

**Topic 1: Cells****Biology Revision a Day Keeps Exam Stress Away!**

<b>Day 1:</b> Draw and label an animal cell	<b>Day 2:</b> Draw and label a plant cell	<b>Day 3:</b> Draw and complete a table to describe the functions of all cell structures	<b>Day 4:</b> Write the equations for image size, actual size and magnification onto a flash card	<b>Day 5:</b> Write how to convert between mm, $\mu\text{m}$ and nm onto the back of your flashcard with the equations
<b>Day 6:</b> Draw a Venn diagram to compare electron and light microscopes	<b>Day 7:</b> Write a method for how to produce an onion slide in no more than 5 steps (required practical).	<b>Day 8:</b> Create a poster which defines specialised cell. Draw a root hair cell, red blood cell and sperm cell and describe how they have adapted.	<b>Day 9:</b> On a flashcard, define stem cell and describe the uses of adult stem cells and embryonic stem cells	<b>Day 10:</b> Draw around both of your hands. In one hand, write benefits of using embryonic stem cells and arguments against in the other hand
<b>Day 11:</b> On the same flashcard from day 9, define meristem cell. What differences are there between stem cells in an animal and plant	<b>Day 12:</b> Read an article on the internet which describes how stem cells might be used in the future and write a summary in 10 bullet points (maximum)	<b>Day 13:</b> Draw and label a bacterial cell. List the similarities and differences between a bacterial, animal and plant cell underneath	<b>Day 14:</b> Draw a Venn diagram to compare prokaryotic and eukaryotic cells	<b>Day 15:</b> On a flashcard – where are chromosomes found? How many chromosomes are in each cell? Male and female pairs?
<b>Day 16:</b> Create a poster which defines mitosis and describes the reasons for mitosis	<b>Day 17:</b> On the same poster from day 16, draw the stages of mitosis and explain what is happening	<b>Day 18:</b> On the same poster from day 16 and 17, outline the stages of the cell cycle.	<b>Day 19:</b> Define diffusion. Draw a table which contains 3 examples of diffusion in a plant and 3 examples of diffusion in an animal	<b>Day 20:</b> Describe how the following affect the rate of diffusion: surface area, thin cell membranes, concentration gradient on a flashcard
<b>Day 21:</b> On a flashcard, define osmosis. Give examples of osmosis in animal and plant cells	<b>Day 22:</b> Write a 8-10 step method for investigating the effect of osmosis on plant tissues, e.g. potato (required practical 2)	<b>Day 23:</b> Underneath your method from day 22, explain why we calculate % change in mass	<b>Day 24:</b> Underneath your work from days 22 and 23, explain why a potato may not gain or lose mass during the experiment	<b>Day 25:</b> Define active transport. Draw a table to describe examples of active transport in animal and plant cells.
<b>Day 26:</b> Complete a 3 way Venn diagram to compare diffusion, osmosis and active transport (pre-made on Dropbox)	<b>Day 27:</b> Exam question practice	<b>Day 28:</b> Exam question practice	<b>Day 29:</b> Exam question practice	<b>Day 30:</b> Exam question practice

