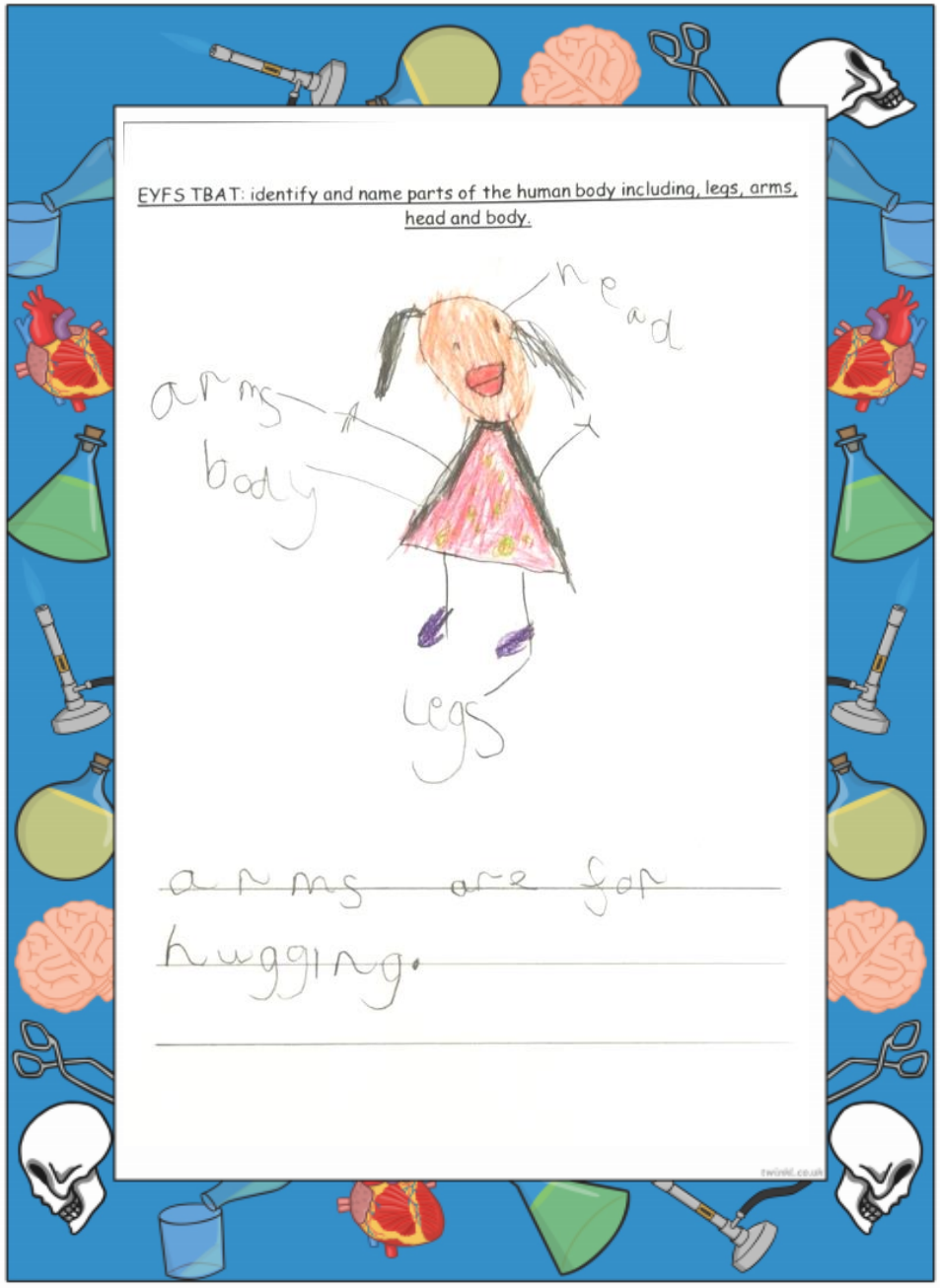
# Science

## Curriculum Progression

## Strand – To understand animals including humans.

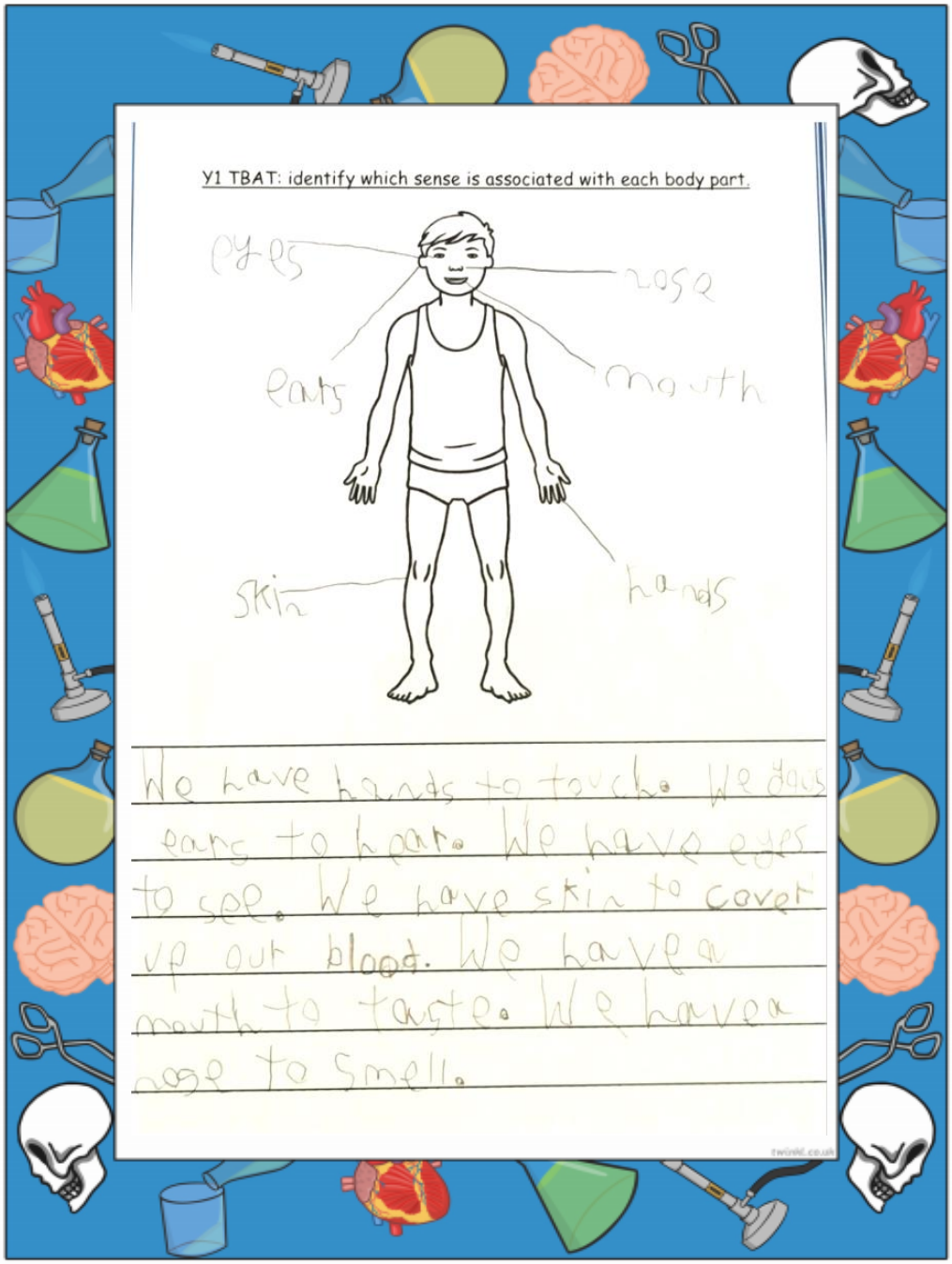



## *Foundation stage:*

*As scientists, children can identify and name parts of the human body including, legs, arms, head and body.*

