

## Biology 8 Learning Outcomes

<b>CELLS (Bio 8 - 1)</b>	
<b>Level 2</b>	
	I can connect the names, diagrams, and functions of organelles in a cell
	I know the major differences between plant and animal cells
	I can explain cell theory
	I know the characteristics of life
<b>Level 3</b>	
	I know what proteins are and why we need them
	I know the organelles in a cell work together to build proteins.

<b>MICROSCOPES (Bio 8 - 2)</b>	
<b>Level 2</b>	
	I know the names and functions of each part of a microscope
	I know how to properly care for and store a microscope
<b>Level 3</b>	
	I can use a microscope to focus clearly on an object
	I can calculate the total magnification from a combination of lenses
	I understand what microscope technology has added to our understanding of science.

<b>IMMUNE SYSTEM (Bio 8 – 3)</b>	
<b>Level 2</b>	
	I know which body parts and cells help to prevent and fight infection
	I can explain the difference between bacterial and viral pathogens
	I can identify ways that pathogens are transmitted

	I know the difference between an epidemic and pandemic
<b>Level 3</b>	
	I can explain how different body parts and cells work together to prevent and fight infection.
	I know how antibiotics and vaccinations work, and which kinds of pathogens they target.
	I can explain how superbugs evolve
	I can explain the factors that lead to pandemics and epidemics

## Biology 9 Learning Outcomes

<b>DNA (Bio 9 - 1) * not in curriculum, but required prerequisite.</b>	
<b>Level 2</b>	
	Know the basic structure of DNA (including base pairing, backbone, and double helix)
	I know the relationship between the terms: DNA, gene, nucleotide, codon, chromatid, chromosome.
<b>Level 3</b>	
	I can explain the role of DNA in the production of proteins in a cell

<b>SEXUAL AND ASEXUAL REPRODUCTION (Bio 9 - 2)</b>	
<b>Level 2</b>	
	I can compare and contrast sexual and asexual reproduction.
	I know the difference between haploid and diploid cells
	I know the different outcomes of meiosis and mitosis, and can connect these cell processes to sexual and asexual reproduction.
<b>Level 3</b>	
	I can explain the 5 types of asexual reproduction
	I can describe and sequence the stages of meiosis and mitosis
	I can connect the terms: mating, internal fertilization, external fertilization, gestation. I can explain in which conditions each one is most suitable, and which behavioural & structural adaptations help these methods to be successful.

<b>HUMAN REPRODUCTION (Bio 9 - 3)</b>	
<b>Level 2</b>	
	I can recognize and give the function of the different body parts in the male and female reproductive systems.
	I can identify the major developments in each trimester of pregnancy

	I can identify various methods of birth control and STI prevention
<b>Level 3</b>	
	I can explain the journey of human reproduction, from sperm and egg formation to fertilization
	I can explain how the menstrual cycle connects to fertility and reproduction
	I can compare and contrast different methods of birth control and STI prevention
	I can discuss factors that affect health sexual decision-making.

**Possible extensions: reproductive technologies & prenatal diagnoses**

# Biology 10 Learning Outcomes

*Review Bohr model of atoms and ions as a prerequisite skill.*

<b>HEREDITY (Bio 10 - 1)</b>	
<b>Level 2</b>	
	I can identify some human traits that are genetically controlled
	I can explain and give examples of the following inheritance rules: Dominance, Co-Dominance, Incomplete Dominance
	I can use a Punnett square to predict genetic outcomes from specific parents, using the inheritance rules above
<b>Level 3</b>	
	I know how the presence of Multiple Alleles and Sex-Linked traits can impact the inheritance rules.
	I can explain how environmental factors can impact gene expression

<b>GENETIC TECHNOLOGIES (Bio 10 - 2)</b>	
<b>Level 2</b>	
	I can give examples of genetic illnesses
	I know the basic principles behind genetic and reproductive technologies such as: Cloning, In Vitro fertilization, Gene Therapy/Genetic Engineering, Prenatal diagnosis and genetic testing.
<b>Level 3</b>	
	I can critically reflect on the pros and cons of certain genetic or reproductive technologies

<b>ADAPTATION &amp; MUTATION (Bio 10 - 3)</b>	
<b>Level 2</b>	
	I know the structure of DNA
	I know how changes to base pairs affect codons and protein structures (insertion, deletion, transposition errors)

	I can classify mutations as positive, negative, or neutral and connect these terms to examples
	I can explain the theory of Natural Selection
	I can explain Artificial Selection
<b>Level 3</b>	
	I can explain how environmental conditions drive natural selection, and explain/predict population changes using this theory
	I can relate inheritance patterns to evolutionary trends