

BIOLOGY SYLLABUS

GRADE 8

HERBERT MORRISON TECHNICAL HIGH SCHOOL

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TOPIC	MAJOR CONCEPT	DURATION	GENERAL OBJECTIVES	TEACHING STRATEGIES	SUGGESTED LEARNING ACTIVITIES
Responding to the environment	<ul style="list-style-type: none"> • Senses • Response/Stimuli <p>A stimulus is a change in internal or external environment of an organism that initiates a response.</p> <p>A response is a change in an organism or part of an organism which is brought about by a stimulus.</p> <p>A receptor is the part of the organism that detects the stimulus.</p> <p>Forms of tropism include</p> <p>phototropism (response to light)</p> <p>geotropism (response to gravity)</p> <p>chemotropism (response to particular chemical substances)</p> <p>hydrotropism (response to water)</p> <p>photoperiodism (Describes a plant ability to flower in response to change in photoperiod; the relative lengths of day and night.</p>	3 WEEKS	<p>Explain the purpose of the Senses.</p> <ul style="list-style-type: none"> • List the senses • Define the term stimuli • Define the term receptor. • Define the term response. • Identify common stimuli • Differentiate between internal and external stimuli. • Identify some internal and some external stimuli. • Define tropism. • Define and explain the following <ol style="list-style-type: none"> 1. Hydrotropism 2. Phototropism 3. Geotropism 4. Photoperiodism 5. Chemotropism 	<p>Discussion on the concept of senses</p> <p>Video presentation on the senses and their importance</p>	<p>Students will do drawings to show the response of plants to different stimuli.</p> <p>Students will observe pictures and identify the type of tropism that is taking place in particular plants</p> <p>Students will watch youtube videos on tropism.</p>

