TEACHING BOOKLET

For

B1 Cell Biology Triple Science

This booklet is a companion to the online curriculum available at YourFavouriteTeacher.com, and the associated Student Workbook. It includes the content from the B1 Cell Biology Triple Science course.

Structuring The Course

SUGGESTED SEQUENCE

The sequence provided is just one way of navigating through this unit in a logical fashion. It can be supportive for cover teachers, non-specialists, colleagues and adults supporting students 1:1 – for example, home educators. It plans for students to build up knowledge over time and tackle the more challenging topics later in the course. There is ample opportunity for informal or ungraded feedback outside of the 2 formal assessments – eg marking individual worksheets, and quizzing.

REVISION IDEAS

- Re-watch and re-read video and text over time to keep it fresh!
- Do quizzes on topics you learned long ago to identify the gaps in your memory
- Use the 'notes' section on each page to summarise your learning. For revision, review the 'notes' section of the site to download all of the notes you took when you studied that section before.
- Self-checking: students should tackle the first 2 questions on a worksheet, then check their answers against the answer sheets in the back of their booklet. If they have the answers correct they should continue. If not, they should stop and seek clarification – eg. Re-watching the video, asking a staff member or starting again methodically following the advice on YFT's topic pages.

COMPLEMENTARY LEARNING

Flip the learning: set a topic, worksheet or video for students to work through prior to your lesson. A quick starter can review the learning and allow you to identify any misconceptions quickly; then you can move on to the more challenging task of applying the knowledge and constructing extended responses!

Print booklets of all printed resources at the start of the unit. This saves dreaded 'cut and stick' time, and is a great homework resource!

Dip in and out: choose just the videos or just the quizzes to augment the lessons you've already planned: this is like having another teacher in the room to explain things, whilst you manage your students or provide 1:1 support!

Resource List

TOPICS	Video	Topic Page	Online Quiz	Worksheet	Answer Sheet
Cell Structure	●	●	●	●	●
Cell Specialisation	●	●	●	●	●
Cell Differentiation	●	●	●	●	●
Types of Microscopes	●	●	●	●	●
Working Out the Actual Size of a Cell	●	●	●	●	●
Mitosis	●	●	●	●	●
Stem Cells	●	●	●	●	●
Therapeutic Cloning	●	●	●	●	●
Diffusion	●	●	●	●	●
Osmosis and Active Transport	●	●	●	●	●
Binary Fission	●	●	●	●	●

MOCK ASSESSMENT

This booklet contains information on a suggested paper you could use to assess student progress.

Structuring The Course

COVER/INDEPENDENT LEARNING

Lesson	Lesson Focus	Learning Objective	Resourcing & Steps		
1	Cell Structure	To be able to identify structures found in a plant, animal and bacterial cell. To be able to describe the role of the main structures found in a plant, animal bacterial cell.	Video Topic Page	Worksheet Answer sheet	Quiz Refer to topic page/video to address any common errors in the quiz
2	Cell Specialisation	To be able to describe and explain the adaptions of a root hair cell, villi, sperm cell, nerve cell, muscle cell, ciliated cell phloem and xylem.	Video Topic Page	Worksheet Answer sheet	Quiz Refer to topic page/video to address any common errors in the quiz
3	Cell Differentiation and Types of Microscopes and	To be able to explain the importance of cell differentiation.	Video Topic Page for cell differentiation	Worksheet Answer sheet for cell differentiation	Quiz Refer to topic page/video to address any common errors in the quiz for cell differentiation
		To be able to describe some key features of a light and electron microscope. To be able to compare a light and electron microscope.	Video Topic Page for types of microscopes	Worksheet Answer sheet for types of microscopes	Quiz Refer to topic page/video to address any common errors in the quiz for types of microscopes
4	Working out the Actual Size of a Cell	To be able to convert between mm and µm. To be able to use the equation to calculate the actual size of a cell. $$magnification = \frac{image\ size}{actual\ size}$$	Video Topic Page	Worksheet Answer sheet	Quiz Refer to topic page/video to address any common errors in the quiz
5	Mitosis	To be able to describe the stages of mitosis. To be able to identify circumstances where mitosis would occur.	Video Topic Page	Worksheet Answer sheet	Quiz Refer to topic page/video to address any common errors in the quiz
6	Stem Cells	To be able to describe the different types of stem cell and their origin.	Video Topic Page	Worksheet Answer sheet	Quiz Refer to topic page/video to address any common errors in the quiz
7	Therapeutic Uses of Stem Cells	To be able to explain the possible uses of stems cells, how they can be produced and ethics of this.	Video Topic Page	Worksheet Answer sheet	Quiz Refer to topic page/video to address any common errors in the quiz
8	Diffusion	To be able to be able to describe diffusion and explain how different factors affect the rate of diffusion.	Video Topic Page	Worksheet Answer sheet	Quiz Refer to topic page/video to address any common errors in the quiz
9	Osmosis and Active Transport	To be able to explain osmosis and active transport. To be able to explain the impact of osmosis on different cell types.	Video Topic Page	Worksheet Answer sheet	Quiz Refer to topic page/video to address any common errors in the quiz
10	Binary Fission	To be able to describe the stages of binary fission and calculate the number of cells produced in a certain time.	Video Topic Page	Worksheet Answer sheet	Quiz Refer to topic page/video to address any common errors in the quiz
11	Assessment	To be able to apply key concepts from this course.	Mock Assessment and worked answers		

For the assessment we suggest you use the GCSE Science topic tests provided by Exampro. You should use the Seperate Cell Biology Test for this course.

Suggested Questions

Lesson	Lesson Focus	Questions
1	Cell Structure	• Can you list three structures that are found in a plant cell? • What is the role of the cell membrane? • How do prokaryotic cells and eukaryotic cell differ?
2	Cell Specialisation	• How is a root hair cell adapted to carry out its role? • Why does a sperm cell have a large number of mitochondria? • If a cell's main role is absorption what adaptions may it have?
3	Cell Differentiation and Types of Microscopes and	• Why do multicellular organisms need differentiated cells? • What are the advantages of using a light microscope? • What ate the disadvantages of using an electron microscope?
4	Working out the Actual Size of a Cell	• How do I convert between mm and μm? • Which equation do we use to calculate the actual size of a cell?
5	Mitosis	• Why does mitosis occur? • Can you describe the stages of mitosis?
6	Stem Cells	• Define a stem cell. • Where can we find stem cells? • What are the disadvantages of using embryonic stem cells?
7	Therapeutic Uses of Stem Cells	• What can we use stem cells for? • How can we produce stem cells? • What ethical implications need to be considered when using stem cells? • Describe a use of plant stem cells.
8	Diffusion	• Define diffusion. • Where does diffusion occur in the body? • Why do multicellular organisms require exchange and transport systems?
9	Osmosis and Active Transport	• Define osmosis. • Explain the affect of temperature on the rate of diffusion. • Define active transport.
10	Binary Fission	• Describe the stages of binary fission. • What equipment might you need to carry out a practical on bacterial growth? • A bacterial cell has a mean division time of 30 minutes. How many cells will it have produced after 3 hours?
11	Assessment	• What kinds of errors have I been making? • How can I avoid these? • What are the key things I need to remember to ensure I don't lose any marks for carelessness?

Want more?

Go to YourFavouriteTeacher.com to log in and access our full range of courses in English Language, English Literature, Maths, Science, History and Geography!

www.YourFavouriteTeacher.com

Queries: info@yourfavouriteteacher.com

730 Capability Green, Luton LU1 3LU