### *Key Vocabulary*

*leg, arm, head, and body*

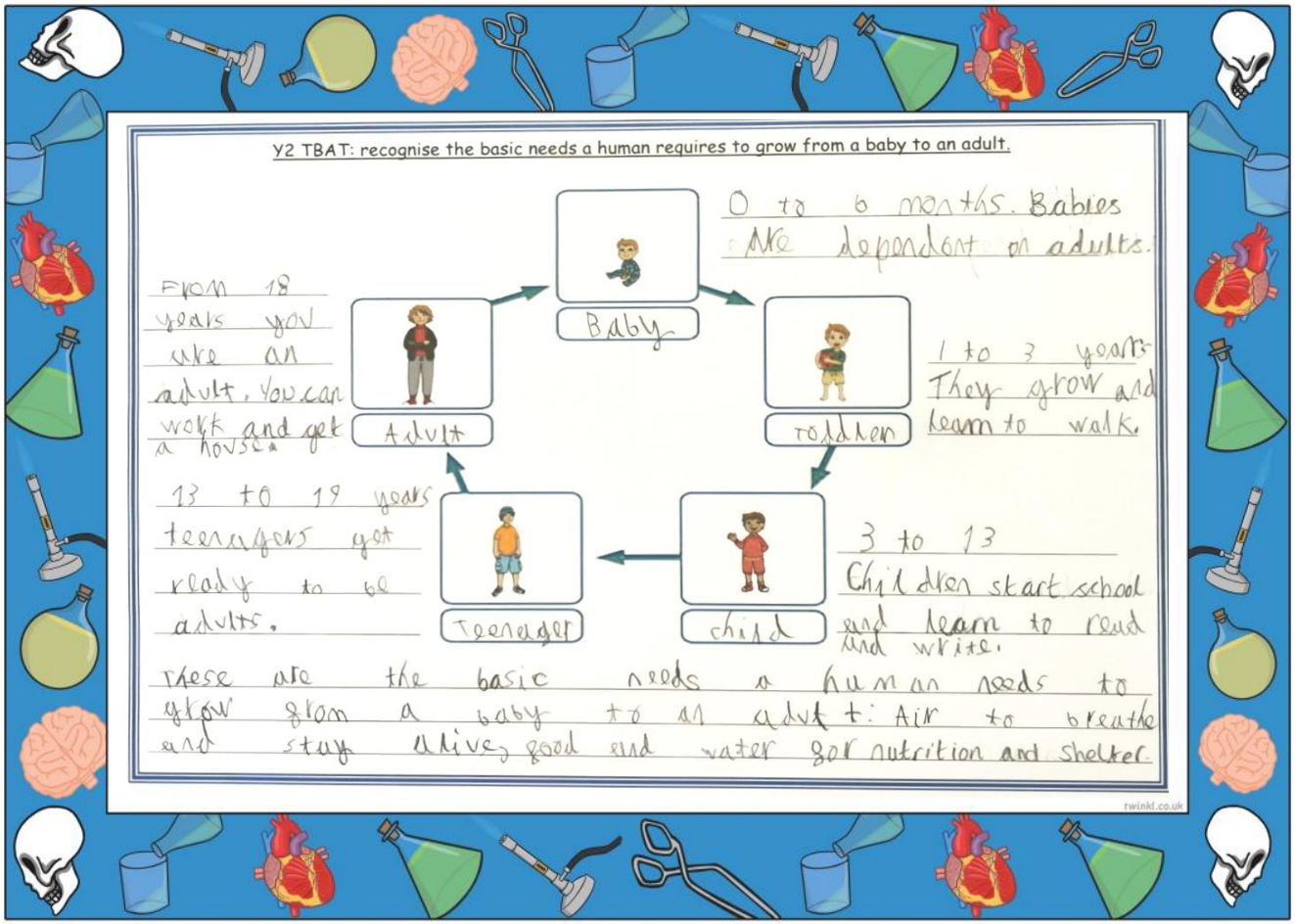



## Y1:

*As scientists, children can identify which sense is associated with each body part.*

### Key Vocabulary

*hear, see, touch, smell and taste*

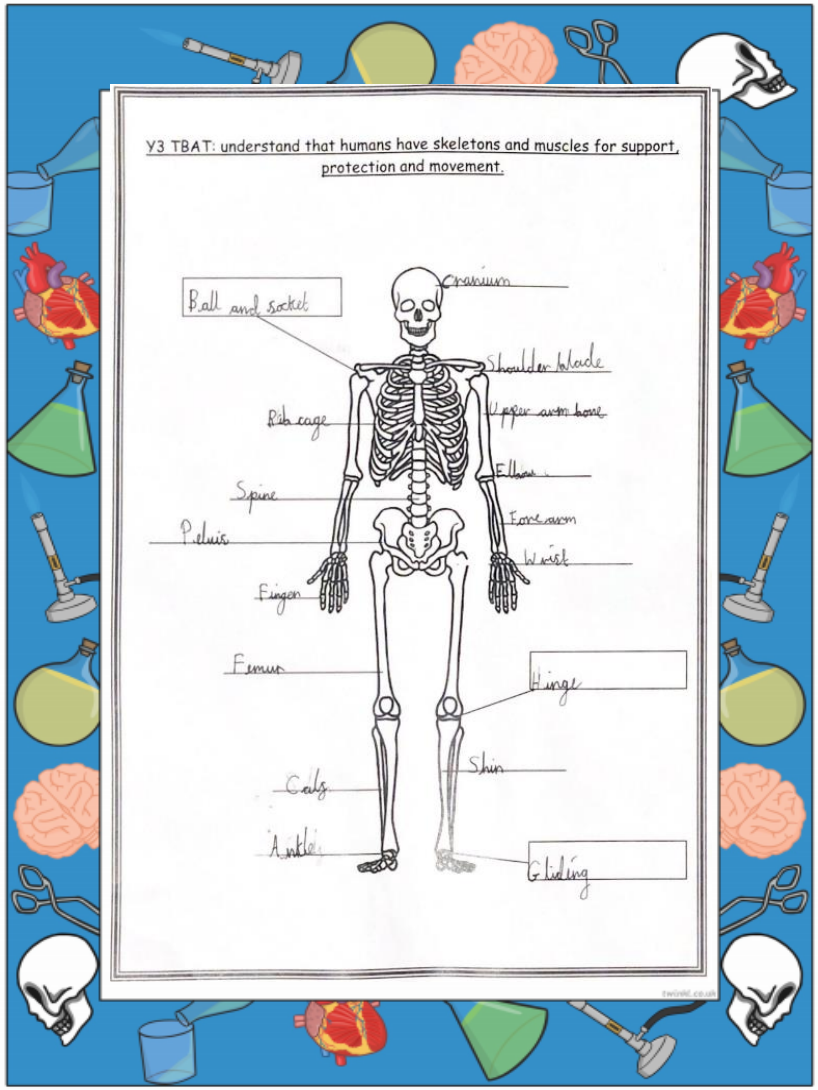



## Y2:

*As scientists, children can recognise the basic needs a human requires to grow from a baby to an adult.*

