



St Benedict's
Sixth Form

BTEC Level 3
APPLIED SCIENCE
Transition Pack



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Planning on studying BTEC Science next year?

Level 3 BTEC Science involves the study of all three sciences and the study of how science works in the real world. This involves completing investigations as you would in a research capacity as well as learning the principles of setting up an industrial or research laboratory.

The course is structured in three ways:

1. Assignments
2. Exams
3. A practical exam.

BTEC science helps you to develop key skills that will give you a head start at university and in the workplace.

Organisation and working to deadlines is the most important quality needed to succeed in BTEC Science. There are some practice activities based on both the exam and coursework elements of your qualification to prepare you to start the course.

Activity 1 - Biology

Try and draw an animal and a plant cell from memory and label them.

Much of what you have already learnt about cells from GCSE is very useful to you at BTEC Science. Now we need to expand on your diagrams.

The link below takes you on a virtual tour of the inside of a cell. It does talk through some of the complex processes all of which you will learn step by step so don't worry if it sounds very complex.

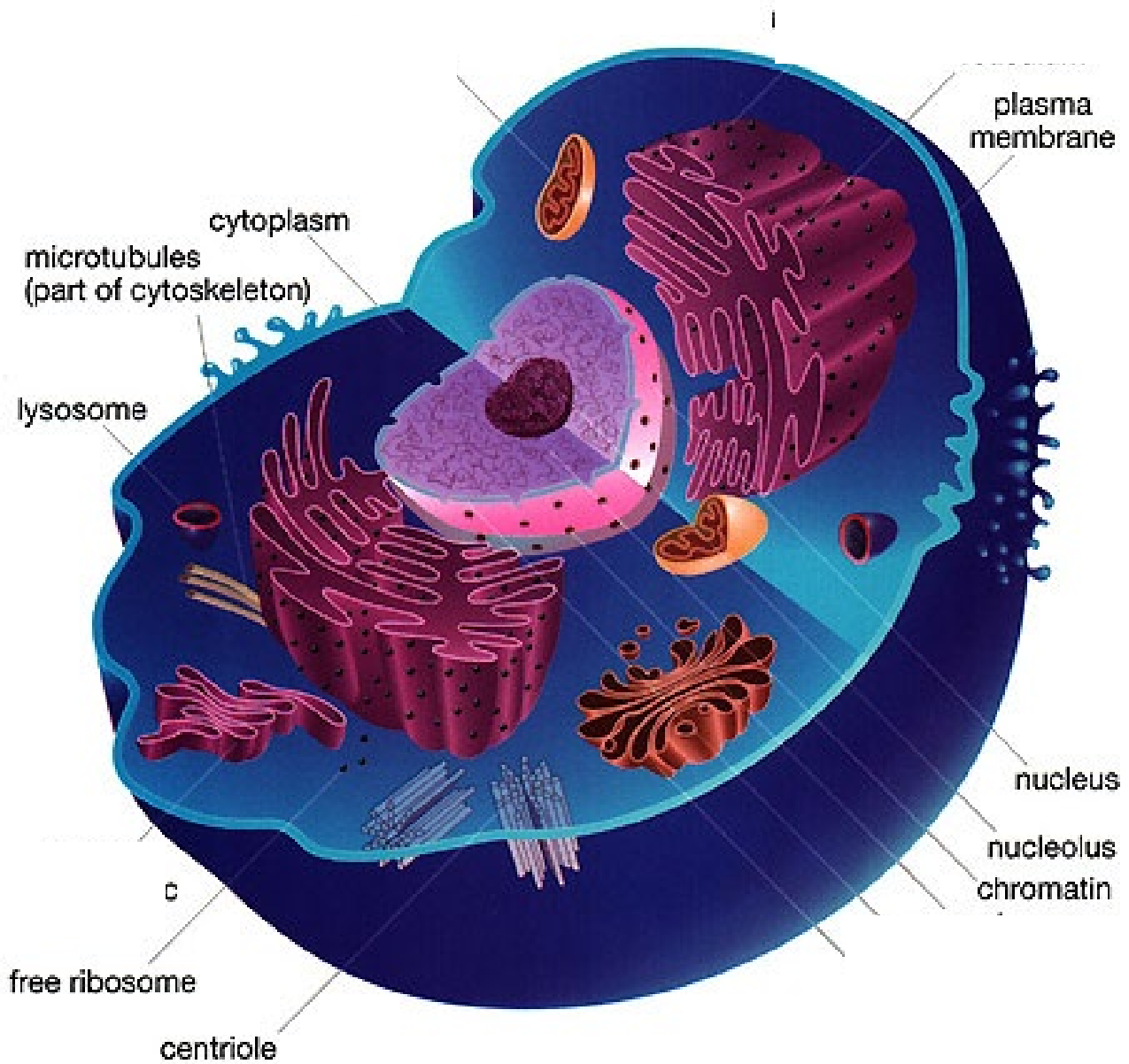
Look out for the following structures on the animation. Use the information to label the structures on the image of the cell on the next page and annotate it with the function of the organelles.

