



Science Home Learning Task

Year 7

The living world: Body systems

Name _____

Tutor Group _____

Teacher _____

Given out: Monday 3 February Hand in: Monday 10 February

Parent/Carer Comment

Staff Comment

Target



Investigating Science

Welcome to your Science homework booklet. This booklet is designed to give you some extra practise on the key areas in the “structure and function of body systems” section of the course.

You need to carry out all tasks.

Don't forget to ask a parent/carer to sign the box on the front.

TASK 1- Reading task

Gas exchange

Did you know that your body has its very own gas exchange programme that runs 24 hours a day? It's called the **respiratory system**. It is one of your body's vital systems, which means you could not live without it. Every time you take a breath, oxygen enters your lungs and is carried around to all the body's cells by the circulatory system. Waste products, like carbon dioxide gas, are picked up by the circulatory system as well. Carbon dioxide is dropped off at the lungs so you can breathe it out.

The respiratory and circulatory systems need each other. The respiratory system brings in oxygen and pushes out carbon dioxide. The circulatory system transports these gases where they need to go. The two systems work together to make sure that your body gets what it needs to survive. That is why we say that the respiratory and circulatory systems are **interdependent**. They need each other.

The respiratory system is not just your lungs. It also includes your nose, mouth, and the air passageways that connect them to your lungs. After you inhale air through your nose and mouth, it enters a tube in your throat called the trachea. Right before the trachea gets to your lungs, it splits into two smaller tubes called the bronchi. The deeper you go into your lungs, the smaller and smaller the tubes become as they keep dividing in two. The very smallest tubes end with tiny sacs. These sacs look like grape clusters under the microscope. These are called alveoli. They diffuse oxygen into the blood and receive carbon dioxide being returned to the lungs from the blood. Carbon dioxide travels out of your body when you exhale.

Your body has a special way of making sure that you can get the oxygen that you need when you breathe. Your chest actually changes size when you inhale. You have muscles that are attached to your ribs. These muscles pull up when you inhale. Your diaphragm, a large muscle under your lungs, pulls down. This gives plenty of room so you can get the air you need.

Answer the following questions about the passage you have read.

1) What is the purpose of the circulatory system?

2) Identify the parts of the respiratory system.

3) What is the function of the alveoli?

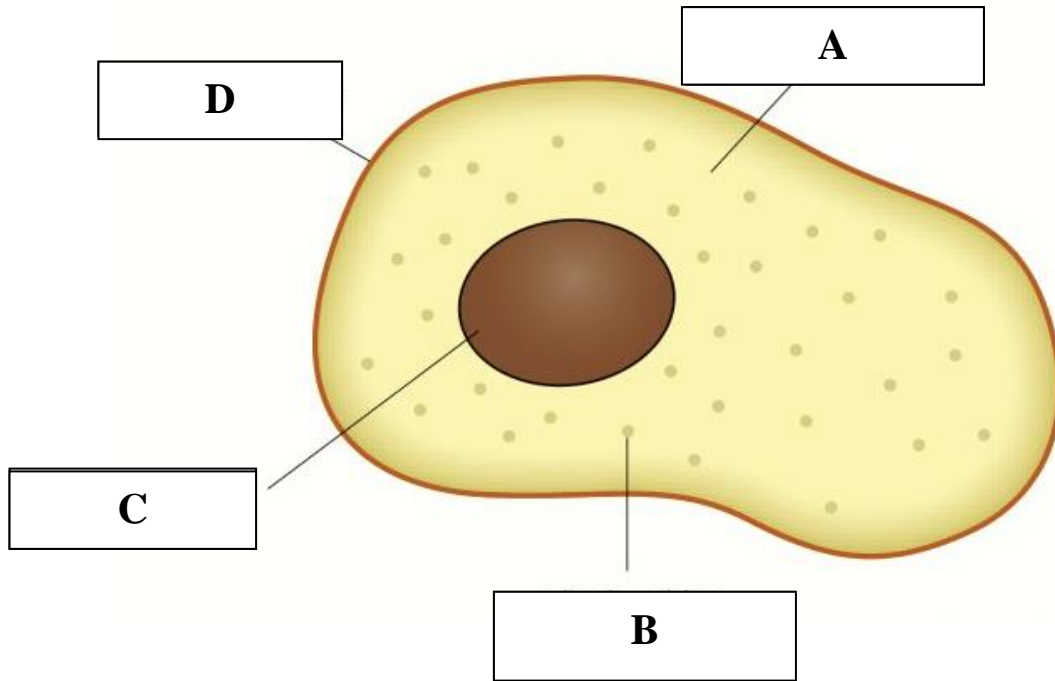
4) How does the body get rid of carbon dioxide?

