/bitesize/articles/z9w9r2p#z4sjjsg>

<https://www.youtube.com/watch?v=pjOxpLEynIE>

Chn to label the circulatory system diagram (Activity 1c)

#### **Plenary-**

Describing game- choose one of the cards. Chn to describe the card. What am I?

I am tubes that carry the blood throughout the body.... Blood Vessels.

Activity 1a

	What I know	K
	What I want to know	W
	What I learned	L

Activity 1b

**blood**

**blood  
vessel**

**heart**

**vein**

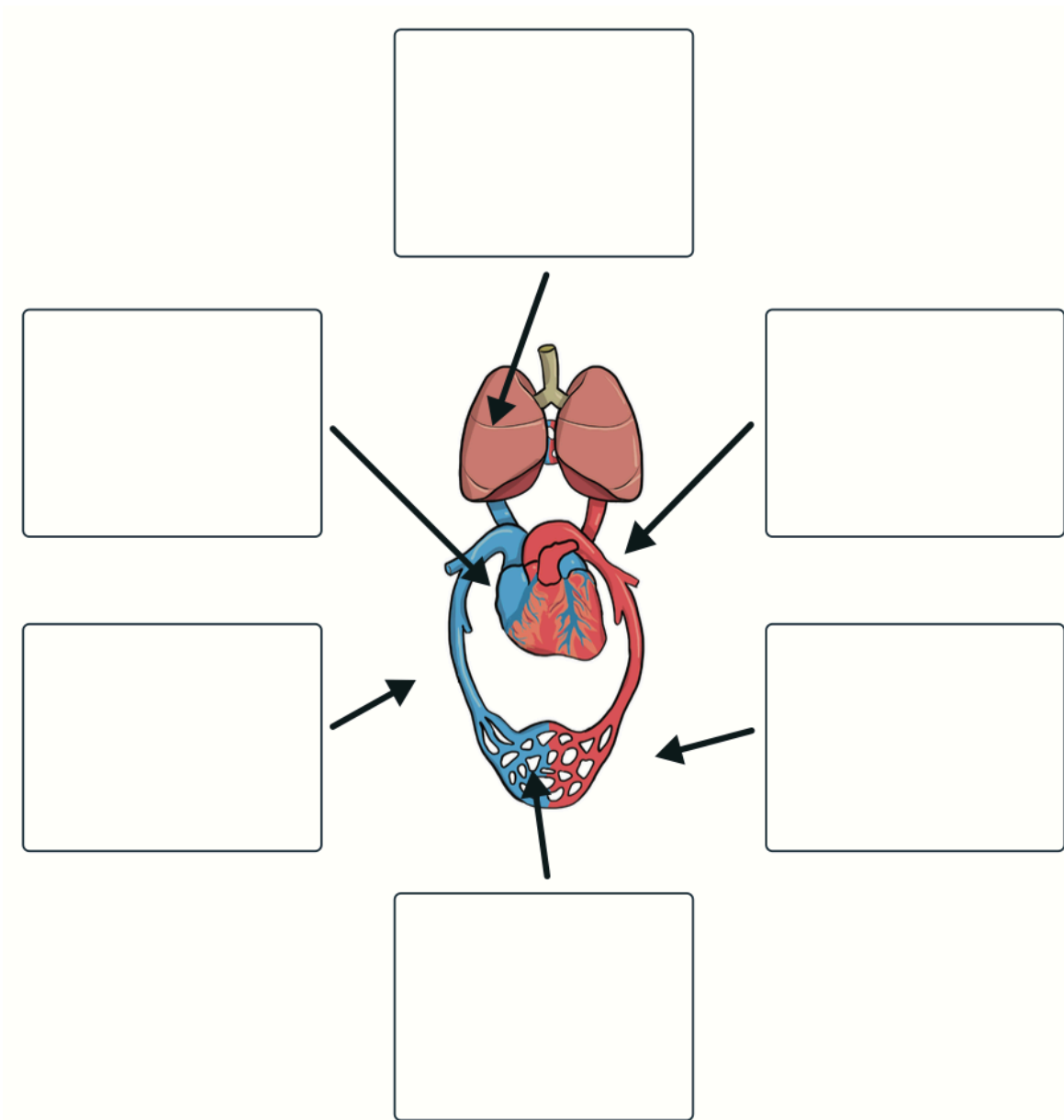
**artery**

**oxygen**

**nutrients**

**lungs**

Activity 1c



**Keywords**

**heart, vein, artery, blood, lungs, oxygen, nutrients, water, rest of the body**

## **LESSON 2 HOW DOES OUR HEART WORK?**

### **Key Vocabulary:**

- Heart
- Blood
- Oxygen
- Artery
- Vena cava
- Right atrium
- Right ventricle

**LO: I am learning to understand a process.**

### **Starter-**

<https://www.youtube.com/watch?v=r1BhsWsmjco>

Discuss the Romans and their misconceptions. What did they believe to be true that wasn't? Discuss what could affect the heart.