### Key Vocabulary

*baby, toddler, child, teenager, adult, grow, nutrition*

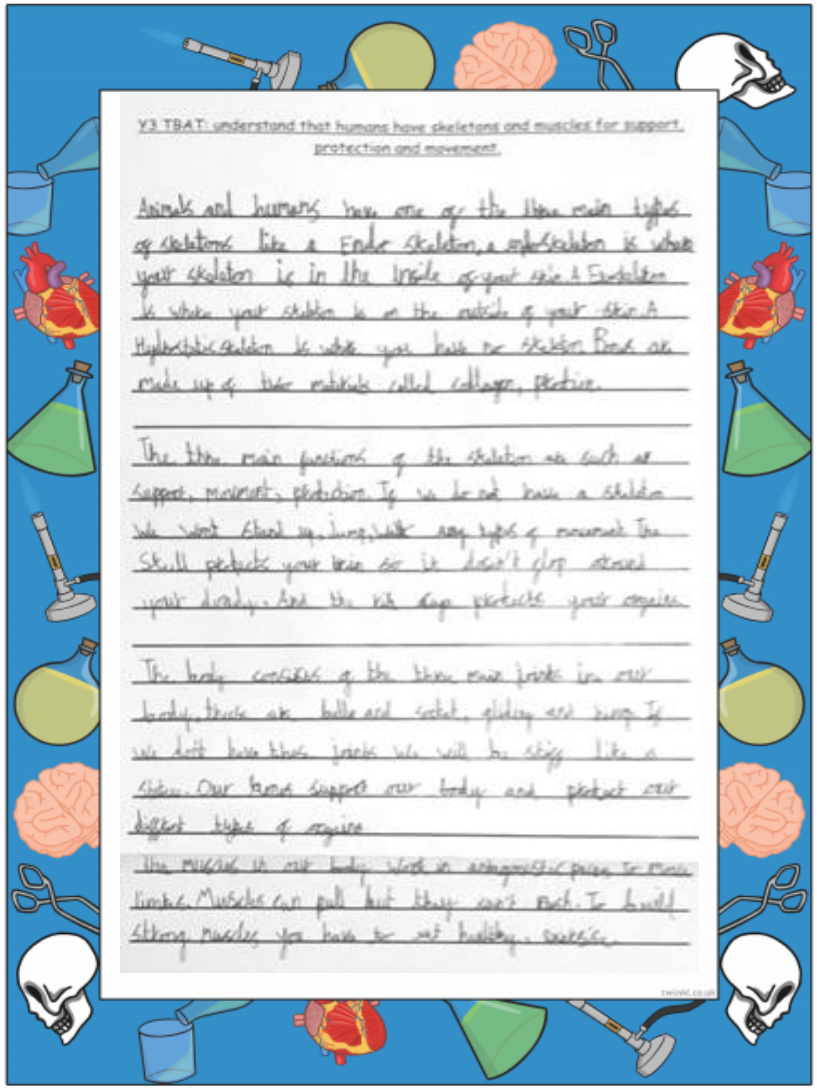


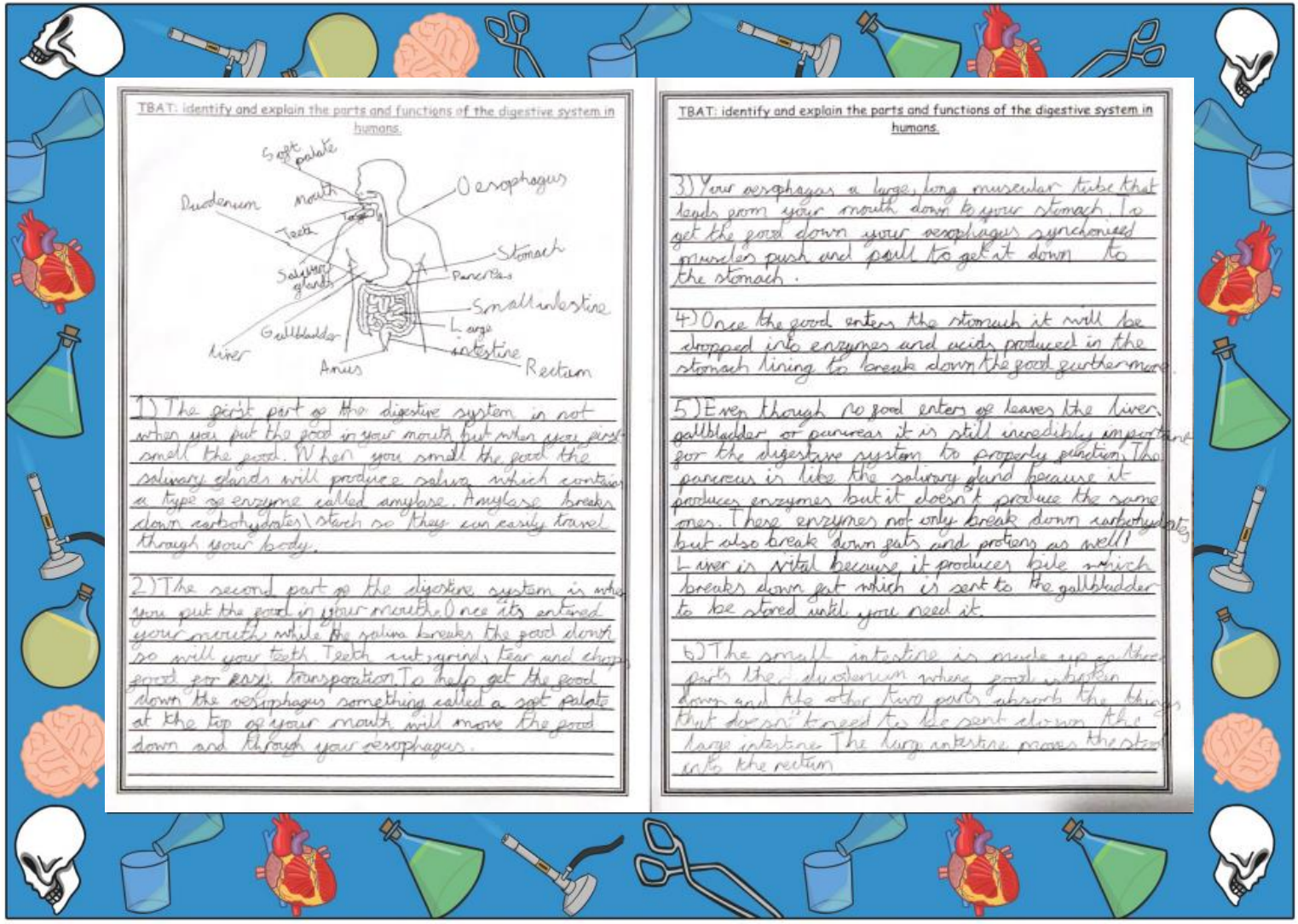

## Key Vocabulary

*skeleton, muscles, joint, movement, protection and support*

## Y3:

*As scientists, children can identify that humans have skeletons and muscles for support, protection, and movement.*





TBAT: identify and explain the parts and functions of the digestive system in humans.



1) The first part of the digestive system is not when you put the food in your mouth but when you first smell the food. When you smell the food the salivary glands will produce saliva which contains a type of enzyme called amylase. Amylase breaks down carbohydrates/starch so they can easily travel through your body.

2) The second part of the digestive system is when you put the food in your mouth. Once it's entered your mouth, while the saliva breaks the food down so will your teeth. Teeth cut, grind, tear and chop food for easy transportation. To help get the food down the oesophagus something called a soft palate at the top of your mouth will move the food down and through your oesophagus.