- Ribosome
- Endoplasmic reticulum
- Golgi apparatus
- Vesicles

www.vcell.science/project/flythrough



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Activity 2 - Biology

You may recall viewing cells at school in the past. Within the unit 1 exam we take a closer look at microscopes and how they work. We also examine how to prepare cells to make them ready to view.

Try and complete this task from memory.

Write a paragraph to explain how to prepare a microscope slide. Include the following key words:

Mounting needle	iodine	slide
cover slip	tweezers	
white tile	air bubbles	
specimen		



Activity 3 - Chemistry

At GCSE you studied the periodic table and the bonding of the elements.

Watch the video from GCSE Chemistry about bonding.

<https://www.youtube.com/watch?v=Biq-e9hsbil>

<https://www.youtube.com/watch?v=-DZR0OLQC9w>

<https://www.youtube.com/watch?v=lenvZEcMc60>

<https://www.youtube.com/watch?v=lhEm7aAKIDg>

Make notes on ionic and covalent bonding.

Decide which type of bonding occurs in the following compounds and then show the bonding in a diagram.

1. H_2
2. CH_4
3. H_2O
4. $AlCl_3$
5. $NaBr$



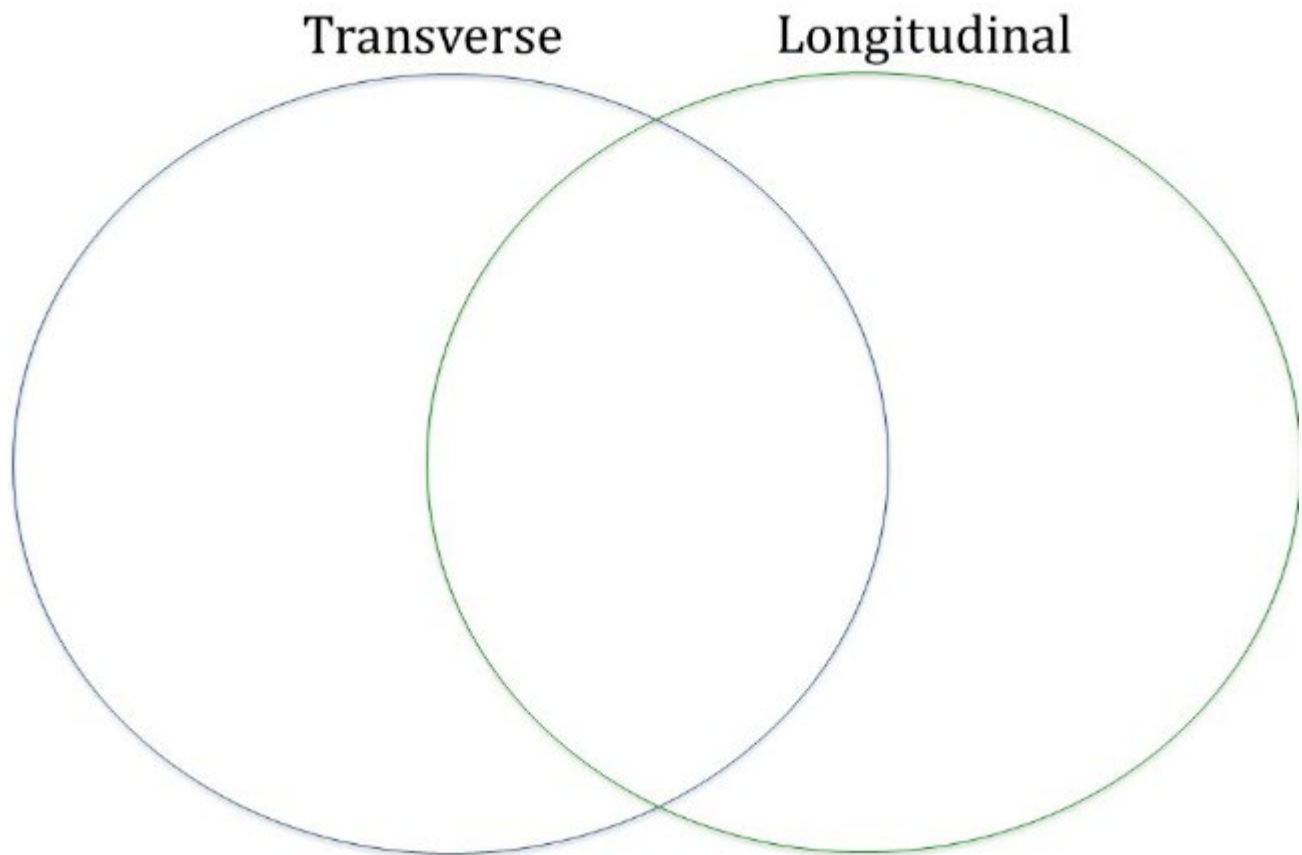
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Activity 4 - Chemistry - Aspirin