<https://www.youtube.com/watch?v=huzs3Q4-CGc>

### **Main-**

Read through the statements and discuss the order. (Activity 2a)  
Add actions to the number statements and role play what happens to the heart. Then label the heart using the key words below. (Activity 2b)

### **Plenary-**

Go through the activity together as a class.

## Activity 2a

Number these statements in order 1 – 5. The first one has been done for you.

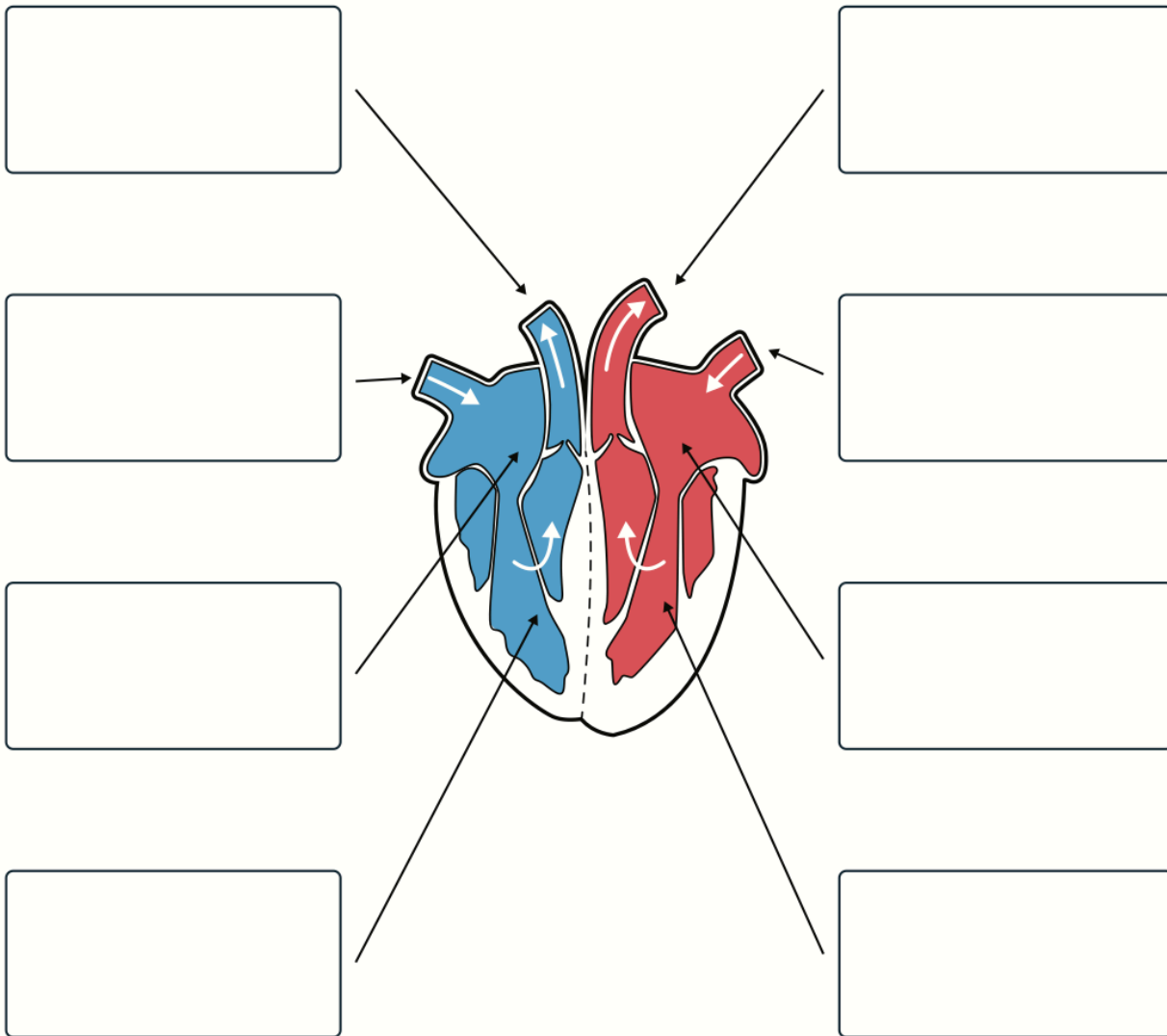
blood that is not carrying oxygen travels to the heart through the vena cava	1
when the heart contracts again, the blood is pushed out of the heart through the pulmonary artery	
the blood enters the right atrium	
the blood travels to the lungs to collect oxygen	
when the heart contracts, the blood flows through into the right ventricle	

Number these statements in order 1 – 5. The first one has been done for you.

