This Checkpoint Task should be used in conjunction with the KS3–KS4 GCSE (9–1) Gateway Biology A Transition Guide – Cell Level Systems.

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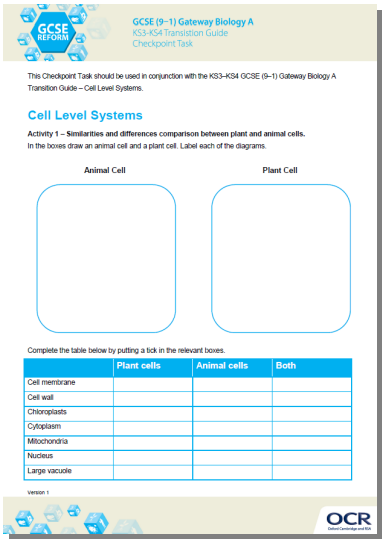
# Cell Level Systems

## Instructions and answers for teachers

***These instructions should accompany the OCR resource 'KS3–KS4 GCSE (9–1) Gateway Biology A Transition Guide – Cell Level Systems' activity** which supports OCR GCSE (9–1) Gateway Biology A.*



GCSE (9–1) Gateway Biology A
KS3–KS4 Transition Guide
Checkpoint Task

This Checkpoint Task should be used in conjunction with the KS3–KS4 GCSE (9–1) Gateway Biology A Transition Guide – Cell Level Systems.

Cell Level Systems

**Activity 1 – Similarities and differences comparison between plant and animal cells.**
In the boxes draw an animal cell and a plant cell. Label each of the diagrams.

Animal Cell | Plant Cell

Complete the table below by putting a tick in the relevant boxes.

| | Plant cells | Animal cells | Both |
|---|---|---|---|
| Cell membrane | | | |
| Cell wall | | | |
| Chloroplasts | | | |
| Cytoplasm | | | |
| Mitochondria | | | |
| Nucleus | | | |
| Large vacuole | | | |

Version 1

OCR

**The Activity:**

The checkpoint activity is a selection of activities designed to check the key areas from Key Stage 3 before moving forward to Key Stage 4. The activities can be done individually or together.


*This activity offers an opportunity for English skills development.*

**Associated materials:**

'Cell Level Systems' Checkpoint Task learner activity sheet.

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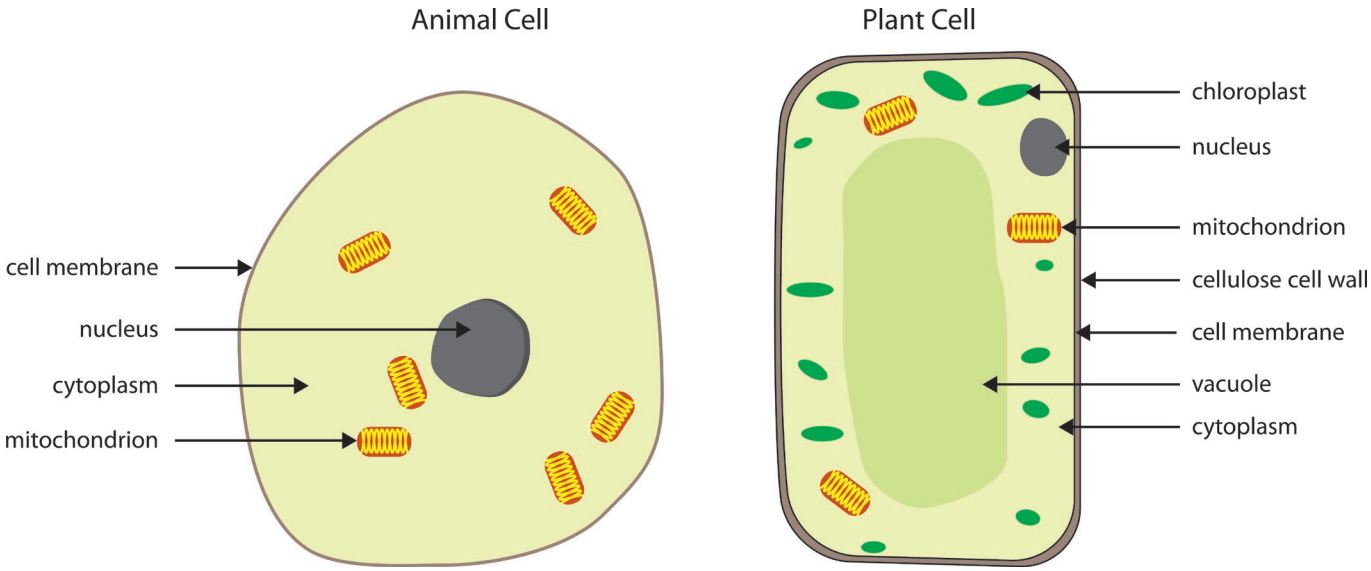
*This resource is an exemplar of the types of materials that will be provided to assist in the teaching of the new qualifications being developed for first teaching in 2016. It can be used to teach existing qualifications but may be updated in the future to reflect changes in the new qualifications. Please check the OCR website for updates and additional resources being released. We would welcome your feedback so please get in touch.*