Research the history of the discovery of aspirin and research a method that could be used in the lab to make aspirin.

Activity 5 - Physics - Wave Properties

Draw and label a transverse and longitudinal wave. Complete the Venn diagram for the properties of the waves.

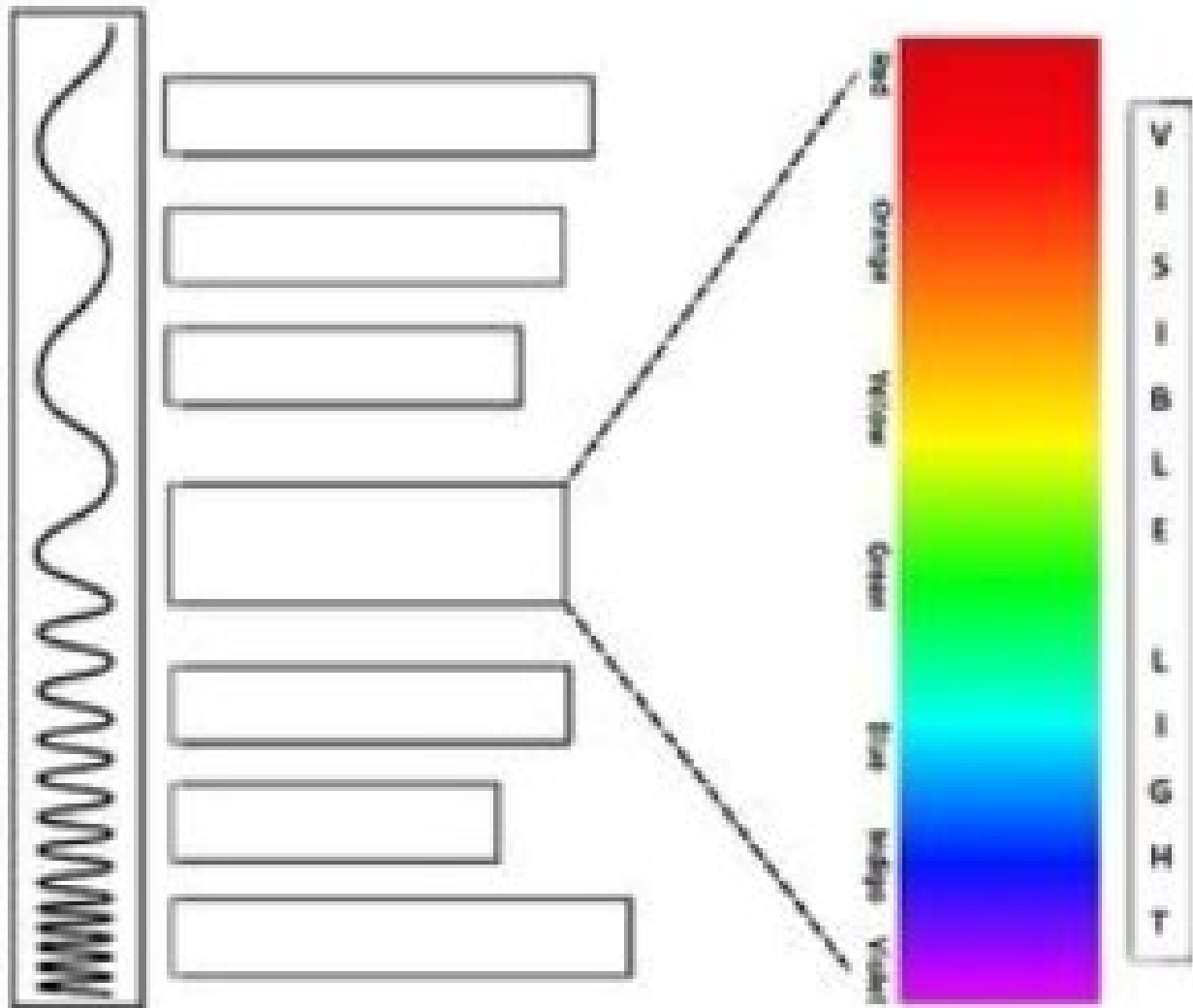




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Activity 6 - Physics - Electromagnetic waves

Complete the diagram of the electromagnetic spectrum. Include information about the frequency and wavelength of each of the waves. Add information about how the waves are used for communication.





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Activity 7 – Practice Assignment

This is an example of what your assignments will look like. You need to complete all the tasks and then put them together into a word document with titles. You should also add a header to the document that includes your name and the assignment title. You also need to add references to all the places where you found the information for your assignment. In a real assignment you would have two weeks to complete the assignment. This may seem easy when you only have one assignment but you may have multiple assignments to complete for science and your other courses as well so learning to be efficient in your work is crucial.



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Assignment front sheet

Learner name		Assessor (Teacher) name	
Date issued	Completion date	Submitted on	
Unit number and title			
Unit X: Mock assignment			

Assignment title	1. The history of the Periodic Table
Unit Content Be able to use the necessary research skills to discuss the development of the Periodic Table Research the history of the Periodic Table of Elements with particular focus on the contributions of; <ul style="list-style-type: none"> a. Antoine de Lavoisier b. Johann Wolfgang Döbereiner c. John Newlands d. Dmitri Mendeleev 	