blood that is not carrying oxygen travels to the heart through the vena cava	1
when the heart contracts again, the blood is pushed out of the heart through the pulmonary artery	4
the blood enters the right atrium	2
the blood travels to the lungs to collect oxygen	5
when the heart contracts, the blood flows through into the right ventricle	3

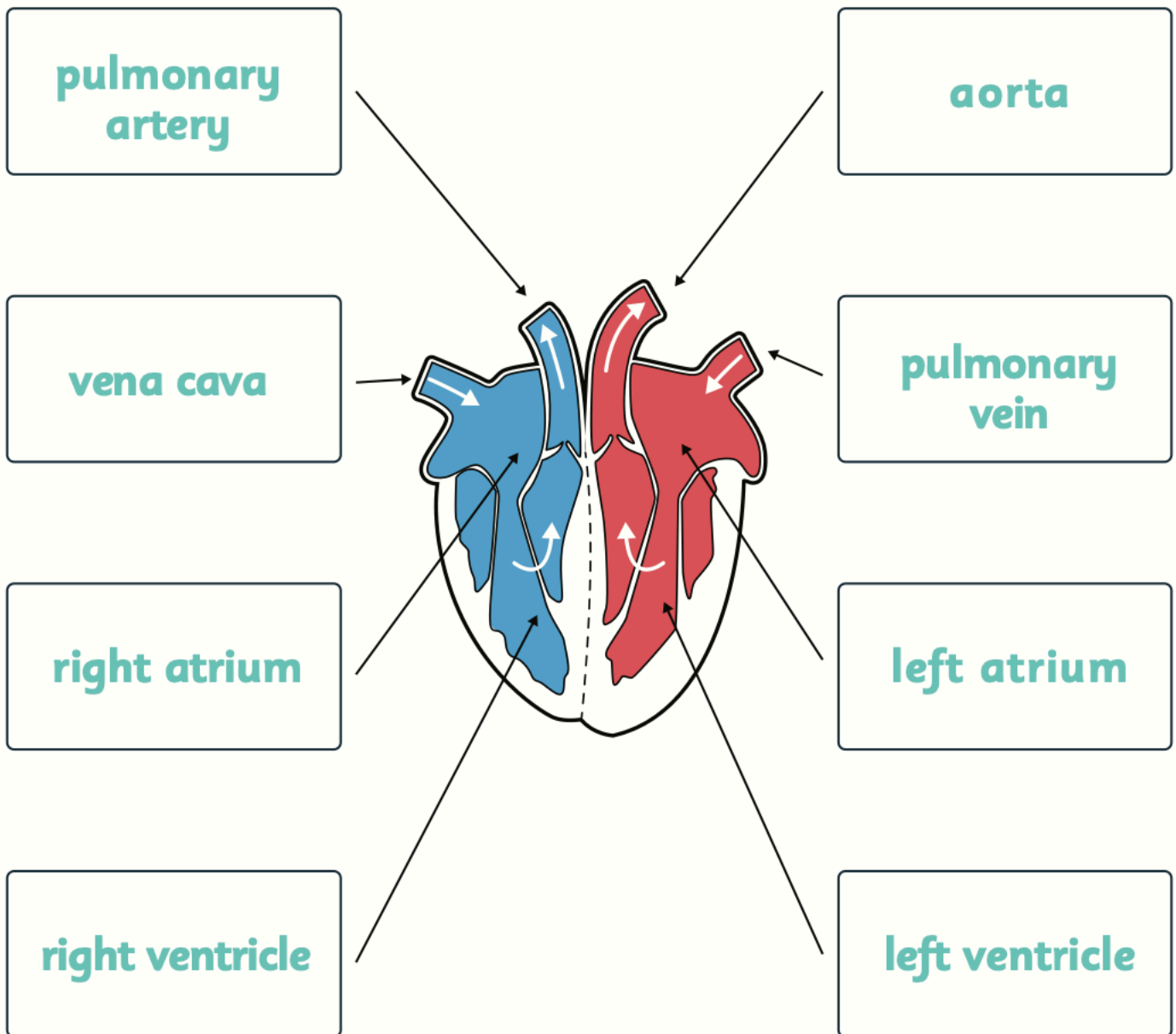


Activity 2b



**Keywords**

**vena cava, pulmonary vein, pulmonary artery, aorta, left ventricle, right ventricle, left atrium, right atrium**



**Keywords**

**vena cava, pulmonary vein, pulmonary artery, aorta, left ventricle,  
right ventricle, left atrium, right atrium**

## **LESSON 3 HOW DOES EXERCISE AFFECT MY HEARTBEAT?**

### **INVESTIGATION LESSON**

Key vocabulary:

- Exercise
- Pulse rate
- Results
- Heartbeat

**LO: I am learning to plan an investigation.**

#### **Starter-**

Look at the pictures and discuss what the Romans did for exercise. (Activity 3a)

#### **Main 1-**

Discuss Roman exercises: running, jumping, weightlifting and strength training.