## Topic 2: Organisation

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<p><b>Day 1:</b> List the organs digestive system and describe the functions of each organ.</p>	<p><b>Day 2:</b> On a flashcard - what is an enzyme? What is their structure? What are their main functions?</p>	<p><b>Day 3:</b> On the same flashcard as day 2 - What is the lock and key model? How do enzymes work?</p>	<p><b>Day 4:</b> On the same flashcard - What factors affect enzymes? Draw a graph for each factor. Describe what happens when an enzyme denatures</p>	<p><b>Day 5:</b> Create a table for the functions of all digestive enzymes – plus where they are made, where they work and their optimum pH/temp</p>
<p><b>Day 6:</b> Write a 5-9 step method for the enzymes required practical – amylase breaking down starch (effect of temperature or pH)</p>	<p><b>Day 7:</b> Underneath the method, describe some of the issues with the enzymes required practical and discuss improvements</p>	<p><b>Day 8:</b> Write a 8-10 step method for the food test required practical. What do the positive and negative results look like?</p>	<p><b>Day 9:</b> Label a heart. Describe what is meant by a double-pump system</p>	<p><b>Day 10:</b> Put arrows onto your labelled heart from day 9 to show the flow of blood. State the function and importance of valves</p>
<p><b>Day 11:</b> Draw a table to describe each component of the blood, their function and their structure (white blood cells, red blood cells, platelets, plasma)</p>	<p><b>Day 12:</b> Compare the functions and structures of all blood vessels in a table</p>	<p><b>Day 13:</b> Draw a diagram to show what coronary heart disease is. What are some risk factors (increase likelihood of getting CHD)?</p>	<p><b>Day 14:</b> Create a mind map which outlines treatments for coronary heart disease including their advantages and disadvantages</p>	<p><b>Day 15:</b> On a flashcard – what are pacemakers. Why might they be needed? Advantages and disadvantages?</p>
<p><b>Day 16:</b> On a flashcard - define cancer. Describe the difference between benign and malignant tumours.</p>	<p><b>Day 17:</b> On the same flashcard as day 16 - describe different risk factors for cancer</p>	<p><b>Day 18:</b> Label the lungs and describe the structure of each function</p>	<p><b>Day 19:</b> Explain how we inhale and exhale in no more than 4 steps. You should mention the diaphragm</p>	<p><b>Day 20:</b> On a flashcard, describe why exchange surfaces have a large surface area, thin membrane, good blood supply and well ventilated</p>
<p><b>Day 21:</b> Draw a plant. Label the different types of tissues and organs and state their function</p>	<p><b>Day 22:</b> Label a leaf and describe the functions of each structure</p>	<p><b>Day 23:</b> Draw a stoma and guard cells. Explain their job. Explain how guard cells control the opening/closing of stomata</p>	<p><b>Day 24:</b> On a flashcard, explain the structure and roles of xylem and phloem tissues</p>	<p><b>Day 25:</b> On a flashcard, state what transpiration is and describe factors which increase/decrease the rate of transpiration</p>
<p><b>Day 26:</b> Draw a potometer and explain how it can be used to investigate the rate of transpiration</p>	<p><b>Day 27:</b> On your labelled plant from day 21, describe the transpiration stream</p>	<p><b>Day 28:</b> Compare transpiration, transpiration streams and translocation on a flashcard</p>	<p><b>Day 29:</b> Exam question practice</p>	<p><b>Day 30:</b> Exam question practice</p>

### Topic 3: Infection and Response

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<p><b>Day 1:</b> Describe the difference between communicable and non-communicable disease in bullet points and give examples</p>	<p><b>Day 2:</b> On a flash card - Define pathogen and give 4 examples of types of pathogen</p>	<p><b>Day 3:</b> Start a table with headings: Example / symptoms / treatments To this table add 2 examples of diseases caused by a virus.</p>	<p><b>Day 4:</b> Add to the table from yesterday; an example of a disease caused by a bacteria, describe the symptoms and treatments</p>	<p><b>Day 5:</b> Add to the table an example of a disease caused by a fungus, describe the symptoms and treatments</p>
<p><b>Day 6:</b> Add to the table; an example of a disease caused by a protist, describe the symptoms and treatments</p>	<p><b>Day 7:</b> Draw an outline of a body Label the different first lines of defence and explain how they work, e.g. eyelashes</p>	<p><b>Day 8:</b> Draw a large white blood cell – within your drawing bullet point the three main jobs of white blood cells</p>	<p><b>Day 9:</b> In a paragraph, explain the importance of ‘memory cells’ in the body. How do they work?</p>	<p><b>Day 10:</b> Draw a labelled diagram to explain the difference between antigens and antibodies – you could add this to your flash cards</p>
<p><b>Day 11:</b> Using a flow chart explain what vaccinations contain and how they work</p>	<p><b>Day 12:</b> Make a table write down the pros and cons of vaccinations</p>	<p><b>Day 13:</b> Draw a cartoon strip to explain what antibiotics are, how they work, what they are prescribed for and how they can become resistant</p>	<p><b>Day 14:</b> Write an instructional method for producing a petri dish of microbes using aseptic technique. Explain why scientists would want to grow bacteria in a lab. And what each stage of the method is for.</p>	<p><b>Day 15:</b> Draw binary fission. Show a calculation to use to work out the number of bacteria after certain amount of time using mean division time.</p>
<p><b>Day 16:</b> Draw a diagram to show a ‘zone of inhibition’ and write the formula needed to calculate the area</p>	<p><b>Day 17:</b> All new medical drugs need to be tested. Why do they need to be tested beforehand? Write a list on a flashcard</p>	<p><b>Day 18:</b> State the different stages of drug trials in a flow chart</p>	<p><b>Day 19:</b> Annotate the flow chart from yesterday to explain the reasons for each stage of drug trials</p>	<p><b>Day 20:</b> Explain what a placebo is and why they are used in drug trials. What is often used ? Use only 10 words to describe it.</p>
<p><b>Day 21:</b> Explain the difference between blind and double-blind trials. Explain why they are used.</p>	<p><b>Day 22:</b> Explain what a monoclonal antibody (MAB) is and describe the process of producing them (biolo only)</p>	<p><b>Day 23:</b> Explain the different uses of MABs (biol only)</p>	<p><b>Day 24:</b> Explain the advantages and disadvantages of using MABs (biolo only)</p>	<p><b>Day 25:</b> Give egs. of different plant diseases, explain what causes them and the symptoms. E.g. Tobacco Mosaic virus (biol)</p>
<p><b>Day 26:</b> Describe that plants can have different defence responses and give some egs. (biol)</p>	<p><b>Day 27:</b> Define physical defence mechanism in a plant and give an eg. (biol)</p>	<p><b>Day 28:</b> Define chemical defence mechanism in a plant and give eg. (biol)</p>	<p><b>Day 29:</b> Exam question practice</p>	<p><b>Day 30:</b> Exam question practice</p>

