

**Biology G10**

<b>Time</b>	<b>Content</b>	<b>Skills</b>	<b>Assessment</b>
1 week	Variation in plants and animals	<ul style="list-style-type: none"> <li>• asking questions to clarify understanding and ideas</li> <li>• solving problems and developing thinking</li> <li>• recognition of contribution of genetic and environmental factors in producing variation</li> </ul>	<ul style="list-style-type: none"> <li>• warm-up questions (GCSE Biology)</li> <li>• homework – related questions in workbook</li> </ul>
1 week	The Human Genome Project	<ul style="list-style-type: none"> <li>• comparing and contrasting positive and negative aspects of HGP</li> <li>• evaluation of HGP and development of science in genetic field (from 1953 – DNA model up to now)</li> </ul>	<ul style="list-style-type: none"> <li>• quick test</li> <li>• homework – related questions in workbook</li> <li>• warm-up questions (GCSE Biology)</li> </ul>
2 weeks	Cell divisions – mitosis and meiosis	<ul style="list-style-type: none"> <li>• finding relationship between DNA, genes and chromosomes</li> <li>• using diagrams to show biological phenomena – drawing stages of mitosis and meiosis</li> <li>• location of the processes in a cell</li> <li>• explaining the importance of cell divisions and relating them with both asexual and sexual reproduction and inheritance</li> </ul>	<ul style="list-style-type: none"> <li>• homework – related questions in workbook</li> <li>• practical task – using plastic models of chromosomes to show how meiosis leads to variation</li> <li>• warm-up questions (GCSE Biology)</li> </ul>
2 weeks	Structure of DNA and its replication	<ul style="list-style-type: none"> <li>• making 2D and 3D models of DNA to illustrate its structure</li> <li>• naming DNA subunits</li> <li>• finding relations between structure and DNA and its ability to semi-conservative replication</li> </ul>	<ul style="list-style-type: none"> <li>• homework – related questions in workbook</li> <li>• quick test</li> <li>• warm-up questions (GCSE Biology)</li> </ul>
6 weeks	Mechanisms of inheritance	<ul style="list-style-type: none"> <li>• memorising and properly using terms required to understand and solve genetic tasks</li> <li>• appreciation of Gregor Mendel's as a father of genetics</li> <li>• drawing genetic diagrams - Punnet squares - and their interpretation</li> <li>• predicting the phenotypes of offspring</li> <li>• examining the inheritance of disorders caused by recessive and dominant alleles</li> <li>• making family trees showing inheritance</li> <li>• planning and conducting own investigation</li> <li>• collecting and processing biological data</li> <li>• making a scientific report with evaluation of method</li> </ul>	<ul style="list-style-type: none"> <li>• homework – related questions in workbook</li> <li>• solving genetic tasks – quick test</li> <li>• make your family tree to illustrate the inheritance of chosen feature</li> <li>• design and conduct an investigation into mode of</li> </ul>

6 weeks	Mechanisms of inheritance	<ul style="list-style-type: none"> <li>• memorising and properly using terms required to understand and solve genetic tasks</li> <li>• appreciation of Gregor Mendel's as a father of genetics</li> <li>• drawing genetic diagrams - Punnet squares - and their interpretation</li> <li>• predicting the phenotypes of offspring</li> <li>• examining the inheritance of disorders caused by recessive and dominant alleles</li> <li>• making family trees showing inheritance</li> <li>• planning and conducting own investigation</li> <li>• collecting and processing biological data</li> <li>• making a scientific report with evaluation of method</li> <li>• interpretation of data based questions and graphs</li> <li>• calculations</li> </ul>	<ul style="list-style-type: none"> <li>• homework – related questions in workbook</li> <li>• solving genetic tasks – quick test</li> <li>• make your family tree to illustrate the inheritance of chosen feature</li> <li>• design and conduct an investigation into mode of inheritance of chosen features</li> <li>• prepare a scientific report</li> <li>• prepare a poster and oral presentation</li> <li>• warm-up questions (GCSE Biology)</li> </ul>
1 week	Mutations	<ul style="list-style-type: none"> <li>• practicing note taking</li> <li>• distinguishing between gene and chromosomal disorders</li> <li>• classifying mutagens – basing on physics classes on radioactivity</li> <li>• predicting the consequences of mutations stressing their harmful or beneficial sides</li> <li>• appreciating mutations as a source of variation enabling evolution</li> </ul>	<ul style="list-style-type: none"> <li>• homework – related questions in workbook</li> <li>• warm-up questions (GCSE Biology)</li> </ul>
2 weeks	Evolution	<ul style="list-style-type: none"> <li>• working with texts – reading comprehension</li> <li>• selecting evidence of evolution</li> <li>• discussing Darwin's theory of natural selection</li> <li>• finding examples of natural selection and evolution</li> </ul>	<ul style="list-style-type: none"> <li>• homework – related questions in workbook</li> <li>• find one example of evolution other than the ones described in our textbook</li> <li>• warm-up questions (GCSE Biology)</li> </ul>
4 weeks	Genetic engineering and cloning	<ul style="list-style-type: none"> <li>• note taking</li> <li>• analysis of stages involved in genetic modification</li> <li>• contrasting natural selection and selective breeding</li> <li>• discussing positive and negative aspects of genetic modification and cloning</li> <li>• considering ethical aspects of a scientist playing God</li> <li>• writing scientific essay with proper acknowledges of references and bibliography</li> <li>• presentation of the topic to other students</li> </ul>	<ul style="list-style-type: none"> <li>• write an essay: e.g. genetically modified foods – friends or foes?</li> <li>• prepare a poster and present the same topic to other students</li> <li>• end-of-term test – genetics and evolution</li> </ul>