#### **Main 2-**

Chn to plan an exercise routine for a Roman soldier. The investigation is to see what activity would increase the pulse rate the most. (Activity 3b)

#### **Main 3-**

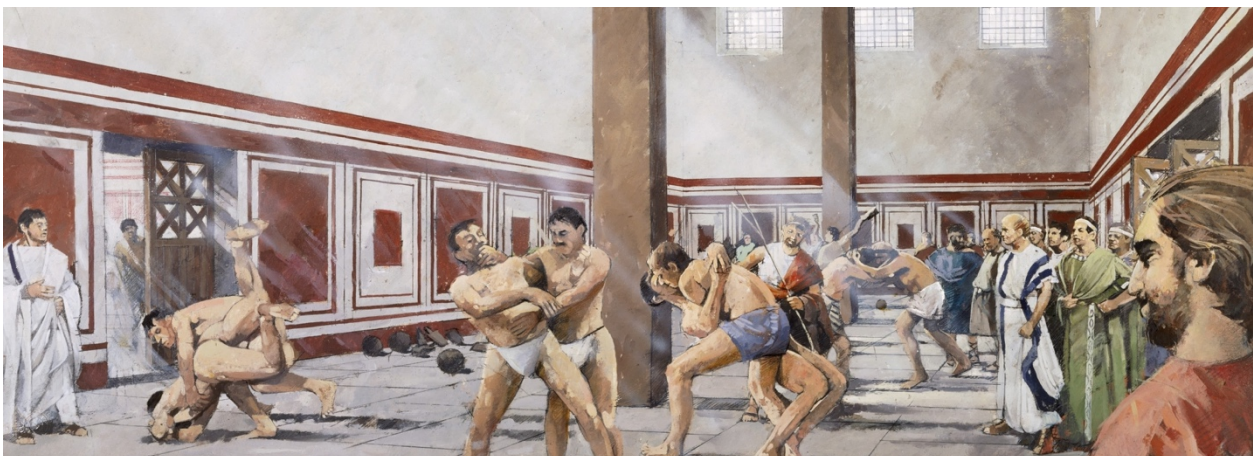
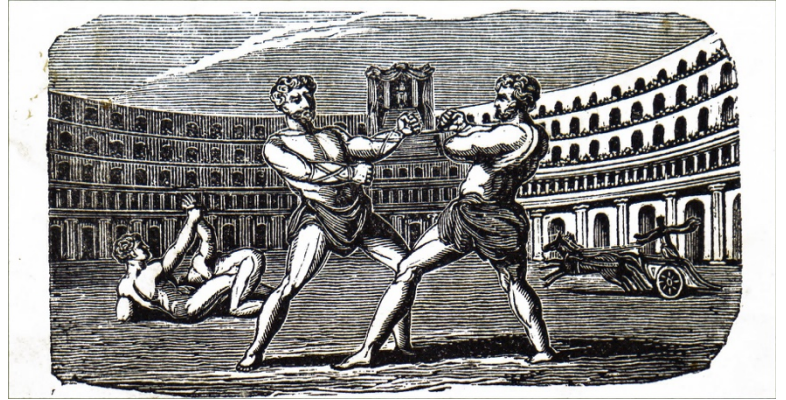
Chn to record their pulse rate after each exercise. (Activity 3c)

**\*Chn to make sure they rest in-between each exercise to get an accurate result.**

#### **Plenary-**

Discuss the results- Write a reflection.

## Activity 3a



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

We will change \_\_\_\_\_

Our options will be \_\_\_\_\_

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

We will keep \_\_\_\_\_

\_\_\_\_\_

**Method** – (What are we going to do?)

Firstly, we \_\_\_\_\_

Then, we \_\_\_\_\_

**Prediction** – (What do you think will happen?)

I predict that \_\_\_\_\_

\_\_\_\_\_

**Results** – (Record what happens)

## Activity 3b



# LESSON 4 WHAT DOES THE BLOOD TRANSPORT AROUND THE BODY?

Key vocabulary:

1. Digestive system
2. Organ

## Starter-

<https://www.bbc.co.uk/bitesize/articles/ztj4g7h>

Watch the video and take notes. Read the text below together as a class and highlight key points. (Activity 4)

## Main 1-

Mix up the function cards and label the table.

Label the digestive system and write down key words to help you remember what its function is and what the blood transports around the body. (Activity 4a)

## Main 2-

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.