Criteria reference	To achieve the criteria the evidence must show that the learner is able to:	Task No.	Evidence
P1	Outline the key features & trends of the periodic table in terms of groups and periods	1	
P2	Describe the key changes in the development of the Periodic Table.	2	
M1	Relate the key changes to the periodic table to the current model used today.	3	
D1	Evaluate the various models of the periodic table developed over time, justifying why the current model is used.	4	



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Scenario

In order to help develop the understanding of the more difficult concepts for Triple Chemistry at GCSE you have been asked to prepare teaching resources to show the development of the Periodic Table.

Task 1

1. Describe the properties / trends / pattern in the groups (1,7 & 0).
2. Describe the properties / trends / pattern in the periods (period 2 or 3 only).
3. Consider both physical and chemical properties, giving examples.

Task 2

Describe the key changes in the development of the Periodic Table:

- The changes in definition and meaning of 'element'? Classical, Chemical and Atomic model
- How many elements were known?
- What was the basis for the arrangement given? Why were the elements placed in the order given?

Task 3

Relate the key changes to the periodic table to the current model used today:

- Are there any problems with the model? How did this affect the acceptance of the model?
- How did each version of the table improve over the accepted ideas at the time?
- Why and when was the term 'periodic' used?
With respect to the modern periodic table (post Mendeleev)
- What is the basis for the arrangement of the atoms?

Task 4

Evaluate the various models of the periodic table developed over time, justifying why the current model is used.