## Topic 4: Bioenergetics

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<p><b>Day 1:</b> Write out the word and balanced symbol equation for photosynthesis on a flashcard</p>	<p><b>Day 2:</b> Annotate your equations with whether photosynthesis is... a chemical or physical change? Endothermic or exothermic? What type energy is used?</p>	<p><b>Day 3:</b> Draw a diagram of a plant cell to show where photosynthesis takes place in cells. Name the green pigment found here and explain its function</p>	<p><b>Day 4:</b> etchalk: Prioryacademy 893259 Label a leaf activity. Draw the stomata and write the functions of stomata and guard cells. Explain how a leaf has adapted for p/s</p>	<p><b>Day 5:</b> Draw a mind map to describe each of the different uses of glucose</p>
<p><b>Day 6:</b> Write down a list of instructions to test a leaf for starch</p>	<p><b>Day 7:</b> On a flash card Define limiting factor. List each of the 5 potential limiting factors.</p>	<p><b>Day 8:</b> Draw and explain a graph for the main three limiting factors. Explain why the graphs may become constant, decrease etc.</p>	<p><b>Day 9:</b> Write down a list of instructions for investigating the effect of light intensity on photosynthesis. State all variables and measurements to be made</p>	<p><b>Day 10:</b> Describe the relationship between light intensity and the inverse square law. Show worked examples of <math>1/\text{distance}^2</math></p>
<p><b>Day 11:</b> (use day 9 and 10) Explain how you could alter the method to investigate other factors, e.g. coloured filters, temperature</p>	<p><b>Day 12:</b> In bullet points Explain the benefits to farmers /horticulturists of using greenhouses</p>	<p><b>Day 13:</b> On a flashcard State the word and balanced symbol equation for respiration. Define respiration</p>	<p><b>Day 14:</b> State where respiration takes place in cells. Draw and Describe how this organelle is adapted to perform its function.</p>	<p><b>Day 15:</b> On Flashcards write down: What chemical can be used to test for CO<sub>2</sub>? What can we used to test for water?</p>
<p><b>Day 16:</b> Draw a mind map to explain what energy in living organisms is used for</p>	<p><b>Day 17:</b> Make an infogram (pictures with a few key words) to state the short and long term effects of exercise and explain <u>why</u> they happen</p>	<p><b>Day 18:</b> Describe what is meant by anaerobic respiration and state the word equation. State when you might respire anaerobically – add to your flash cards</p>	<p><b>Day 19:</b> Write a definition for oxygen debt and link to build up of lactic acid. State the word equation for paying back oxygen debt</p>	<p><b>Day 20:</b> State that anaerobic respiration in plant and yeast cells is known as fermentation. State the word equation.</p>
<p><b>Day 21:</b> Compare anaerobic respiration in muscle cells and plant/yeast cells</p>	<p><b>Day 22:</b> Compare aerobic and anaerobic respiration. Which releases more energy? Which is more efficient?</p>	<p><b>Day 23:</b> Using symbols and key words explain what actually happens to glucose during anaerobic resp.</p>	<p><b>Day 24:</b> Define metabolism, metabolic rate and state different factors which affect your metabolic rate</p>	<p><b>Day 25:</b> Explain different examples of metabolic reactions</p>
<p><b>Day 26:</b> Explain how the liver is involved in metabolic reactions, including the removal of lactic acid (biol only)</p>	<p><b>Day 27:</b> Exam question practice</p>	<p><b>Day 28:</b> Exam question practice</p>	<p><b>Day 29:</b> Exam question practice</p>	<p><b>Day 30:</b> Exam question practice</p>