## Plenary-

Chn to present the present

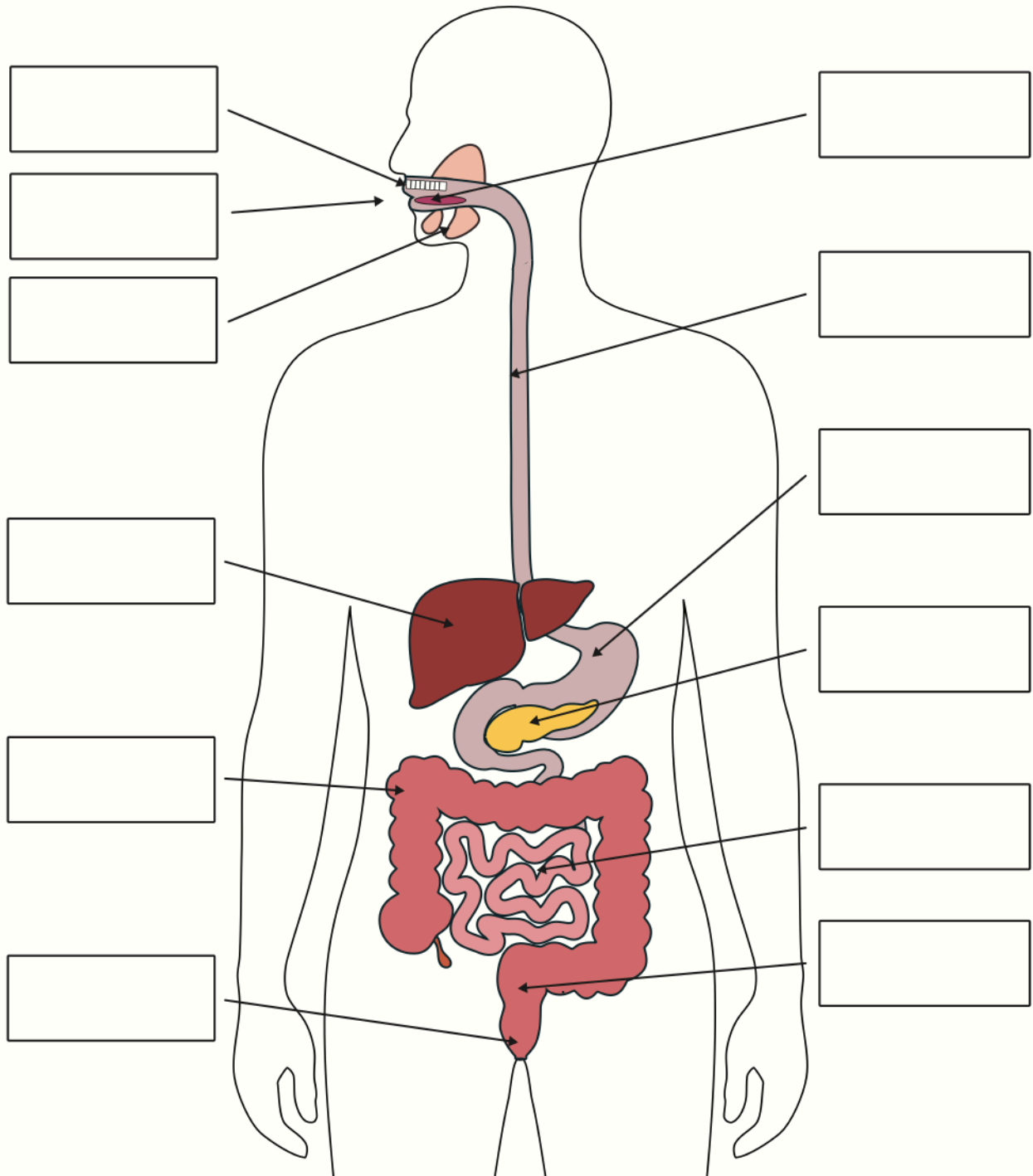
## Activity 4a

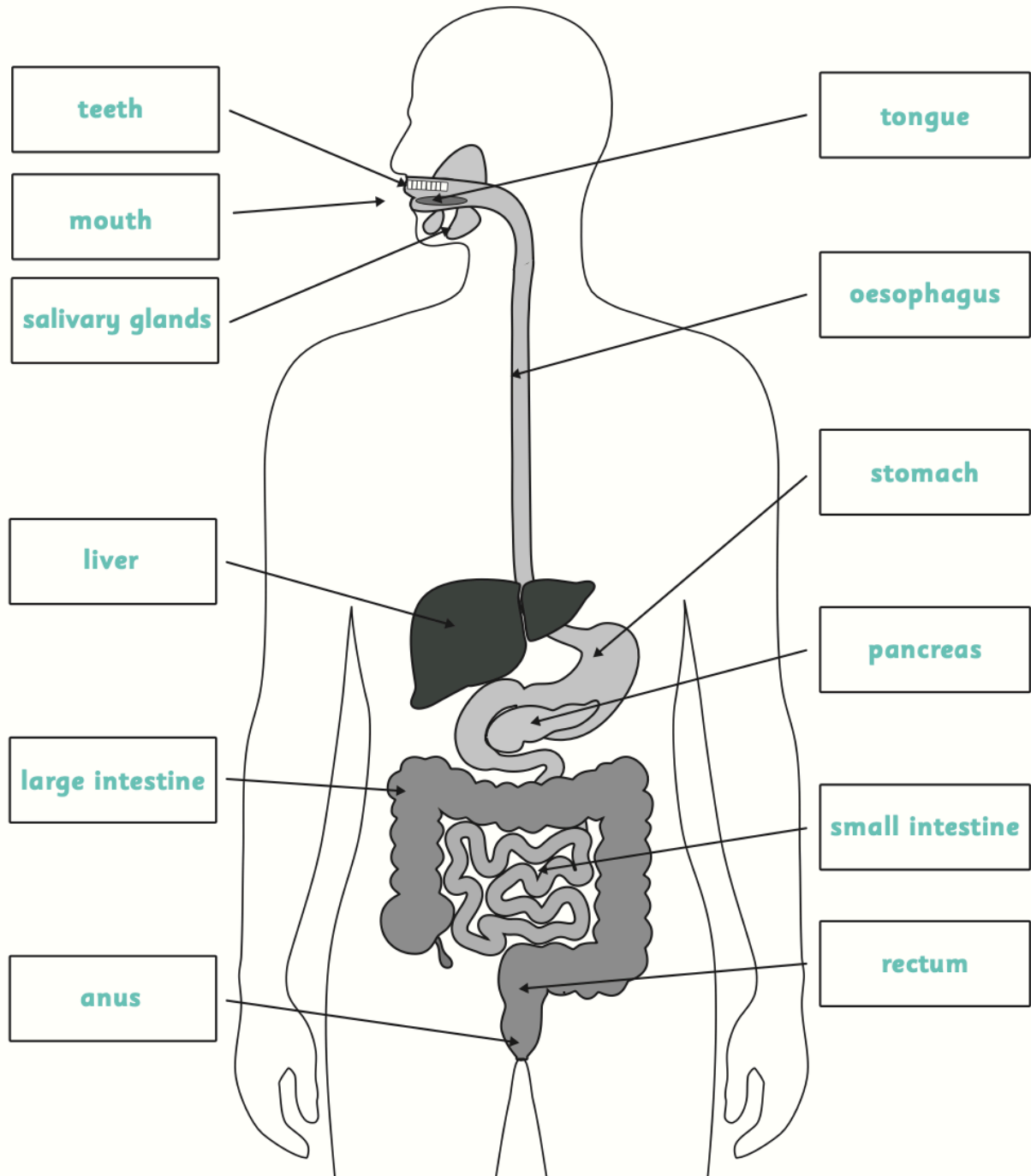
### 2. Match the organ to its function.

Function	Organ
tear, rip and chew food	
mix with acid and enzymes to turn food into a paste	
holds the stool until you go to the toilet	
produces bile to break down fat	
moves the food into a bolus and pushes it to the oesophagus	
where the stool is released	
helps absorb water from the food	
produces enzymes that break down fats, proteins and carbohydrates	
absorbs nutrients from the food	
produce saliva	
where food enters the digestive system	
a muscular tube that uses contractions to move the bolus from mouth to stomach	



