Anoka-Hennepin Secondary Curriculum Unit Plan

| Department | Science | Course: | IB Biology 11 SL (H) | Unit Title: | Human Health and Physi |
|--------------------|---------|---------|----------------------|---------------|------------------------|
| Assessed Trimester | | Pacing: | | Date Created: | |

Course Understandings: Students will understand that:

DESIRED RESULTS (Stage 1) - WHAT WE WANT STUDENT TO KNOW AND BE ABLE TO DO?

| Established Goals | | | |
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| • Tra Students will be able to independently use their learning to: (product, high order reasoning) | nsfer | | |
| • Mea | aning | | |
| Unit Understanding(s): Students will understand that: • How food is broken down and used for energy in the digestive system • How blood, nutrients, oxygen, carbon dioxide, hormones and antibodies are transported throughout the body • The difference between viruses and bacteria and how the body fights each one differently • The way oxygen enters the body and cells, and how carbon dioxide gets out of the body and cells • How all organs systems, including the nervous system, interact to maintain homeostasis • The difference between adult male and female reproductive systems | Essential Students will keep considering: • | | |
| The difference between adult male and female reproductive systems Acqu | lisition | | |

| Knowledge - Students will: | Skills - Students will: |
|--|--|
| How large food particles are broken down by enzymes before being absorbed | Explain why digestion of large food molecules is es |
| • The organs of the digestive system and the function of the mouth, esophagus, stomach, small intestine, | Explain the need for enzymes in digestion |
| large intestine, anus, liver, pancreas and gall bladder | State the source, substrate, products and optimum |
| The difference between absorption and assimilation during digestion | one lipase |
| The structures and functions of the cardiovascular system including the 4 chambers of the heart, and all | • Draw and label a diagram of the digestive system |
| blood vessels connected directly to the heart. | Outline the function of the stomach, small intestine |
| The action of the heart in terms of collecting blood, pumping blood and opening and closing of valves. | Distinguish between absorption and assimilation |
| How the heartbeat is controlled in terms of the pacemaker, nerves and adrenalin. | Explain how the structure of the villus is related to it |
| The components of blood including plasma, erythrocytes, leucocytes, and platelets. | digestion |
| How nutrients, oxygen, carbon dioxide, hormones, antibodies and urea are transported in the blood. | Draw and label a diagram of the heart shoeing the |
| • What a pathogen is and the various methods by which pathogens are transmitted and gain entry into the | the route of blood through the heart |
| body. | State that the coronary arteries supply heart muscle |
| The cause, transmission and effects of human bacterial and viral disease including AIDS. | Explain the action of the heart in terms of collection |

| ology | Grade Level(s): | 11 |
|---------------|-----------------------|-----------------------------|
| | Last Revision | 9/2/2014 |
| | Date. | |
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| it's role | in absorption and tra | ansport of the products of |
| ne four c | hambers, associated | l blood vessels, valves and |
| cles with | n oxygen and nutrient | S |
| on blood | d, pumping blood and | l opening and closing of |