5) How does your body make room for a deep breath?

TASK 2 - Levels of organisation

Multicellular organisms are made up of many cells which make the tissues and organs needed for survival.

1a) Label the animal cell using the labels in the box below.



Mitochondria	Cell membrane	Nucleus	Cytoplasm
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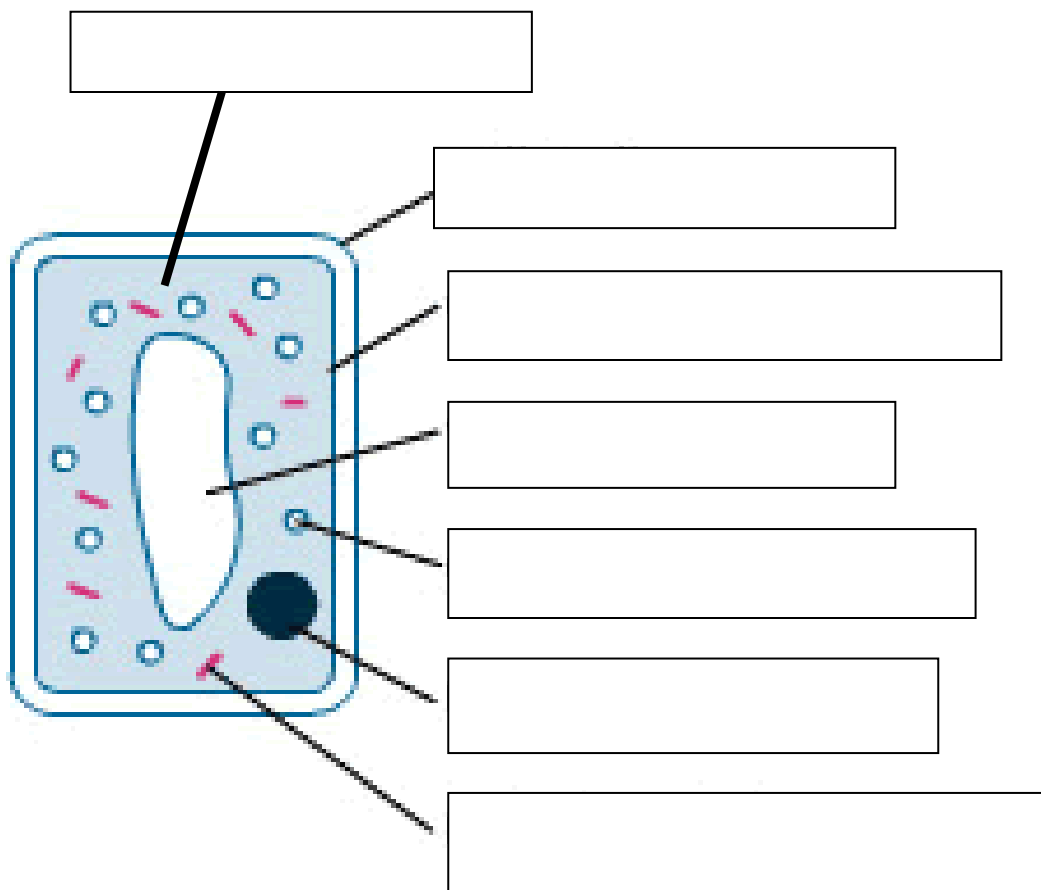
A _____

B _____

C _____

D _____

1b) Label the plant cell using the labels in the box below. Write your answers in the boxes provided.