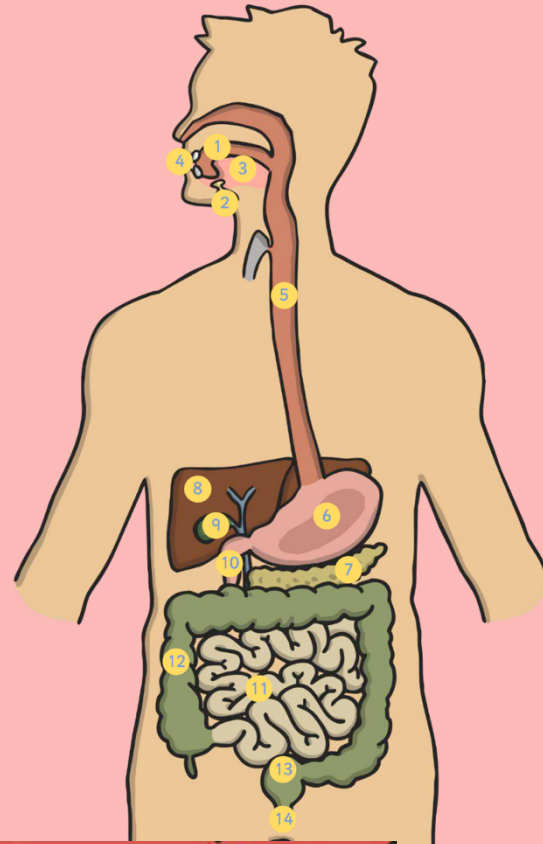
## Activity 4b





## Activity 4

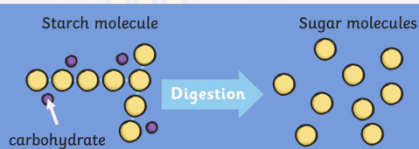
1. **Mouth:** Food enters the system
2. **Salivary glands:** Produce saliva which contain an enzyme called amylase. This breaks down starch in carbohydrates.
3. **Tongue:** Mixes food with saliva.
4. **Teeth:** Tear, cut and grind food.
5. **Oesophagus:** Tubes that leads food to the stomach.
6. **Stomach:** Produces enzymes and acids to break food down. Churns food into small pieces. The mixture of stomach acids, enzymes and food is called 'chyme'
7. **Pancreas:** Produces enzymes to break down fats, carbohydrates and proteins which are released into the duodenum.
8. **Liver:** Produces bile that breaks down fats.
9. **Gall Bladder:** Stores bile and releases it to the Duodenum when needed.
10. **Duodenum:** First part of the small intestine. Food is broken down by bile and enzymes.
11. **Small Intestine:** Nutrients are absorbed into the bloodstream here. Remaining food is passed to the large intestine.
12. **Large Intestine:** Absorbs water from remaining food. This food forms into stools.
13. **Rectum:** Stores stools and signals to the brain that there are stools that need releasing.
14. **Anus:** Stools are released out of the body.



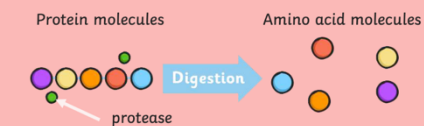
### How Does It Work?

#### How Are Nutrients Broken Down?

Stomach acids break food down into a substance called chyme. This passes through to the duodenum where bile and enzymes break up larger molecules into their smaller parts.



Carbohydrase enzymes break down starch (in carbohydrates) into sugars.



Protease enzymes break down proteins into amino acids. (Not to be confused with stomach acid!) These are essential to help the body to grow and repair body tissue.



In the duodenum, bile from the liver breaks down fat. Then the lipase enzymes break the fat down further into fatty acids and glycerol.

# LESSON 5 HOW CAN I LIVE A HEALTHY LIFESTYLE?

Key Vocabulary:

- Health
- Fitness
- Lifestyle

LO: I am learning to research and present a specific topic.

## Starter-

Generate on post-it notes what you think living a healthy lifestyle is.

Share the information below about the Romans.

Most Romans followed a **'hygienic approach'**, striving for a good balance between getting enough sleep, taking in fresh air, diet, exercise and hydration.

The Romans introduced over 50 new kinds of food plants: fruits such as fig, grape, apple, pear, cherry, plum, damson, mulberry, date and olive; vegetables such as cucumber and celery; nuts, seeds and pulses such as lentil, pine nut, almond, walnut and sesame; and herbs and spices including coriander, dill and fennel.

## Main-

Chn to research healthy lifestyles using Safe search. (Activity 5a)

Chn to create a poster about healthy lifestyles today and compare them with the Romans.

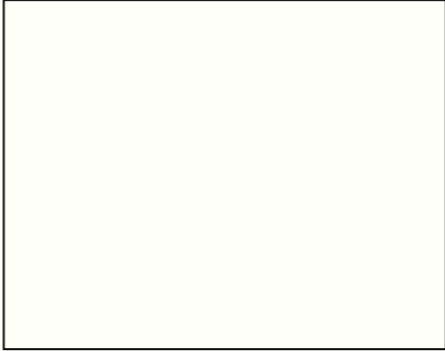
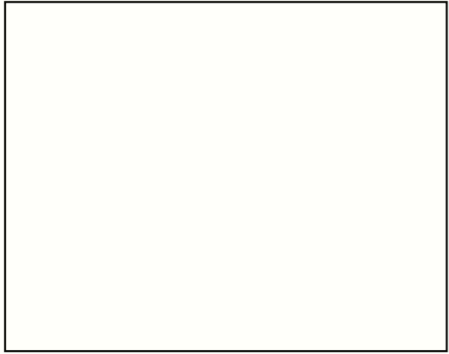
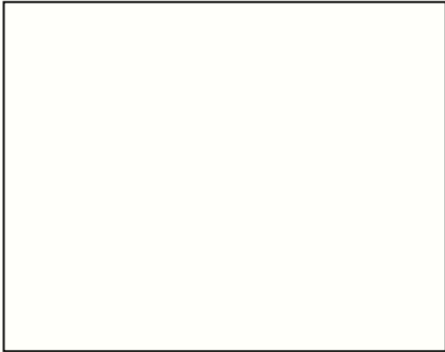


## Plenary-

share/present their posters

Activity 5a

# How can you lead a healthy lifestyle?

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## **LESSON 6 WHAT CAN DAMAGE OUR HEALTH?**

### **Key Vocabulary**

- Health
- Damage
- Unhealthy
- Obesity

**LO- I know the causes and effects of an unhealthy lifestyle.**

### **Starter-**

List what is a healthy lifestyle and what is an unhealthy lifestyle.