1 week	Natural and artificial ecosystems and their conservation	<ul style="list-style-type: none"> <li>• explaining problems related to farming and monocultures basing on geography classes</li> <li>• assessing the consequences of too extensive farming and using pesticides</li> <li>• recommending ways of conservations of species and their habitats</li> </ul>	<ul style="list-style-type: none"> <li>• find examples of global or local environmental problems being consequences of development human population</li> </ul>
6 weeks	Human impact on our environment	<ul style="list-style-type: none"> <li>• finding the causes, describing consequences and recommending measures related to greenhouse effect, acid rains and two other examples of human impact</li> <li>• relating individual attitudes with environmental issues – think globally, act locally</li> <li>• making posters</li> <li>• writing essays</li> <li>• oral presentations</li> <li>• writing tests</li> <li>• analysis of data based questions</li> <li>• research making</li> </ul>	<ul style="list-style-type: none"> <li>• write an essay related to chosen environmental problem</li> <li>• present your results in form of poster to be displayed to the whole school</li> <li>• plan and conduct an investigation to show the influence of a chosen environmental variable on a chosen species</li> <li>• work out a report</li> </ul>

**Curriculum Map: Biology G9**

Time	Content	Skills	Assessment
6 weeks	Human body – Digestion and nutrition	<ul style="list-style-type: none"> <li>• naming parts of digestive system and relating them to the functions they perform</li> <li>• solving problems and developing thinking</li> <li>• carrying out food tests</li> <li>• writing a laboratory reports</li> <li>• associating the structure of small intestine as adaptations to efficient absorption of digested products</li> <li>• analysing the digestion of main nutrients</li> <li>• practicing the data based questions</li> <li>• recommending a balance human diet</li> <li>• preparing healthy meal for the rest of the school</li> <li>• discussing types of malnutrition and factors causing it</li> <li>• writing an essay on malnutrition</li> <li>• learning bibliography format</li> <li>• oral presentation</li> <li>• assessing own and other students performance</li> </ul>	<ul style="list-style-type: none"> <li>• warm-up questions (GCSE Biology)</li> <li>• homework – related questions in workbook</li> <li>• lab report</li> <li>• attitude of a student in a lab (ability to follow the instruction, keeping safety, enthusiastic approach, working in a group)</li> <li>• essay on malnutrition</li> <li>• producing a poster and oral presentation of a topic</li> <li>• 2 quick tests</li> </ul>
3 weeks	Human body - Circulatory system	<ul style="list-style-type: none"> <li>• naming parts of circulatory system and relating them to the functions they perform</li> <li>• comparing of blood vessels</li> <li>• describing heart beating cycle</li> <li>• recognition of blood cells using diagrams</li> <li>• measuring blood pressure and pulse</li> <li>• drawing a heart cross section</li> <li>• recognition of factors causing CHD and recommendation of lifestyle related to prevention</li> <li>• analysis data based questions</li> <li>• answering questions based on text – reading comprehension</li> <li>• organising and processing biological data</li> </ul>	<ul style="list-style-type: none"> <li>• quick test</li> <li>• homework – related questions in workbook</li> <li>• warm-up questions (GCSE Biology)</li> <li>• data base question check</li> </ul>
4 weeks	Human body - Breathing and respiration	<ul style="list-style-type: none"> <li>• naming parts of gas exchange system and relating them to the functions they perform</li> <li>• distinguishing between lung ventilation, gas exchange and respiration</li> <li>• asking questions to clarify understanding and ideas</li> <li>• relating the physical effort to rate of human heart and breathing</li> <li>• planning and conducting own investigation on influence of exercise on fitness</li> <li>• creating fitness test basing on PE classes</li> <li>• assessing influence of smoking on human body</li> </ul>	<ul style="list-style-type: none"> <li>• homework – related questions in workbook</li> <li>• research report</li> <li>• data based questions checking application of knowledge and understanding – homework</li> <li>• quick test</li> <li>• end-of-term test</li> </ul>

