



| Term            | Week     | Focus   | Summary   | Learning Outcomes   | Learning skills  |
|-----------------|----------|---|---|---|--|
| <b>Term 1.1</b> | <b>1</b> | Infection and Response  | Introduction to microorganisms and pathogens that cause infectious diseases   | Understanding the concept of pathogens and their impact on health   | Reading comprehension, note-taking                                   |
|                 |          | Infection and Response  | White blood cells and the immune response to defend against pathogens   | Exploring the role of white blood cells, antibodies, and antitoxins in immune response  | Note-taking, critical thinking                                       |
|                 |          | Infection and Response  | Vaccination and the concept of immunity   | Understanding how vaccines stimulate antibody production and confer immunity  | Reading comprehension, critical evaluation                           |
|                 | <b>2</b> | Infection and Response  | Antibiotics and the development of antibiotic resistance  | Exploring the use of antibiotics, the challenge of treating viral pathogens, and the development of resistance  | Note-taking, critical thinking                                       |
|                 |          | Infection and Response  | Antibiotics and the development of antibiotic resistance  | Exploring the use of antibiotics, the challenge of treating viral pathogens, and the development of resistance  | Note-taking, critical thinking                                       |
|                 | <b>3</b> | Evaluate knowledge of all content from the cells topic and apply it to different retrieval tasks. | Critical thinking, Analysis, Recall, Mathematical skills  | Retrieval practise  | Application of knowledge gained throughout topic.                    |
|                 | <b>4</b> | Bioenergetics:<br>Photosynthesis  | <p>Introduction to photosynthesis and its equation. Understanding the role of chlorophyll and the conversion of carbon dioxide and water into glucose and oxygen.</p> <p>Investigating the factors that can limit the rate of photosynthesis, such as temperature, carbon</p> | <p>Understand the process of photosynthesis and its chemical equation. Explore the role of chlorophyll and the by-products of photosynthesis.</p> <p>Learn about the factors that can limit the rate of photosynthesis. Relate the concept of limiting factors to the economics of enhancing conditions in greenhouses.</p> | Critical thinking, Analytical skills, Data analysis, Problem-solving |



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|  |          |   | dioxide concentration, and light intensity. Understanding the concept of limiting factors and their impact on photosynthesis.  |  |   |
|  | <b>5</b> | Bioenergetics: Use of Glucose<br><br>Investigating Photosynthesis                                 | Exploring the various uses of glucose produced in photosynthesis. Understanding how glucose can be used for respiration, converted into starch, fats, oils, cellulose, and proteins.<br><br>Conducting a required practical to investigate how different variables affect the rate of photosynthesis. Collecting and analyzing data to draw conclusions about the relationship between variables and photosynthesis. | Understand the different ways in which glucose can be utilized by organisms. Explore the conversion of glucose into different substances for storage and growth.<br><br>Apply experimental skills to investigate the factors influencing the rate of photosynthesis. Develop data interpretation and scientific communication abilities. | Scientific inquiry,<br>Experimental design,<br>Research skills,<br>Scientific communication |
|  | <b>6</b> | Exchange and Transport in Plants  | Understanding the processes of gas exchange and transportation in flowering plants. Exploring how carbon dioxide enters leaves and water and mineral ions are absorbed by roots.   | Learn about the mechanisms of gas exchange and transport in plants. Understand the role of stomata, roots, and specialized plant tissues (xylem and phloem) in these processes.  | Teamwork,<br>Collaboration  |
|  | <b>7</b> | Evaluate knowledge of all content from the cells topic and apply it to different retrieval tasks. | Critical thinking, Analysis, Recall, Mathematical skills   | Retrieval practise   | Application of knowledge gained throughout topic.   |



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| Term 1.2 | 1 | Inheritance and Genetic Variation   | <p>Introduction to genetic information, genes, and inheritance. Understanding the concepts of sexual and asexual reproduction, genetic variation, chromosomes, alleles, and dominant/recessive alleles.</p> <p>Exploring the causes of variation in individuals, including genetic and environmental factors.</p> <p>Understanding the role of genes, chromosomes, alleles, and dominant/recessive alleles in inheritance.</p> | <p>Understand the role of genes in determining the characteristics of organisms. Explore the different forms of reproduction and the sources of genetic variation.</p> <p>Understand the sources of genetic variation and how genes control the development of characteristics. Learn about Mendelian inheritance, genetic diagrams, and terms such as homozygous, heterozygous, phenotype, and genotype.</p> | Information literacy,<br>Data interpretation      |
|          | 2 | Inheritance: Genetic Disorders  | Investigating inherited disorders such as polydactyly, cystic fibrosis, and sickle cell anemia. Interpreting data related to genetic disorders and understanding the impact of abnormal numbers of chromosomes on inherited conditions.  | Explore different genetic disorders and their causes. Analyze data and understand the implications of abnormal chromosome numbers on inherited traits.  | Critical analysis,<br>Ethical reasoning           |
|          | 3 | Evaluate knowledge of all content from the cells topic and apply it to different retrieval tasks. | Critical thinking, Analysis, Recall, Mathematical skills   | Retrieval practise  | Application of knowledge gained throughout topic. |
|          | 4 | Genetic Manipulation: Cloning Techniques  | Understanding modern cloning techniques, including tissue culture, embryo transplants, and adult cell cloning. Exploring the applications and controversies surrounding genetic manipulation.  | Learn about various cloning techniques used in genetic engineering. Discuss the implications, benefits, and ethical considerations associated with genetic manipulation.  | Problem-solving,<br>Ethical reasoning             |



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|  | <b>5</b> | Genetic Manipulation:<br>Genetically Modified Organisms   | Exploring genetic engineering and the transfer of genes between organisms. Understanding the process of gene isolation, insertion into vectors, and transferring genes to host organisms.   | Understand the principles and methods of genetic engineering. Discuss the applications of genetically modified organisms (GMOs) in agriculture, medicine, and industry.                           | Critical thinking,<br>Scientific communication    |
|  | <b>6</b> | Genetic Manipulation:<br>Ethical Considerations   | Examining ethical issues and controversies surrounding genetic manipulation, including genetically modified crops, cloning, and gene editing technologies like CRISPR. Discussing the potential benefits and risks associated with genetic engineering. | Explore ethical considerations related to genetic manipulation. Analyze the potential benefits and risks of genetic engineering technologies. Engage in debates and articulate informed opinions. | Ethical reasoning,<br>Debating                    |
|  | <b>7</b> | Evaluate knowledge of all content from the cells topic and apply it to different retrieval tasks. | Critical thinking, Analysis, Recall, Mathematical skills  | Retrieval practise  | Application of knowledge gained throughout topic. |