Mitochondria	Cell membrane	Nucleus	Cytoplasm
Chloroplast	Vacuole	Cell wall	

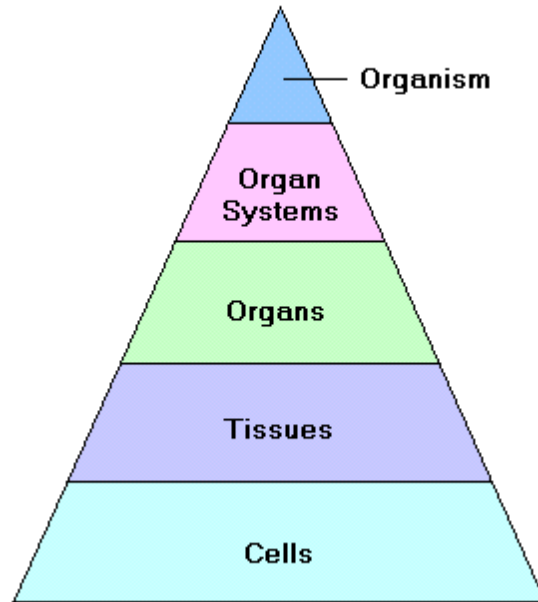
TASK 2 - continued

2. Match the cell structure to its function by drawing lines between them.

Nucleus	Controls what enters and leaves the cell
Cell wall	For storage. Contains cell sap
Cytoplasm	Controls the cell and contains genetic material
Vacuole	Respiration happens here – energy is made
Cell membrane	Chemical reactions happen here
Mitochondria	Strengthens the cell and provides support
Chloroplasts	Where energy from the Sun is trapped for photosynthesis

TASK 2 – continued

3. **Multicellular organisms** have five layers of organisation as shown below.



Answer the following questions about the five layers.

a) What is a **tissue**?

b) Give an example of a **tissue** in the human body.

c) What is an **organ**?

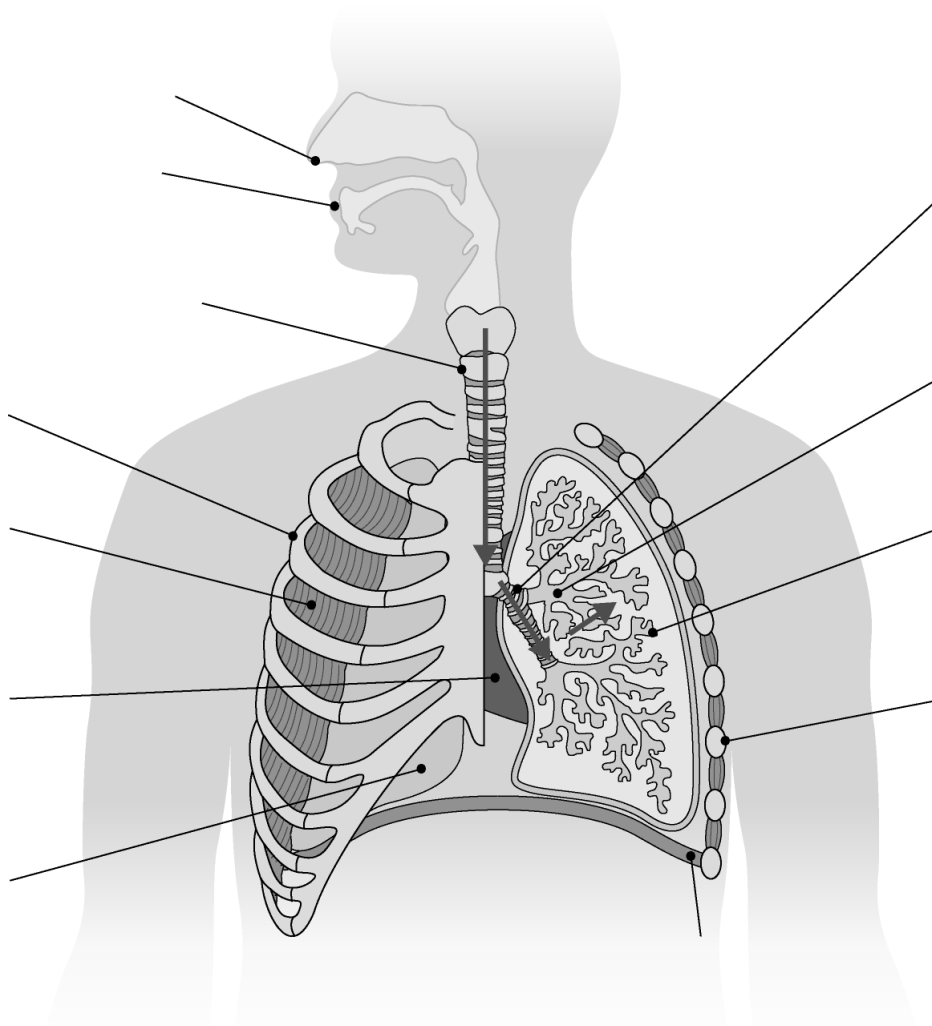
d) Give an example of one **organ** in the human body **and** one **organ** in a plant.