TBAT: identify and explain the parts and functions of the digestive system in humans.

3) Your oesophagus a large, long muscular tube that leads from your mouth down to your stomach. To get the food down your oesophagus synchonised muscles push and pull to get it down to the stomach.

4) Once the food enters the stomach it will be dropped into enzymes and acids produced in the stomach lining to break down the food furthermore.

5) Even though no food enters or leaves the liver, gallbladder or pancreas it is still incredibly important for the digestive system to properly function. The pancreas is like the salivary gland because it produces enzymes but it doesn't produce the same ones. These enzymes not only break down carbohydrates but also break down fats and protein as well! Liver is vital because it produces bile which breaks down fat which is sent to the gallbladder to be stored until you need it.

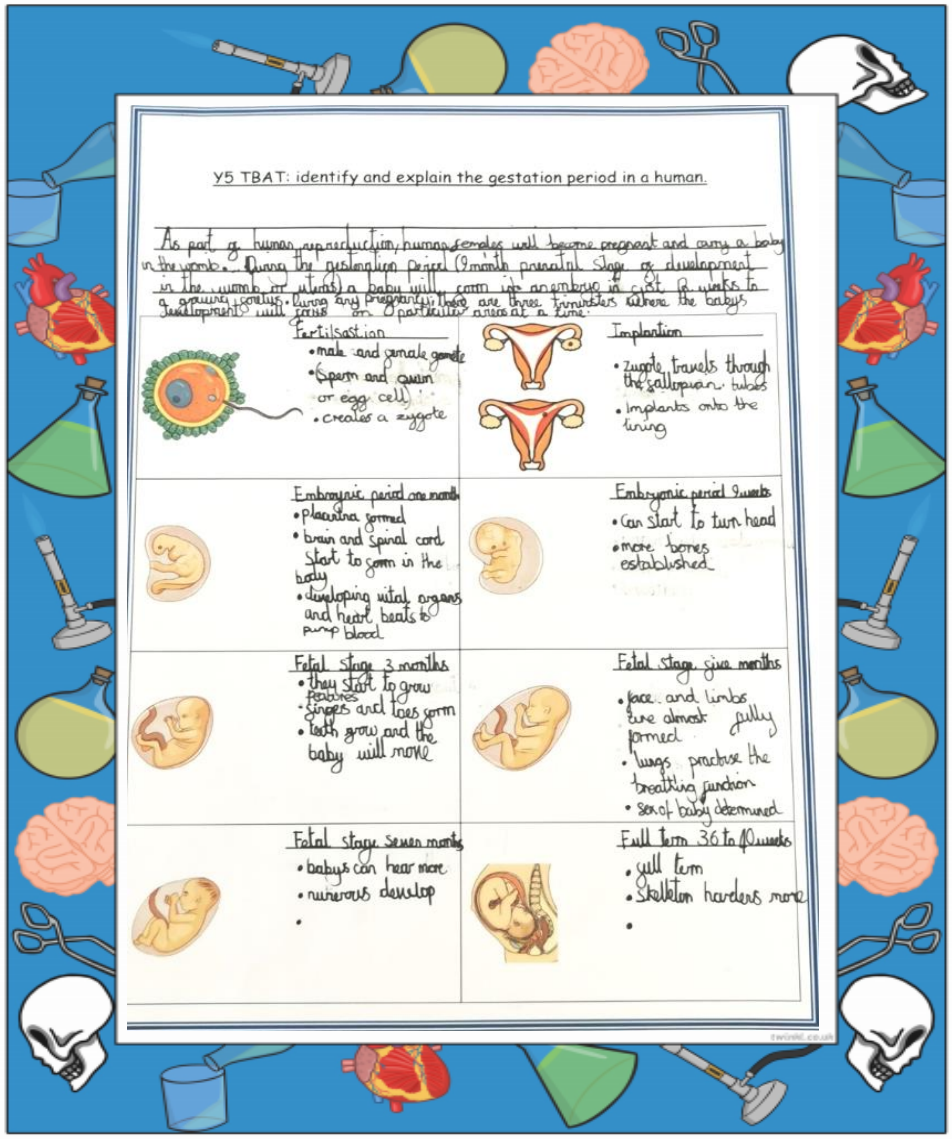
6) The small intestine is made up of three parts the duodenum where food is broken down and the other two parts absorb the things that doesn't need to be sent down the large intestine. The large intestine moves the stool into the rectum.

