

# Unit Plan: Science

## Year: 7

### Half Term: 1b

### Subject: Unit 8: Organisms



Teacher: Sue McMeeking

Length of unit: 4 weeks

Length of this section: 2 weeks

#### Resources:

Activate student book 1  
Activate resources on Sharepoint  
RAs for all practical work on Sharepoint  
Apparatus for preparing an onion slide  
Materials for the build a cell activity  
Twinkl revision pack - Cells

## Topic: 8.2 Cells

Notes: The section on 'movement of substances' is covered in some depth in Synergy. Because of this it has not been included in this scheme of work.

#### Learning:

- 8.2.1 Observing cells
- 8.2.2 Plant & animal cells
- 8.2.3 Specialised cells
- (8.2.4 Movement of substances) Not included
- 8.2.5 Uni-cellular organisms

#### Differentiation/Stretch and challenge:

Each learning objective includes differentiated learning goals for students who are 'developing' 'secure' and 'extending'.

Additional support is provided for students who require it, e.g. graphs with pre-marked axes.

For students who miss the topic, there is a Twinkl revision pack on Cells which covers the work in section 8.2

#### Working Scientifically



Scientific attitudes thinking  
Measurement skills  
Experimental & evaluation  
Analysis & units

1. Use appropriate techniques, apparatus and materials during lab work paying attention to health and safety
2. Plan and design investigations and experiments to make observations and test predictions including identifying independent, dependent and control variables
3. Make and record observations and measurements using a range of methods for different investigations; and evaluate the reliability of methods and suggest possible improvements.
4. Interpret observations and data, including identifying patterns and using observations, and measurements and data to draw conclusions
5. Present observations and data using appropriate methods, including graphs and tables.

#### Key words:

Microscope, observation, nucleus, cell membrane, cytoplasm, mitochondria, respiration, cell wall, vacuole, chloroplast, adaptations, specialised cell, nerve

#### Literacy/Numeracy/ICT/Careers and Enterprise/Equality, Diversity and British Values:

Research features of specialised cells independently by reading relevant scientific material (L)

cell, red blood cell, sperm cell, leaf cell, root hair cell, uni-cellular, amoeba, flagellum.

Calculate magnification (N)

Laptops can be used to help student research types of specialised cells.

Links to relevant careers are made weekly as part of Careers Education

## **Week one**

**By the end of this week, students will have had the opportunity to:**

- Examine and label a microscope. See practical activity B1 1.1: Discovering the microscope. Accompanying risk assessment on Sharepoint
- Review the process of observing cells under a microscope
- Examine plant and animal cells, identify and describe the functions of the organelles
- Prepare and observe an onion slide. See practical activity B1 1.2: Making an onion slide. Accompanying risk assessment on Sharepoint

## **Success criteria**

### **Developing**

Successfully use a microscope to observe a cell

Successfully prepare a slide of onion cells with support with the practical work and completing the write-up sheet

Match cell components to their function

## Secured

Describe how to use a microscope to observe a cell.

Successfully use a microscope to observe a cell

Successfully prepare a slide of onion cells and complete the write-up sheet

Identify similarities and differences between plant and animal cells in terms of their organelles

## Extended/Mastery

Explain in detail how to use a microscope to observe a cell.

Successfully use a microscope to observe a cell

Successfully prepare a slide of onion cells and complete the write-up sheet

Calculate magnification

Compare the similarities and differences in function of the structures in plant and animal cells

## Assessment opportunities and outcomes:

All students will attempt the practical work which will facilitate an assessment of working scientifically skills:

- Discovering the microscope allows for assessment of WS skill (1) – see above
- Making an onion slide allows for assessment of WS skills 1, 2 and 3 – see above

Students will complete the write up of the practical work which includes extension questions to facilitate differentiation and allow further assessment of 'extending' students

### Independent learning opportunities:

All students will be encouraged to work as independently as possible during all tasks.

### Next steps:

The next part of the topic looks in detail at plant and animal cells and specialised cells.

### Resources:

<https://wsapc.sharepoint.com/tandl/Whole%20School%20Science/Forms/AllItems.aspx?id=%2Ftandl%2FW hole%20School%20Science%2FKS3%20Science%20resources%20%28%20K%2EM%29%2FBiology%2FBiol ogy%2FB1%201%20Cells%2FB1%201%2E1%20Observing%20cells&viewid=b436899f%2Da944%2D4fe8% 2D9cc1%2D2f2d482b0380>

<https://wsapc.sharepoint.com/tandl/Whole%20School%20Science/Forms/AllItems.aspx?id=%2Ftandl%2FW hole%20School%20Science%2FKS3%20Science%20resources%20%28%20K%2EM%29%2FBiology%2FBiol ogy%2FB1%201%20Cells%2FB1%201%2E2%20Plant%20and%20animal%20cells&viewid=b436899f%2Da 944%2D4fe8%2D9cc1%2D2f2d482b0380>

## **Week Two**

By the end of this week, students will have had the opportunity to:

- Carry out independent research on a type of specialised cell. See Activity B1.3a: Building a Cell.
- Describe uni-cellular organisms – amoeba and euglena in terms of their organelles and compare and contrast key life processes, e.g. reproduction

### **Success criteria**

#### **Developing**

Research an example of a specialised cell

Name some examples of specialised plant and animal cells

State what a uni-cellular organism is

Identify structures in an amoeba and a euglena

#### **Secured**

Research an example of a specialised cell

Describe examples of specialised plant and animal cells

Describe what a uni-cellular organism is

Compare structures and activities in Euglena and Amoeba

#### **Extended/Mastered**

Research an example of a specialised cell

Describe examples of specialised plant and animal cells

Provide a definition of a uni-cellular organism

Compare structures and activities in Euglena and Amoeba in detail and explain how unicellular organisms are adapted to carry out different functions.

### Assessment opportunities and outcomes:

Students will carry out the 'building a cell' activity which will facilitate demonstration of the WS skills 4 and 5.

Powerpoint presentation and accompanying (differentiated) worksheets will facilitate assessment of the learning objective with respect to uni-cellular organisms. The relevant powerpoint and accompanying worksheets are available on Sharepoint.

### Independent learning opportunities:

Students will be required to work as independently as possible when carrying out all activities.

### Next steps:

The topic of cells is covered in detail in Synergy (Chapter 1.3)

### Resources:

<https://wsapc.sharepoint.com/tandl/Whole%20School%20Science/Forms/AllItems.aspx?id=%2Ftandl%2FW%20hole%20School%20Science%2FKS3%20Science%20resources%20%28%20K%2EM%29%2FBiology%2FBiology%2FB1%201%20Cells%2FB1%201%2E4%20Specialised%20cells&viewid=b436899f%2Da944%2D4fe8%2D9cc1%2D2f2d482b0380>

<https://wsapc.sharepoint.com/tandl/Whole%20School%20Science/Forms/AllItems.aspx?id=%2Ftandl%2FWhole%20School%20Science%2FKS3%20Science%20resources%20%28%20K%2EM%29%2FBiology%2FBiology%2FB1%201%20Cells%2FB1%201%2E6%20Unicellular%20organism&viewid=b436899f%2Da944%2D4fe8%2D9cc1%2D2f2d482b0380>