

# Accident and Emergency Project Task

## Purpose of task:

This project task should be completed at home as an extended project. It is split into 4 homework tasks, each of which should take between 1 and 2 hours. The purpose of this task is to give you an opportunity to extend your understanding and knowledge of the following topics you are studying in the Accident and Emergency unit:

- Tissues, organs and organ systems
- Cells
- Reproduction
- Microbes and Disease.

## Assessment:

Use the levelled criteria to guide you through each homework task and complete each task on the attached student sheets for tasks 1,3 & 4 which you should print off from the year 7 Science page on <http://Fronter.com/hillingdon>. For task 2 students are to make a model which will need to be handed in with the completed project.

# Homework 1: Organ Systems.



Patients waiting to see a doctor can get very anxious about their illness or injury.

They often forget their school science.

Create a poster or booklet to explain what the organs in your chest do.

It must use correct scientific terms like **cardiovascular** and **respiratory system**, and show why these systems are needed to keep your body alive.

## Key terms:

Cell, tissue, Organ, heart, lung, vein, artery, cardiovascular, respiratory, trachea, diaphragm, gas exchange, oxygen, carbon dioxide, glucose, circulatory, intercostal muscles, bronchi, atrium, ventricles

## Level ladder:

What is your target level? Use the level ladder to help you reach it:

To get level:	You might have:
3	<ul style="list-style-type: none"> <li>Name the 2 main organs in your chest and say what they do.</li> <li>Include a hand drawn diagram of each organ</li> </ul>
4	<ul style="list-style-type: none"> <li>Described the system each organ is part of and state its role in the body</li> <li>Label your diagrams using the following words: <i>trachea, bronchi, ribs, intercostal muscles, diaphragm; atrium, ventricles, artery, vein</i></li> </ul>
5	<ul style="list-style-type: none"> <li>Explain why these systems are needed to keep tissues all over your body alive</li> <li>Use some of the key words in the key terms box correctly</li> </ul>
6	<ul style="list-style-type: none"> <li>Explain how one of these tissues in these organs is suited to its job; and explain the consequences of one of these organs not working.</li> <li>Use most of the key words in the key terms box correctly</li> </ul>
7	<ul style="list-style-type: none"> <li>Evaluate the treatments available for treating one of the illnesses caused by the failure of one the chest organs [<i>smoking related diseases, cystic fibrosis, pulmonary oedema, bronchitis or any other disease you have found out about through your research</i>].</li> </ul>

# **Homework 1: Organ Systems Student Sheet.**

## Homework Task 2: Cells

### **Task:**

Imagine the Science Museum has asked you to make a model cell for a display.

Make a model of a plant **or** animal cell.

Use the key words below to label each part of the model cell clearly.

Make an information card, perhaps using a key, to describe what cells are.

*Your teacher may ask you to give a short presentation about your model.*

### **Key terms:**

cell, cell membrane, chloroplast, cytoplasm, nucleus, vacuole

### **Level ladder:**

What is your target level? Use the level ladder to help you reach it:

To get level:	You might have:
3	<ul style="list-style-type: none"><li>• Made a simple model of a plant or animal cell</li><li>• Identified a part of the cell correctly</li><li>• Stated some simple facts about cells, e.g. how you see them, what they do, what they are like.</li></ul>
4	<ul style="list-style-type: none"><li>• Made a model plant <b>or</b> animal cell and have labelled most parts correctly using correct key words</li><li>• Described what cells are like and what they do</li><li>• Matched some parts of the cell to their job correctly</li></ul>
5	<ul style="list-style-type: none"><li>• Made an accurate plant <b>or</b> animal cell and have labelled all parts correctly</li><li>• Described what cells are like and what they do</li><li>• Described the job of each part of the cell correctly</li></ul>
6	<ul style="list-style-type: none"><li>• Made a model plant <b>or</b> animal cell <b>or</b> specialised cell</li><li>• Labelled all parts of the cell correctly</li><li>• Explained the jobs of each part of the cell correctly</li><li>• Explained simply why the cell is good at its job</li></ul>
7	<ul style="list-style-type: none"><li>• Made a specialised cell, e.g. root hair, sperm, ovum</li><li>• Using scientific detail, labelled all parts of the cell correctly</li><li>• Using scientific detail, explained the jobs of all parts of the cell correctly</li><li>• Using scientific detail, explained how the cells shape helps it do its job.</li></ul>

# Homework Task 3: The race to make a baby!

Describe and explain what happens when a sperm and egg meet to make a baby. You can do this by writing a short story or a cartoon strip.

These are the five headings you must include:

1. The sperm race begins.
2. Meeting the egg.
3. The journey to the womb.
4. Growing in the womb.
5. Time to be born.

For each heading, make sure you clearly show where it takes place.

Describe the main events that happen.

Use as many scientific words as you can to describe what happens.