## Y4:

*As scientists, children can identify and explain the parts and functions of the digestive system in humans.*

## Key Vocabulary

*mouth, oesophagus, small intestine, large intestine, transports, stomach, acid, enzymes,*



Y5 TBAT: identify and explain the gestation period in a human.

As part of human reproduction, human females will become pregnant and carry a baby in the womb. During the gestation period (9 month prenatal stage of development in the womb or uterus) a baby will form into an embryo in order to become a foetus. During any pregnancy there are three trimesters where the baby's development will occur in particular areas at a time.

Fertilisation
- male and female gamete
- Sperm and ovum or egg cell
- creates a zygote

Implantion
- zygote travels through the fallopian tubes
- implants onto the lining

Embryonic period one month
- Placenta formed
- brain and spinal cord start to form in the body
- developing vital organs and heart beats to pump blood

Embryonic period 9 weeks
- Can start to turn head
- more bones established

Foetal stage 3 months
- they start to grow features
- fingers and toes form
- teeth grow and the baby will move

Foetal stage give months
- face and limbs are almost fully formed
- lungs practise the breathing function
- sex of baby determined

Foetal stage seven months
- babys can hear more
- nuerons develop

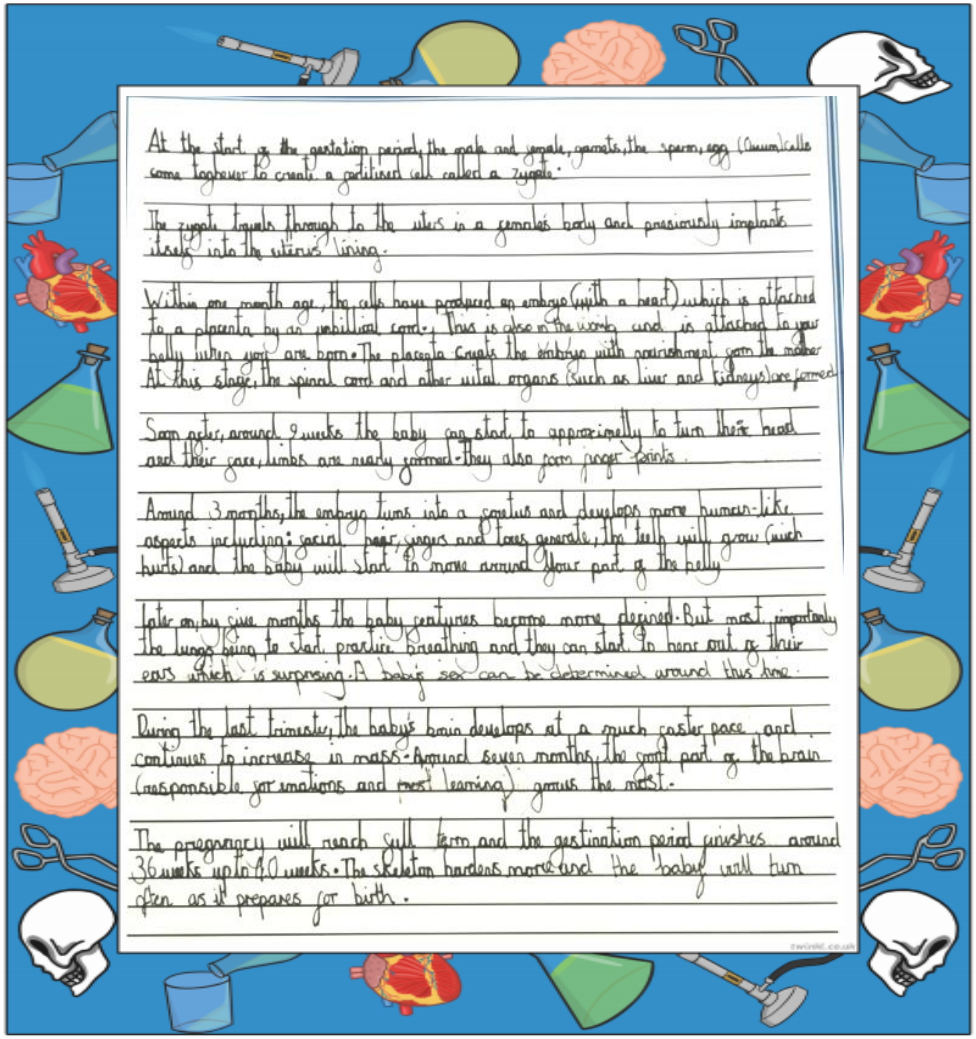
Full term 36 to 40 weeks
- full term
- Skeleton hardens more