| ittp://bit.ly/AHSecUbD | |
|---|--|
| The bodies defense against infectious diseases including the skin, phagocytic leucocytes and antibody production. The effects of HV on the immune system The feets of alveoli that adapt them to gas exchange The differences between ventilation, gas exchange and cell respiration The necessity for a ventilation system in the body The organs that make up the ventilation system including the trachea, bronchi, bronchioles, lungs, and the mechanism of ventilation in humans That homeostasis involves maintaining the internal environment at a constant level or between narrow limits, including blood pH, oxygen and carbon dioxide concentrations, blood glucose, body temperature and water balance That homeostasis monitors levels of variables and correcting changes in levels by negative feedback mechanisms. Both the nervous and the endocrine systems are both involved in homeostasis The envous system consists of glands which release hormones that are transported in the blood How the body controls blood glucose concentration, including the roles of glucagons, insulin and alpha and beta cells in the pancreatic islets The role of the kidney in excretion and the maintenance of water The aduit male and female reproductive systems. The difference between copulation and fertilization Early embryo development up to the implantation of the blastocyst How materials are exchanged between the maternal and fetal blood in the placenta The etchnique of family planning and contraception The etchnique of amniccentesis The difference batween copulation | the valves Outline the control of the heart beat in terms of m nerves, the medulla of the brain and epinephrine Explain the relationship between the structure and State that blood is composed of plasma, erythroi State that the following are transported by the bloc antibodies, urea and heat Define pathogen Explain why antibiotics are effective against bac: Outline the role of skin and mucous membranes Outline the role of skin and mucous membranes Outline the role of skin and mucous membranes Outline the orly production Outline the effects of HIV on the immune system Distinguish between antigens and antibodies Explain antibody production Outline the effects of HIV on the immune system Discuss the cause, transmission and social implication between ventilation, gas exchange, at explain the need for a ventilation system Describe the features of alveoli that adapt them fill the internal and external intercostals muscles, the alveoli Explain the mechanism of ventilation of the lungs the internal and external intercostals muscles, the state that the nervous system consists of the cer composed of cells called neurons that can carry in Draw and label a diagram of the structure of a mission State that nerve impulses are conducted from rece by relay neurons, and from the CNS to effectors if Define resting potential and action potential Explain how a nerve impulse passes along a nor Explain the principles of synaptic transmission State that the endocrine system consists of gland blood State that homeostasis involves maintaining the carbon dioxide concentration, blood glucose cor Explain that homeostasis involves monitoring lew negative feedback mechanisms Explain the control of body temperature, including hypothalamus, sweat glands, skin arterioles and Explain the control of bolod glucose conce |

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the heart beat in terms of myogenic muscle contraction, the role of the pacemaker,

hip between the structure and function of arteries, capillaries and veins mposed of plasma, erythrocytes, leucocytes and platelets ng are transported by the blood: nutrients, oxygen, carbon dioxide, hormones,

cs are effective against bacteria but not against viruses in and mucous membranes in defense against pathogens tic leucocytes ingest pathogens in the blood and in body tissues

ansmission and social implication of AIDS ventilation, gas exchange, and cell respiration

s of alveoli that adapt them to gas exchange gram of the ventilation system, including trachea, lungs, bronchi, bronchioles and

sm of ventilation of the lungs in terms of volume and pressure changes caused by nal intercostals muscles, the diaphragm and abdominal muscles

s system consists of the central nervous system and peripheral nerves and is alled neurons that can carry rapid electrical impulses

gram of the structure of a motor neuron

• List three roles of testosterone in males • Outline the process in *in vitro* fertilization

Discuss the ethical issues associated with IVF.

lses are conducted from receptors to the CNS by sensory neurons, within the CNS from the CNS to effectors by motor neurons

impulse passes along a non-myelinated neuron

ine system consists of glands that release hormones that are transported in the

sis involves maintaining the internal environment between limits, including blood, pH, entration, blood glucose concentration, body temperature and water balance asis involves monitoring levels of variables and correcting changes in levels by

body temperature, including the transfer of heat in blood, and the roles of the glands, skin arterioles and shivering

blood glucose concentration, including the rolds of glucagons, insulin and alpha

• Draw and label diagrams of the adult male and female reproductive systems • Outline the role of hormones in the menstrual cycle, including FSH, LH, estrogen and progesterone • Annotate a graph showing hormone levels in the menstrual cycle, illustrating the relationship between changes in hormone levels and ovulation, menstruation and thickening of the endometrium

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Common Misunderstandings

Essential new vocabulary

- pH
- absorption
- assimilation
- atrium
- ventricle
- vessels
- valves
- coronary arteries
- pacemaker
- nerves
- medulla
- capillaries
- veins
- plasma
- erythrocytes
- leucocytes
- platelets
- pathogen
- antigens
- antibodies
- HIV
- AIDS
- Ventilation
- Gas exchange
- Cell respiration
- Alveoli
- Trachea
- Lungs
- Bronchi
- Bronchioles
- Diaphragm
- CNS
- PNS
- Neurons
- Motor neuron
- Resting potential
- Action potential
- Depolarization
- Repolarization
- Synaptic transmission
- Homeostasis
- Type I diabetes
- Type II diabetes
- FSJ
- LH
- Estrogen
- Progesterone
- Testosterone
- In vitro fertilization