Write down key words that our associated with bad health. (Activity 6b)

### **Main-**

Create a cause and affect thinking frame. (Activity 6a)

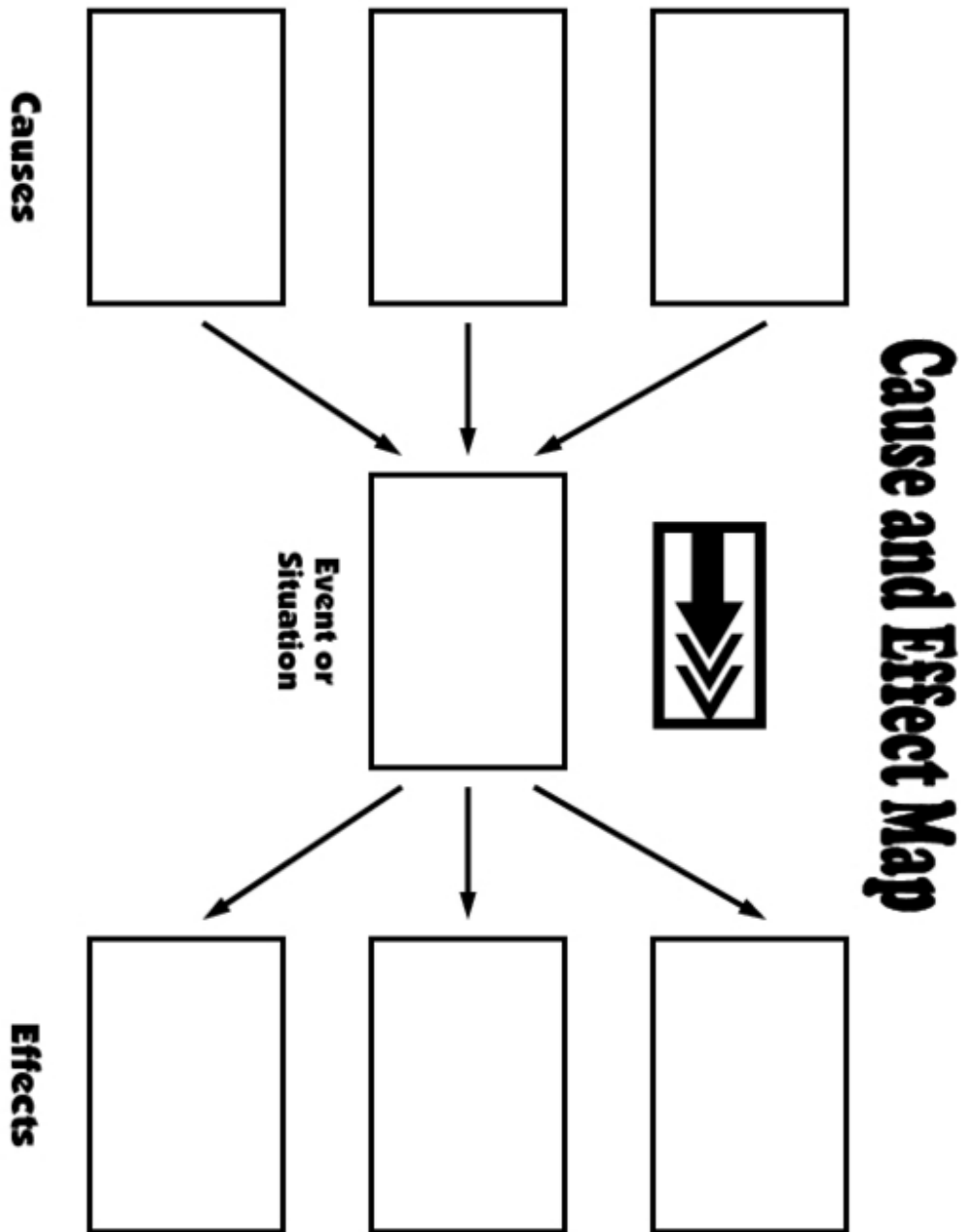
For example- eating too much junk food- with cause obesity

Smoking- will damage your lungs

### **Plenary-**

Share your cause and effect thinking frames. Complete the next step together as a class.

(Activity 6c)



**Activity 6a**

## Activity 6b



HEALTHY LIFESTYLE		UNHEALTHY LIFESTYLE	
 <p>MORE FRUITS</p>	 <p>ENOUGH WATER</p>	 <p>SMOKING</p>	 <p>DRUGS</p>
 <p>ENOUGH SLEEP</p>	 <p>WEIGHT CONTROL</p>	 <p>JUNK FOOD</p>	 <p>TOO MUCH COFFEE</p>
 <p>MORE VEGETABLES</p>	 <p>REDUCE STRESS</p>		



## Activity 6c

**Which do you think is the worst healthy villain? Tick one.**

- smoking
- drinking alcohol
- eating an excessive amount of unhealthy food and becoming overweight

**Why do you think that is the worst one?**

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Poster example for lesson 5