	<p>http://www.bioreference.com/Ph-Po/Photoperiodism.html#ixzz4JV7j200</p>	<ul style="list-style-type: none"> • Explain how vertebrates and invertebrates respond to stimuli. 		
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<p>Sense Organs</p>	<ul style="list-style-type: none"> • Eye <p><i>The eye is the organ of the sense of sight. The eyes detect light, and convert it to electro-chemical impulses in neurons.</i></p> <p>http://www.mcwdn.org/body/senseorgans.html</p> <p><i>Accommodation is the ability of the ciliary muscles in the eye to change the shape of the lens to focus light coming from near or far object.</i></p> <p><i>Accommodation is the adjustment of the optics of the eye to keep an object in focus on the retina as its distance varies. It is the process of adjusting the focal length of a lens.</i></p> <p><i>Some major eye defect includes</i></p>	<p>12 weeks</p>	<ul style="list-style-type: none"> • List 5 sense organs • State the stimulus to which they respond • Do a label diagram of the (CROSS SECTION) of the eye. • Explain the process of accommodation in the eye. • Explain the response of the eye when viewing object in dim and bright light. • List some major eye defects. (long sight, short sight, astigmatism etc.) 	<p>Power point presentation on the eye will be done</p> <p>Video presentation to Explain how the eye respond to dim and bright light as well as to show the defects and correction.</p>	<p>Drawing of the cross section of the eye to show correct labeled parts.</p> <p>Drawing to show the response of the eye in dim and bright light.</p> <p>Illustration in diagram of defects and correction of the eye.</p>
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	<p><i>The ear detects and analyze sound and convert the sound waves into electrochemical impulses and maintain the sense of balance. Sound waves travel through parts of the ear to the brain (outer ear, middle ear, inner ear)</i></p> <p><i>Sound waves travel from outer ear in through the auditory canal, causing the ear drum or tympanic membrane, to vibrate. This, in turn, causes the three small bones (hammer, anvil, stirrup) in the middle ear to move. The vibration moves via the oval window through the fluid in the cochlea in the inner ear, stimulating thousands of tiny ear cells. This result in the conversion of vibrations into electrical impulse finally perceived by the brain as sound.</i></p> <p><i>Some examples of infections that affect hearing or balance;</i></p> <p><i>Ear infections</i></p> <p><i>Tinnitus-a roaring in the ears</i> <i>Meniere’s disease may be the result of fluid problems in the inner ear.</i> <i>Ear barotrauma is an injury to the ear resulting from changes in barometric (air) or water pressure.</i></p> <p><i>The skin</i></p>		<ul style="list-style-type: none"> • State the function of the ear. • Draw and label a diagram of the (CROSS SECTION) of the ear. • State the function of each part of the ear. • Explain how hearing is perceived. • List any defect/disease of the ear. 	<p>on the structure and function of the ear will be done.</p> <p>Video presentation to explain how the ear works (youtube)</p>	<p>Construct a table to show the function of the different parts of the eye.</p> <p>Make an annotated drawing of the ear.</p> <p>Oral presentation on how hearing is perceived</p>
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<p><i>The skin is the organ of the sense of touch it detects (pain, pressure, temperature)</i> <i>It is the outer covering of the body and is the largest organ of the body's (integumentary system)</i> <i>Because the skin interface with the environment it plays important immunity role in protecting the body against pathogens (bacteria, virus, fungus) and excessive water loss.</i> <i>Its other functions are insulation, temperature regulation, sensation, vitamin D synthesis.</i></p> <p><i>Some skin infections include</i></p> <p><i>Liver spot- flat brown or black spots that can appear on areas of the skin expose to sunlight.</i> <i>Athlete foot (Tinea pedis) fungal infection that usually begins between the toes, in people whose feet become very sweaty while confined in tightly fitting shoes.</i> <i>Scabies-itchy skin condition caused by tiny burrowing mite called Sarcoptes scabiei. Intense itching occurs in areas where the mite burrows.</i></p> <p><i>Tongue</i> <i>The tongue is the sense organ of taste it is a muscular organ in the mouth covered with moist pink tissue called mucosa. The tongue is covered with tiny bumps called papillae that gives the tongue it's rough texture.</i></p>			<ul style="list-style-type: none"> • Name the stimulus to which the skin respond. • State the function of the skin. • Draw and label a diagram of the skin • (CROSS SECTION) • Name some diseases of the skin state their cause and effects. (liver spot, athlete foot, scabies,) • Explain the effect of skin lightening <ul style="list-style-type: none"> • Name the stimulus to which the tongue respond. • State the function of the tongue. 	<p>Video presentation on the structure and function of the tongue.</p>	<p>Oral presentation on the impact of skin lightening on the melanin content of the skin.</p> <p>Oral presentation on some diseases of the skin state their cause and effects. (liver spot, acne, eczema, lupus, athlete foot, scabies)</p> <p>Oral graded presentation on diseases of the mouth and tongue.</p>
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<p>Nutrition</p>	<p><i>and plays a key role in speech where nasal vowels and nasal consonants are produced in nasalization. The nasal hollow cavities of the paranasal sinuses act as a sound chamber that modify and amplifies speech and other vocal sound.</i></p> <p>Infection of the nose Infection</p> <p>Sinus infection <i>Inflammation of the sinuses that can cause them to get blocked and filled with fluid. It is usually caused by a cold or allergies. An infection could result from the blockage</i></p> <p>Types of nutrition There are two types of nutrition;</p> <ul style="list-style-type: none"> • Autotrophic Nutrition • Heterotrophic Nutrition <p>Autotrophic organisms make their own food by a process called photosynthesis.</p> <p>Heterotrophic organisms obtain their own food from the bodies of other organisms. This is done in various ways.</p> <p>Herbivores such as cattle, tortoises and sparrows eat plants;</p> <p>Carnivores such as lions, crocodiles and sharks eat the flesh of other animals.</p>	<p>4 weeks</p>	<ul style="list-style-type: none"> • Define the term nutrition • List the type of nutrition • Differentiate between autotrophic and heterotrophic nutrition • Define the term photosynthesis • Write the worded equation for photosynthesis. • Explain the stages in photosynthesis (light and dark reaction) 	<p>Video presentation on stages of photosynthesis</p> <p>Laboratory experiment to test for starch in green leaf.</p>	<p>Experiment to show that plants make food. (starch test)</p> <p>Worksheet with questions on photosynthesis /nutrition</p>
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<p>Respiration and breathing</p>	<p>http://www.le.ac.uk/se/centres/sci/selfstudy/orgl.htm</p> <p>Photosynthesis- Photosynthesis is the process by which green plant convert carbon dioxide and water into glucose (food) by using sunlight energy absorbed by chlorophyll.</p> <p>Respiration is the chemical process by which energy is release from food substances by all living cell.</p> <p>Breathing is the mechanism that enables air to be brought into the lungs and expelling it from the lungs.</p> <p>A respiratory surface is a structure present in living things that is responsible for the exchange of gases oxygen and carbon dioxide or vice versa.</p> <p>The Characteristic of a Respiratory Surface are:</p> <ul style="list-style-type: none"> - Thin walls - Moist inner surface - Large combined surface area - Rich blood supply 	<p>4 weeks</p>	<ul style="list-style-type: none"> • Identify the raw materials and product of photosynthesis. • Draw and label the external structure of a leaf • Describe the function of the external structure of the leaf. <ul style="list-style-type: none"> • Define the term respiration • Differentiate between respiration and breathing • Write the word equation for respiration. • Compare the raw materials of respiration and photosynthesis. • Draw and label the diagram of the respiratory system • State the function of the parts of the respiratory system • Define the term inspiration and expiration • Explain the mechanism of breathing in and out. • Explain what a respiratory surface is. 	<p>Class discussion on respiration and breathing</p> <p>Video presentation on the mechanism of breathing in and out.</p> <p>Observing the respiratory surfaces of fish and mammalian lungs to determine some common features of respiratory surfaces.</p>	<p>Make a model of the lungs and explain how it works.</p> <p>Draw and label a diagram of the respiratory system.</p> <p>Laboratory activity to observe the respiratory surfaces of select organisms (fish)</p>
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<p>Reproduction in humans</p>	<p>Reproduction is the process by which living organisms generate new individuals of the same kind as themselves. Reproduction is a mechanism that ensures specie continuity</p> <p>There are two types of reproduction Sexual reproduction and asexual reproduction.</p> <p>Menstruation is described as the shedding of the uterine lining along with the unfertilized egg. The menstrual cycle is controlled by hormones.</p> <p>Pregnancy is the period between conception and birth. It last for nine months.</p> <p>Birth process There are three stages in the birth process</p> <ol style="list-style-type: none"> 1. Dilation 2. Delivery of the baby 		<ul style="list-style-type: none"> • Identify the respiratory surface of various organisms (man, fish, worm etc.) • List some common features of respiratory surfaces. (moist, thin, large surface area etc.) • List the composition of air • Compare the volume of inspired and expired air. • Explain the effects of smoking. <ul style="list-style-type: none"> • Define the term menstruation/reproduction • With the aid of a diagram explain the process in a typical 28 days' cycle and describe the function of the hormones in the cycle. <p><u>Pregnancy</u></p> <ul style="list-style-type: none"> • Define the term pregnancy • Identify the signs of pregnancy • Explain the stages of pregnancy. 	<p>Class discussion on menstrual cycle'</p> <p>Power point presentation on menstruation/ birth process.</p>	<p>Worksheet on menstruation and pregnancy.</p>
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	3. Delivery of the placenta		<p><u>Birth</u></p> <ul style="list-style-type: none">• Define the term parturition• Explain the three stages in the birth process		
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