# Activity 1 – Similarities and differences: a comparison between plant and animal cells

## Answers

Examples of an animal cell drawing and a plant cell drawing:

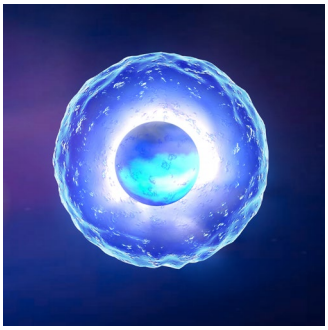
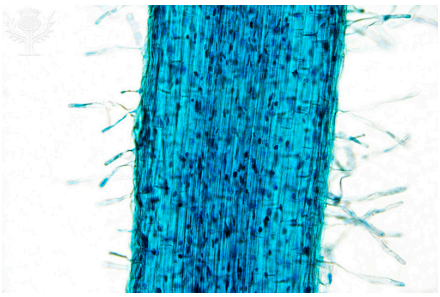
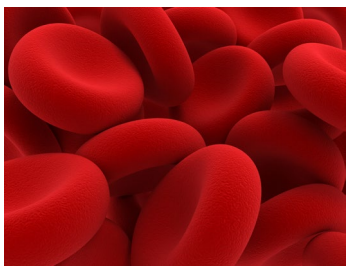


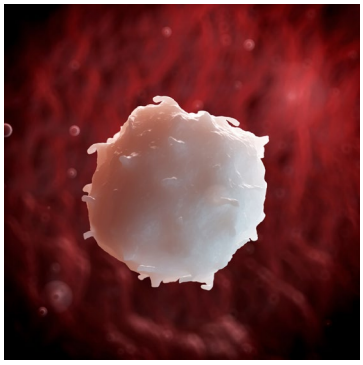
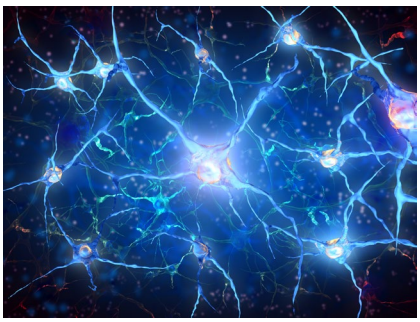
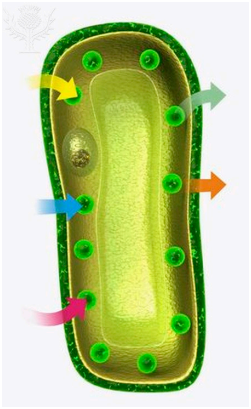

Complete the table below by putting a tick in the relevant boxes.

| | Plant cells | Animal cells | Both |
|---|---|---|---|
| Cell membrane | ✓ | ✓ | ✓ |
| Cell wall | ✓ | | |
| Chloroplasts | ✓ | | |
| Cytoplasm | ✓ | ✓ | ✓ |
| Mitochondria | ✓ | ✓ | ✓ |
| Nucleus | ✓ | ✓ | ✓ |
| Large vacuole | ✓ | | |

## Activity 2 – Specialised Cells

Cut out the following boxes. Match up the caption with the image and stick in your books.

| | |
|---|---|
|  <br>**Sperm cell** | **This cell is found in a leaf. Photosynthesis takes place here.** |
|  <br>**Egg cell** | **This cell is found on a plant root. It absorbs water from the soil.** |
|  <br>**Root hair cell** | **This cell can change shape. It can kill bacteria in the body. It is part of the body's defense system.** |
|  <br>**Red blood cell** | **This cell is a female sex cell. It contains nutrient rich cytoplasm for development.** |

| | |
|---|---|
|  <br>**White blood cell** | **This cell can pass electrical messages around the body. It helps muscle cells to move.** |
|  <br>**Nerve cell** | **This cell is a male sex cell. It has a tail to swim.** |
|  <br>**Palisade cell** | **This cell is round to move through blood vessels. It carries oxygen around the body.** |