## Key Vocabulary

*prenatal, foetus, uterus, fallopian tube, reproduction, sperm, egg, gestation, trimesters*

# Y5:

*As scientists, children can confidently identify and explain the gestation period in a human.*



At the start of the gestation period, the male and female gametes, the sperm, egg (Animal) cells come together to create a fertilised cell called a zygote.

The zygote travels through to the ulter in a females body and successfully implants itself into the uterus lining.

Within one month age, the cells have produced an embryo (with a heart) which is attached to a placenta by an umbilical cord. This is also in the womb and is attached to your belly until you are born. The placenta feeds the embryo with nourishment from the mother. At this stage, the spinal cord and other vital organs (such as liver and kidneys) are formed.

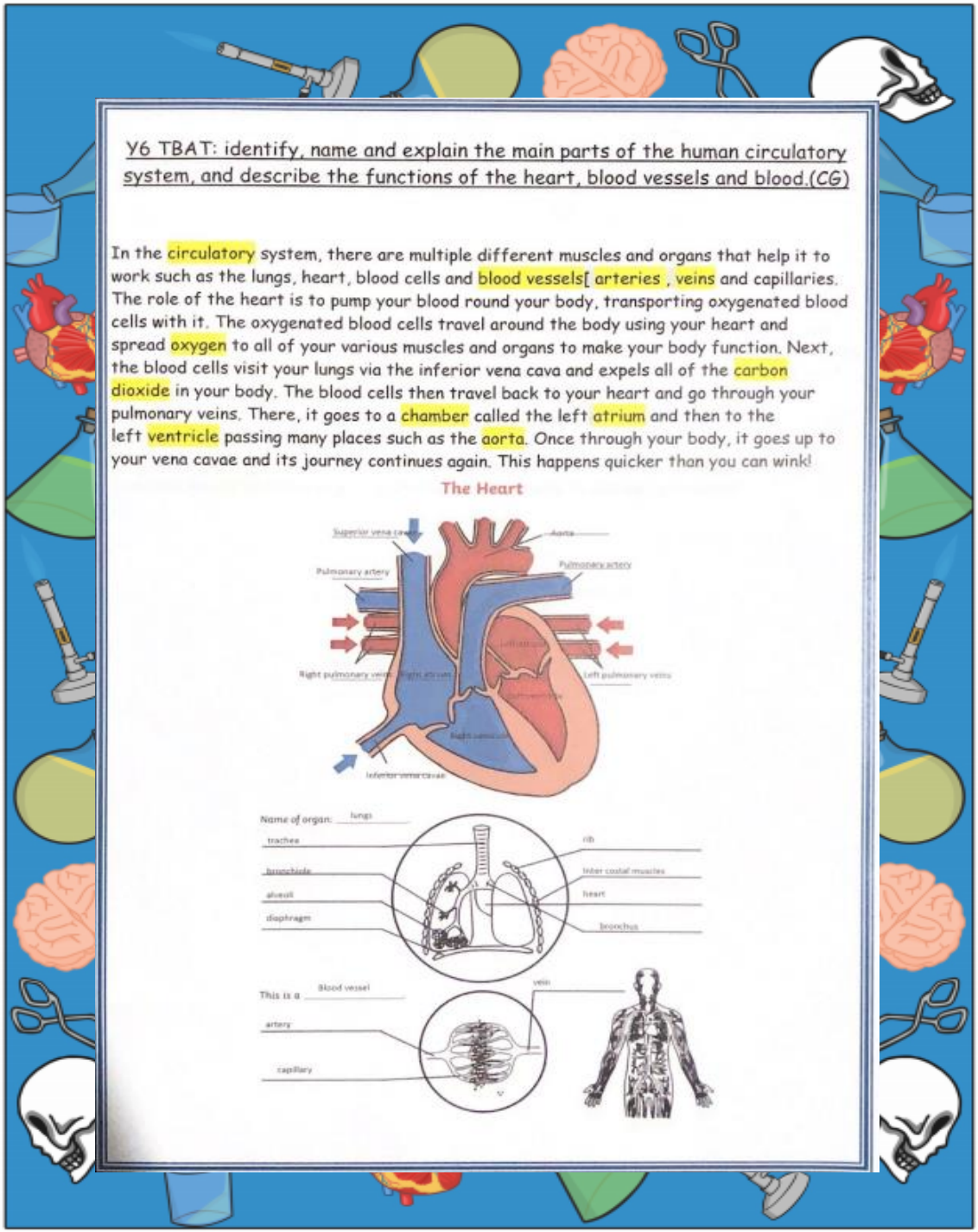
Soon after, around 9 weeks the baby can start to appreciably to turn their head and their face, limbs are nearly formed. They also form proper joints.