5 weeks	Human body - How we move, Nervous system, Responding to the environment	<ul style="list-style-type: none"> <li>distinguishing between receptors, effectors and nerves</li> <li>drawing a typical neurone and listing types of neurones</li> <li>explaining the importance of synapses and reflex arcs</li> <li>describing the general structure of a brain</li> <li>labelling a picture of an eye and stating one function of each</li> <li>describing processes of seeing, adjusting to light and dark, focusing on near and distant objects, hearing, keeping balance</li> <li>identifying main vision and hearing disorders</li> <li>assessing reaction time</li> <li>relating the nervous system and movement</li> <li>labelling human skeleton</li> <li>performing simple activities related to reflexes and vision</li> <li>comparing types of behaviour among animals</li> </ul>	<ul style="list-style-type: none"> <li>homework – related questions in workbook</li> <li>2 quick tests</li> <li>propose a test related to human responses</li> <li>answer extended questions – homework</li> <li>attitude of students during practical exercises</li> </ul>
5 weeks	Human body - Hormones, Homeostasis, How do we get rid of unwanted substances?	<ul style="list-style-type: none"> <li>memorising names of hormones, labelling organs producing them and stating their functions</li> <li>stressing importance of hormones in keeping homeostasis using examples of glucose level and menstrual cycle</li> <li>finding human responses to external temperature</li> <li>processing biological data</li> <li>interpretation of data based questions and graphs</li> <li>naming parts of urinary system and relating structure of nephron to process of urine production</li> <li>predicting the consequences of kidney failure and suggesting alternatives</li> </ul>	<ul style="list-style-type: none"> <li>homework – related questions in workbook</li> <li>2 quick tests</li> <li>answer extended questions – homework</li> </ul>
3 weeks	Human body - Diseases in humans	<ul style="list-style-type: none"> <li>practicing note taking</li> <li>producing a poster illustrating immune responses</li> <li>research into types of pathogens</li> <li>determining hygienic methods of food storing and preparation to avoid infections</li> <li>writing essay</li> <li>presentation of a topic to the rest of a class</li> <li>taking major test</li> </ul>	<ul style="list-style-type: none"> <li>homework – related questions in workbook</li> <li>quick test</li> <li>end-of-term test</li> <li>essay</li> </ul>
3 weeks	Human body - Human development Reproduction in other organisms	<ul style="list-style-type: none"> <li>comparing sexual and asexual reproductions on different examples from different kingdoms</li> <li>comparing internal and external development</li> <li>describing stages of human development</li> <li>suggesting methods of family planning</li> <li>writing essay</li> </ul>	<ul style="list-style-type: none"> <li>homework – related questions in workbook</li> <li>essay on IVF</li> <li>end-of-unit test</li> </ul>

2 weeks	Diversity of organisms and classification system	<ul style="list-style-type: none"><li>• note taking</li><li>• literature research and presentation of a topic</li></ul>	<ul style="list-style-type: none"><li>• oral presentation and poster</li></ul>
---------	--	---	--