**Key words:**

birth, egg, embryo, fertilisation, foetus, implantation, ovary, penis, placenta, sperm, vagina, womb

**Level Ladder:**

What is your target level? Use the level ladder to help you reach it:

To get level:	You might have:
3	<ul style="list-style-type: none"> <li>• drawn some pictures to show: sperm swimming to the egg, sperm and egg meeting, foetus growing in the womb</li> <li>• labelled some parts of the diagrams</li> <li>• written a short sentence to describe what happens for some of the events</li> </ul>
4	<p>For each heading:</p> <ul style="list-style-type: none"> <li>• correctly used the key words in the cartoon</li> <li>• identified and named the main parts of the reproductive system correctly</li> <li>• simply described fertilisation and implantation using the key words</li> </ul>
5	<p>For each heading:</p> <ul style="list-style-type: none"> <li>• simply described each stage using the key words correctly</li> <li>• identified the place in the reproductive system each event takes place</li> <li>• described what happens to cells during fertilisation</li> </ul> <p>Also:</p> <ul style="list-style-type: none"> <li>• simply described and drawn a sperm and egg cell</li> <li>• labelled the main parts of each cell</li> </ul>
6	<ul style="list-style-type: none"> <li>• described the major events accurately, particularly fertilisation and implantation</li> <li>• described the place in the reproductive system each event takes place</li> </ul> <p>Also:</p> <ul style="list-style-type: none"> <li>• Drawn and described the sperm and egg cell</li> <li>• Labelled the main parts of each cell</li> <li>• Explained the jobs of each part of the cell correctly</li> </ul>

	<ul style="list-style-type: none"><li>• Explained simply why the cell is good at its job</li></ul>
7	<ul style="list-style-type: none"><li>• Used detailed knowledge and understanding to describe the major stages in human reproduction, particularly fertilisation and implantation</li><li>• described the place in the reproductive system each event takes place</li><li>• Using scientific detail, explained the jobs of each part of the cell correctly</li><li>• Using scientific detail, explained simply why the cell is good at its job</li></ul>

**Homework Task 3: The race to make a baby! Student Sheet**

## Homework Task 4: The Dodgy Barbeque!

At her birthday garden party, Chloe's dad cooked beef burgers on a barbeque for the guests. Everybody was very hungry and so Chloe's dad cooked the burgers quickly. They were burnt on the outside. After a couple of mouthfuls, a few guests complained that their burgers were cold in the middle, so Chloe's dad put them back on the barbeque to heat them through. A few hours later, some of the guests had bad stomach pains and a few vomited. The next day, many of the guests were being sick and had diarrhoea.

**Task:** Use the information above to explain why the guests had food poisoning and the body's response to the infection.

You can do this either by:

- drawing a cartoon strip to show the stages of infection;
- writing an exciting story to show how the infection takes hold and is defeated.

**Make sure you include:**

1. How bacteria can enter the body.
2. Which barriers the bacteria must overcome when entering the body.
3. How the bacteria reproduce in the digestive system.
4. What the body can do to fight the infection.
5. How the body can prepare itself for a future infection from the same bacteria.

### **Food poisoning fact file:**

Food poisoning can be caused by bacteria called **Salmonella**.

A small number of the bacteria on meat can cause food poisoning. These bacteria enter the body and **reproduce** by dividing in the same way as cells in the body. Each **bacterium** can divide every 20 minutes.

When it enters the body, it reacts with chemicals in the **digestive system** and causes food poisoning.

**Key words:** antibodies, bacterium (bacteria), food poisoning, illness, immune, infection, small intestine, stomach, stomach acid, white blood cells

**Level ladder:** What is your target level? Use the level ladder to help you reach it:

To get level:	You might have:
3	<ul style="list-style-type: none"> <li>• Stated simply why the guests got ill.</li> <li>• Shown how the bacteria got into their bodies.</li> <li>• Suggested how to avoid food poisoning.</li> </ul>
4	<ul style="list-style-type: none"> <li>• Described how the bacteria got into the guests' bodies.</li> <li>• Described how the body defends itself from the bacteria entering.</li> <li>• Described simply where and how the bacteria reproduce.</li> <li>• Described simply how the body reacts when it is infected.</li> <li>• Stated ways to prevent food poisoning.</li> </ul>
5	<ul style="list-style-type: none"> <li>• Explained simply why the guests got food poisoning.</li> <li>• Described the body's defences against the bacteria.</li> <li>• Explained why it takes a few hours before a person feels ill.</li> </ul>



	<ul style="list-style-type: none"> <li>• Described how the body fights the infection.</li> <li>• Explained how food poisoning can be prevented.</li> </ul>
6	<ul style="list-style-type: none"> <li>• Explained why the guests got food poisoning.</li> <li>• Explained how some human body cells are specialised to stop bacteria entering it.</li> <li>• Explained, using diagrams, how the bacteria divide in the body.</li> <li>• Explained how the body responds to the infection.</li> <li>• Explained the body's response if it was infected by the same type of bacteria again.</li> </ul>
7	<p><i>Followed the instructions for level 6, using detailed scientific knowledge and understanding, and also:</i></p> <ul style="list-style-type: none"> <li>• Used numerical methods to estimate the number of bacteria that are in the body after a few hours.</li> <li>• Made comparisons of the sizes of bacteria and human cells.</li> </ul>

**Homework Task 4: The Dodgy Barbeque! Student Sheet.**

# Teacher Mark Sheet

**Pupil Name:** \_\_\_\_\_

**Science Class:** \_\_\_\_\_

**Science Teacher:** \_\_\_\_\_

## **Homework Task 1: Organ Systems**

*What went well:*

*Sub-level achieved:*

*To progress to the next sub-level you should consider:*

## **Homework Task 2: Cells**

*What went well:*

*Sub-level achieved:*

*To progress to the next sub-level you should consider:*

## **Homework Task 3: The race to make a baby**

*What went well:*

*Sub-level achieved:*

*To progress to the next sub-level you should consider*

## **Homework Task 4: The Dodgy Barbeque**

*What went well:*

*Sub-level achieved:*

*To progress to the next sub-level you should consider*

**Overall sub level**