## Activity 3 – Summary word loop game

| | |
|---|---|
| **Flagella** | **Which part of a cell controls its activities?** |
| **The nucleus** | **Which part of a cell controls what substances go in and out of the cell?** |

| | |
|---|---|
| The cell membrane | Which part of a plant cell contains chlorophyll? |
| The chloroplasts | What does chlorophyll do? |

| | |
|---|---|
| Trap sunlight for photosynthesis | True or false: cytoplasm is only found in animal cell? |
| False | Which parts of a plant cell give support and structure to the cell? |

| | |
|---|---|
| **Cell wall and vacuole** | **Where do chemical reactions take place in a cell?** |
| **The cytoplasm** | **Which cell has a tail to help it move?** |

| | |
|---|---|
| **Sperm cell** | **Which cell has a large number of chloroplasts?** |
| **Palisade cell** | **Which cell is very long so that messages can be sent right round the body?** |

| | |
|---|---|
| Nerve cell | Which cell has long finger-like projections with thin walls to help it absorb water? |
| Root hair cell | What do we call a group of similar cells working together in the same way? |

| | |
|---|---|
| **A tissue** | **What do we call a group of tissues working together?** |
| **An organ** | **What do we call a group of organs working together?** |

| | |
|---|---|
| An organ system | Cells that are adapted for different functions are called |
| Specialised | Which part of the cell provides energy via respiration? |

| | |
|---|---|
| **Mitochondria** | **What is the correct hierarchical organisation of multicellular organisms starting with cells?** |
| **Tissues, organs, organ systems, organisms** | **What is the movement of a chemical from a region of high to low concentration?** |

| | |
|---|---|
| **Diffusion** | **What are the products of respiration?** |
| **Water and carbon dioxide** | **What is produced in animals if they respire with insufficient oxygen?** |

| | |
|---|---|
| Lactic acid | What is produced in fungi if they respire with insufficient oxygen? |
| Ethanol (alcohol) and carbon dioxide | What are the products of photosynthesis? |

| | |
|---|---|
| **Oxygen and glucose** | **What are the differences between individuals called?** |
| **Variation** | **Give some adaptions that allows a leaf to photosynthesise?** |

| | |
|---|---|
| **Chlorophyll, large surface area thin, good transport system** | **What is on the outside of a plant cell that is not on an animal cell?** |
| **Cell wall** | **What device should you use to look at cells in a school laboratory?** |

| | |
|---|---|
| A light microscope | When long-chain carbohydrates are digested they produce? |
| Simple sugars (e.g. glucose) | When amino acids are polymerised they produce? |

| | |
|---|---|
| **Proteins** | **The catalytic site of an enzyme is called the?** |
| **Active site** | **A bacteria can swim using a?** |

## Activity 3 – Answers

| | |
|---|---|
| Which part of a cell controls its activities? | The nucleus |
| Which part of a cell controls what substances go in and out of the cell? | The cell membrane |
| Which part of a plant cell contains chlorophyll? | The chloroplasts |
| What does chlorophyll do? | Trap sunlight for photosynthesis |
| True or false: cytoplasm is only found in animal cell? | False |
| Which parts of a plant cell give support and structure to the cell? | Cell wall and vacuole |
| Where do chemical reactions take place in a cell? | The cytoplasm |
| Which cell has a tail to help it move? | Sperm cell |
| Which cell has a large number of chloroplasts? | Palisade cell |
| Which cell is very long so that messages can be sent right round the body? | Nerve cell |
| Which cell has long finger-like projections with thin walls to help it absorb water? | Root hair cell |
| What do we call a group of similar cells working together in the same way? | A tissue |
| What do we call a group of tissues working together? | An organ |
| What do we call a group of organs working together? | An organ system |
| Cells that are adapted for different functions are called | Specialised |
| Which part of the cell provides energy via respiration? | Mitochondria |
| What is the correct hierarchical organisation of multicellular organisms starting with cells? | Tissues, organs, organ systems, organisms |
| What is the movement of a chemical from a region of high to low concentration? | Diffusion |
| What are the products of respiration? | Water and carbon dioxide |

| | |
|---|---|
| What is produced in animals if they respire with insufficient oxygen? | Lactic acid |
| What is produced in fungi if they respire with insufficient oxygen? | Ethanol (alcohol) and carbon dioxide |
| What are the products of photosynthesis? | Oxygen and glucose |
| What are the differences between individuals called? | Variation |
| Give some adaptions that allows a leaf to photosynthesise? | Chlorophyll, large surface area thin, good transport system |
| What is on the outside of a plant cell that is not on an animal cell? | Cell wall |
| What device should you use to look at cells in a school laboratory? | A light microscope |
| When long-chain carbohydrates are digested they produce? | Simple sugars (e.g. glucose) |
| When amino acids are polymerised they produce? | Proteins |
| The catalytic site of an enzyme is called the? | Active site |
| A bacteria can swim using a? | Flagella |

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