**Curriculum Map: Biology G8**

<b>Time</b>	<b>Content</b>	<b>Skills</b>	<b>Assessment</b>
2 weeks	Biology as a study of life. Different branches of biology	<ul style="list-style-type: none"> <li>• trying to define the term biology</li> <li>• being familiar with branches of biology which develop in time</li> </ul>	<ul style="list-style-type: none"> <li>• design a cross word</li> </ul>
3 weeks	Cell structure	<ul style="list-style-type: none"> <li>• finding basic parts of a cell</li> <li>• comparing and contrasting plant and animal cell</li> <li>• drawing cells</li> <li>• relating cell structure with its function</li> <li>• examining examples of specialised cells</li> <li>• explaining the relationship between cells, tissues organs and organisms</li> <li>• contrasting unicellular and multicellular organisms</li> <li>• listing examples of animal and plant tissues and organs</li> </ul>	<ul style="list-style-type: none"> <li>• warm-up questions (GCSE Biology)</li> <li>• homework – related questions in workbook</li> <li>• quick test</li> </ul>
2 weeks	Cell theory and features of life	<ul style="list-style-type: none"> <li>• listing features of life</li> <li>• explaining the meaning and importance of each feature</li> <li>• drawing a virus</li> <li>• judging the fact that viruses are not included in the classification system of living organisms</li> </ul>	<ul style="list-style-type: none"> <li>• quick test</li> <li>• homework – related questions in workbook</li> </ul>
3 weeks	Transport through membranes	<ul style="list-style-type: none"> <li>• defining diffusion, osmosis and active uptake</li> <li>• describing examples of the above ways of transport in organisms</li> <li>• illustrating the consequences of soaking animal or plant tissues/cells in solutions of different water potential</li> <li>• writing major tests</li> </ul>	<ul style="list-style-type: none"> <li>• homework – related questions in workbook</li> <li>• answer extended questions – homework</li> <li>• quick test</li> <li>• end-of-term test</li> </ul>
4 weeks	Using a light microscope	<ul style="list-style-type: none"> <li>• describing structure of a light microscope and functions of particular parts</li> <li>• using a light microscope</li> <li>• observing permanent mounts</li> <li>• making a fresh mount from onion epithelial tissues and human cheek cells</li> <li>• observing plasmolysis after soaking onion cells in salt solution</li> <li>• writing essay</li> <li>• presenting a topic</li> </ul>	<ul style="list-style-type: none"> <li>• attitude of students in a lab (manipulative skills, personal skills)</li> <li>• essay</li> </ul>

2 weeks	Basic plant structure	<ul style="list-style-type: none"> <li>• drawing a typical flowering plant labelling its parts and their functions</li> <li>• drawing a general structure of insect pollinated flower</li> <li>• knowing general classification of plant kingdom</li> <li>• finding adaptations of plants to being pollinated by animals and wind</li> <li>• comparing sexual and asexual reproduction of plants</li> </ul>	<ul style="list-style-type: none"> <li>• homework – related questions in workbook</li> <li>• finding examples of plants to illustrate groups discussed during classes</li> </ul>
2 weeks	Plant organs	<ul style="list-style-type: none"> <li>• practicing note taking</li> <li>• using books to find adaptations in structures of a leaf, a stem and roots to efficiently perform their functions</li> </ul>	<ul style="list-style-type: none"> <li>• homework – related questions in workbook</li> <li>• quick test</li> </ul>
1 week	Plant physiology – transport	<ul style="list-style-type: none"> <li>• working with texts – reading comprehension</li> <li>• using the knowledge gain during previous classes</li> <li>• practicing data based questions</li> <li>• drawing conclusions</li> </ul>	<ul style="list-style-type: none"> <li>• homework – related questions in workbook</li> <li>• warm-up questions, practice questions</li> <li>• quick test</li> </ul>
4 weeks	Plant physiology – photosynthesis	<ul style="list-style-type: none"> <li>• explaining the importance of photosynthesis</li> <li>• considering factors affecting its rate</li> <li>• contrasting photosynthesis and respiration</li> <li>• discussing the possible uses of photosynthetic products</li> <li>• analysis of biological data, their processing and presentation</li> <li>• designing biological experiments</li> </ul>	<ul style="list-style-type: none"> <li>• homework – related questions in workbook</li> <li>• warm-up questions, practice questions</li> <li>• quick test</li> </ul>
2 weeks	Plant physiology – plant growth substances	<ul style="list-style-type: none"> <li>• finding the functions of 3 minerals in plants and illustrating deficiency symptoms</li> <li>• explaining the importance of plant hormones in nature and their commercial using</li> <li>• writing essay</li> <li>• oral presentation</li> <li>• revising and summing up gathered information</li> <li>• doing major tests</li> </ul>	<ul style="list-style-type: none"> <li>• homework – related questions in workbook</li> <li>• warm-up questions, practice questions</li> <li>• end-of-term test</li> <li>• essay</li> </ul>
2 weeks	Growing plants	<ul style="list-style-type: none"> <li>• planning and conducting biological investigation on plants</li> <li>• formulating hypotheses</li> <li>• drawing conclusions</li> <li>• presenting and processing data</li> <li>• evaluating method</li> </ul>	<ul style="list-style-type: none"> <li>• scientific report</li> </ul>

		<ul style="list-style-type: none"> <li>• suggesting improvements</li> </ul>	
3 weeks	Classification and diversity of organisms	<ul style="list-style-type: none"> <li>• knowing rules of classification</li> <li>• using keys for recognition</li> <li>• designing an own key for recognition of 10 organisms</li> <li>• familiarise with diversity of vertebrates</li> </ul>	<ul style="list-style-type: none"> <li>• presentation of designed key</li> </ul>