TASK 3 – Gas exchange and breathing

The diagram below shows the **respiratory system** which is used to help us breathe in and out.

1. Label the diagram below using the words in the box.

Trachea	Alveolus	Nose	Ribcage	Heart	Bronchiole
Rib	Lung	Mouth	Diaphragm	Bronchus	Muscle



TASK 3 - continued

4. The diagram below shows a model that can be used to show what happens when we breathe in and out.



Is the bell jar model a good model of breathing? Write down one way in which the model is a good model and one way that it is a bad model for breathing.

TASK 4 – The skeleton

Our **skeleton** is made of many **bones** joined together to form a framework. Answer the questions about our skeleton below.

1. How many **bones** make up an adult **skeleton**?

2. What are **bones** made of? Use the internet to find out the answer.

3. We need our skeleton for four main functions:- **support, protection, movement** and to **make blood cells**. Describe how the skeleton carries out each of these functions.

Support:-

Protection:-

Movement:-

Make blood cells:-

TASK 5 – Joints and muscles

We need **muscles** and **joints** to be able to move our body. Answer the questions below about **muscles** and **joints**.

1. There are three different types of **joints** in the body. Re-arrange the letters below to find out what they are.

1.

Gehin

2.

Lalb and tockes

3.

Dexif

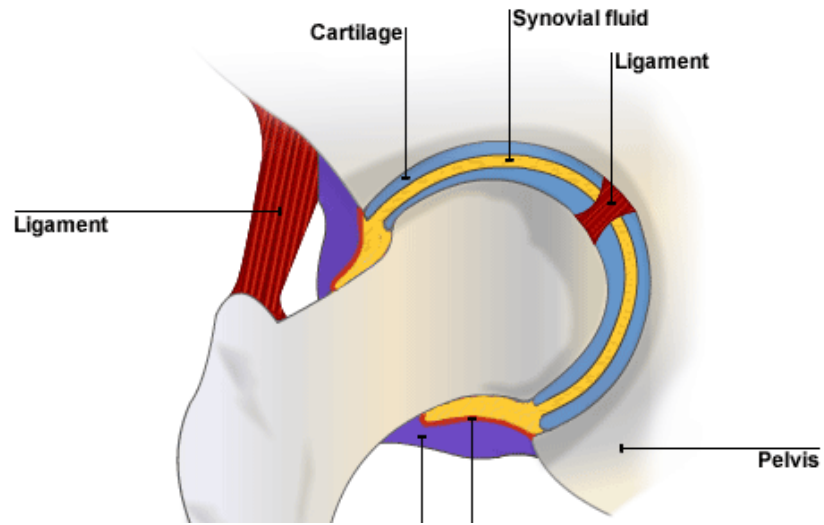
2. Give an example of where you would find each of these **joints** in the body and the direction that each joint moves.

Joint 1:-

Joint 2:-

Joint 3:-

3. The diagram below shows the main parts of a hip joint.



a) What is the job of the **cartilage** in the joint?

b) What is the job of the **ligaments** in the joint?

4. To help the body to move we also need muscles. Muscles have **tendons** attached to them. What is the job of a **tendon**?

5. Muscles that help to move a bone are called **antagonistic muscles**. What is meant by **antagonistic muscles**?