Around 3 months, the embryo turns into a foetus and develops more human-like aspects including: facial hair, fingers and toes generally, the teeth will grow (much further) and the baby will start to move around your part of the belly.

Later on by five months the baby features become more defined. But most importantly the lungs going to start practice breathing and they can start to hear out of their ears which is surprising. A baby's sex can be determined around this time.

During the last trimester, the baby's brain develops at a much faster pace and continues to increase in mass. Around seven months, the front part of the brain (responsible for emotions and most learning) grows the most.

The pregnancy will reach full term and the gestation period finishes around 36 weeks up to 40 weeks. The skeleton hardens more and the baby will turn often as it prepares for birth.



Y6 TBAT: identify, name and explain the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.(CG)

In the circulatory system, there are multiple different muscles and organs that help it to work such as the lungs, heart, blood cells and blood vessels[ arteries , veins and capillaries. The role of the heart is to pump your blood round your body, transporting oxygenated blood cells with it. The oxygenated blood cells travel around the body using your heart and spread oxygen to all of your various muscles and organs to make your body function. Next, the blood cells visit your lungs via the inferior vena cava and expels all of the carbon dioxide in your body. The blood cells then travel back to your heart and go through your pulmonary veins. There, it goes to a chamber called the left atrium and then to the left ventricle passing many places such as the aorta. Once through your body, it goes up to your vena cavae and its journey continues again. This happens quicker than you can wink!

The Heart



Name of organ: lungs



This is a Blood vessel



## Y6:

*As scientists, children can identify, name and explain the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood*

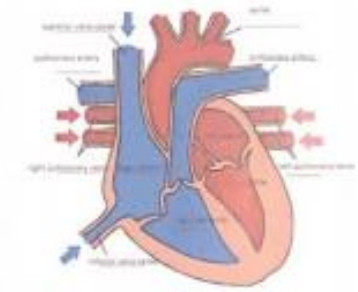
## Key Vocabulary

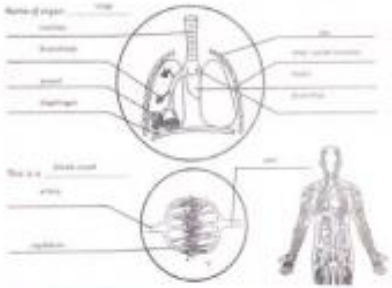
*arteries, veins, blood vessels, circulation, oxygen, carbon dioxide, chambers, ventricles, atriums, aorta*

Y6 TBAT: identify, name and explain the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood (EK)

The heart, which is an organ and a muscle, has one of the most essential roles in the body. Without the heart we would not be able to live. In the circulatory system, the heart takes on the role of helping the blood flow through the body and pumping it so then it moves swiftly. We start our journey with the blood vessels collecting oxygen from the lungs. After that, oxygenated blood passes through the inferior vena cava which then gets transferred to the right atrium. Then, its gets sent into the right ventricle (one of the multiple chambers in the heart) going into the aorta. After going through the aorta, it gets sent to something called a capillary (a blood vessel that connects a vein and an artery which filters out all the water and nutrients as well as disposing of carbon dioxide).
This sequence is then repeated over and over again faster then a blink of an eye. People who study this are called physiologists and surgeons. Whilst surgeons usually focus on transplants and the removal of inner body parts, physiologists study and examine how humans as well as animals bodies works. They may specialise in physical therapy if you have been involved in an accident or they might even specialise in diagrams and teaching their ways to others. So you see the body is interesting and without the circulatory system living things wouldn't be on the Earth this very day.

The Heart





## *Mastery:*

*As scientists, children can independently describe the benefits of a healthy lifestyle on the health and function of a human heart.*

## *Key Vocabulary*

*arteries, veins, blood vessels, circulation, heart rate, oxygen, carbon dioxide, chambers, ventricles, atriums, aorta, heart rate, heart attack, heart disease*

What are the benefits of a healthy lifestyle? The benefits of a healthy life style are definitely effective. It gives you a healthier body and increases your lifespan. One of the most beneficial things you could do is exercise 30 minutes per day or cardio which involves running, boxing and swimming. This increases your heart rate - how many beats per minute your heart beats - and strengthens the heart muscle.

Of course, there are many bad effects of living an unhealthy lifestyle like nasty diseases like heart disease and cancer. Even worse, seizures and heart attacks. Many heart attacks happen when you are older because throughout your life you have been eating food that is filled with sugar and fats that make your arteries fur up.

One of the worst things you could do is smoke. Smoking is a very harmful and threatening thing for your body. It can have a severe consequence on your lungs and your body including lung cancer, COPD and bronchitis. The worst case scenario would be death or having to be hospitalised. Back in the olden days, smoking was very popular because society didn't know what a bad impact it had on your lungs and the way you breathe. Eventually, if you are not careful whilst smoking, the oxygen, which is supposed to be taken to the arteries and the heart, struggles to circulate around the body.