



School: Vincent Massey High School
Year & Semester: 2008-09 – Semester I

Teacher: Miss K.A. Hunter,
Room Number: 51

30S Biology Course Outline

Course Description: This course explores the anatomy, functions, and homeostatic interrelations of the major body systems.

General Learning Outcomes:

- Students will be given an opportunity to evaluate various components of their life with a view to making healthy lifestyle choices.
- Students will develop an awareness of themselves as a homeostatic organism.
- Students will develop an awareness of the complex process of the various systems throughout the body.
- Students will develop an action plan for maintaining a healthy diet.
- Use appropriate strategies and skills to develop an understanding of biological concepts.
- Demonstrate confidence in their ability to carry out investigations.
- Demonstrate sensitivity towards, and respect for, living and non-living tissues, specimens and organisms utilized for biological research.
- Identify and explore a current issue.
- Synthesize information obtained from a variety of sources.
- Communicate information in a variety of forms appropriate to the audience, purpose and context.
- Collaborate with others to achieve group goals and responsibilities.
- Demonstrate a continuing, more informed interest in biology and biology related careers and issues.
- Appreciate the contributions of Canadian scientists and institutions, past and present, to the field of human biology

Units of Study	Nelson Biology Reference Chapters & Page Numbers
1. Wellness and Homeostasis	Reference Class Notes and Handouts
2. Digestion and Nutrition	Chapter 5, pg. 122; Chapter 2, pg. 50; Class Notes & Handouts
3. Transportation and Respiration	Chapter 6, pg. 138; Chapter 8, pg 186; Chapter 7, page 164; Class Notes & Handouts
4. Excretion and Waste Management	Chapter 9, pg. 204; Class Notes & Handouts
5. Protection and Control	Chapter 7, pg. 164; Chapter 11, pg 240; Class Notes & Handouts
6. Wellness and Homeostatic Changes	Reference Class Notes and Handouts

Course Evaluation Structure:

- Assignments, Labs, Projects 30%
- Tests 30%
- Midterm Exam 15%
- Final Exam- No Exemptions 25%

Course Final Standing

- The final mark for term work, within the respective categories, (tests, assignments, labs, and projects) will be cumulative.
- All students will be required to write the final exam, which is a summative assessment.

Unit Descriptions

Unit 1 Title: Wellness and Homeostasis

Approximate Instructional Time for Unit of Study: 2 weeks

Learning Outcomes:

- Increase awareness of personal wellness as well as personal and family health history.
- Describe how the body attempts to maintain an internal balance called homeostasis, recognizing that the conditions in which life processes can occur are limited.
- Identify life processes that individual cells, as well as complex organisms, need to manage.
- Identify factors that influence movement of substances across a membrane, recognizing that movement of these substances is important for the internal balance of the cell.
- Explain the role of energy in maintaining an internal balance in the cell.

Evaluation:

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|------------------------------------|--------------------------|
| • Wellness checklist: 5 marks | • Movement Lab: 10 marks |
| • Family Medical History: 20 marks | • Unit Test: 30 marks |
| • Anatomy Quiz: 10 marks | |

Unit 2 Title: Digestion and Nutrition

Approximate Instructional Time for Unit of Study: 3.5 weeks

Learning Outcomes:

- Identify major structures and functions of the human digestive system.
- Describe the processes of mechanical digestion and chemical digestive tract.
- Explain the role of enzymes in the chemical digestion of nutrients and identify factors that influence their action.
- Describe the functions of the six basic types of nutrients: carbohydrates, lipids, proteins, vitamins, minerals and water.
- Investigate personal dietary requirements and habits with a view to making constructive changes.

Evaluation:

Wellness Checklist: 5 marks	% R.D.A. Analysis 15 marks
Anatomy Quiz: 15 marks	Daily work/Pop quizzes: 20 marks
Macronutrient Lab: 10 marks	Dissection: 10 marks
Enzyme Lab: 10 marks	Unit Test: 75 marks

Unit 3 Title: Transportation and Respiration

Approximate Instructional Time for Unit of Study: 4.5 weeks

Learning Outcomes:

- Design and execute an experiment to investigate an aspect of the transportation or respiratory system.
- Identify the materials transported between cells and capillaries.
- Compare the characteristics of blood components in terms of appearance, origin, numbers, relative size and function in the body.
- Compare the structure and function of blood vessels.
- Compare and contrast the characteristics of different blood groups.
- Describe the blood donation process and investigate related issues.
- Describe the cardiac cycle.
- Explain the meaning of blood pressure readings and identify the normal range.
- Distinguish between cellular respiration, internal respiration, and external respiration.
- ID personal lifestyle choices that contribute to cardio-vascular and respiratory wellness.

Evaluation:

Respiration wellness checklist:	5 marks
Respiration anatomy quiz:	15 marks
Lung capacity lab:	10 marks
Dissection:	10 marks
Respiration daily work/pop quizzes:	10 marks
Respiration test:	30 marks

Circulation wellness checklist:	5 marks
Heart dissection	10 marks
Heart anatomy & blood flow quiz	20 marks
Blood pressure taking practical	5 marks
Blood typing lab	10 marks
Circulation daily work/pop quizzes	15 marks
Circulation test:	45 marks

Unit 4 Title: Excretion and Waste Management

Approximate Instructional Time for Unit of Study: 2 weeks

Learning Outcomes:

- Identify the primary metabolic wastes produced in the cell and the human body and the source of each.
- Describe the roles of the major excretory structures in eliminating wastes and helping the body maintain homeostasis.
- Identify structures of the human urinary system from a diagram, model or specimen and describe the function of each.
- Explain the processes of filtration, reabsorption, and secretion in the nephron.
- Describe the feedback mechanisms associated with water and salt balance and their role in the maintenance of homeostasis in the human body.
- Describe what types of information can be gained through urinalysis.
- Investigate and describe issues related to kidney failure and treatment options available.

Evaluation:

Wellness checklist:	5 marks	Urinalysis lab:	10 marks
Excretion anatomy quiz:	15 marks	Kidney dissection:	10 marks
Daily work/pop quizzes:	20 marks	Unit test:	50 mark

Unit 5 Title: Protection and Control

Approximate Instructional Time for Unit of Study: 3.5 Weeks

Learning Outcomes:

- Identify ways in which the body protects itself from accident or injury.
- Describe physical and chemical barriers that protect the body from foreign agents.
- Explain the role of the lymphatic system in protecting the human body.
- Describe examples that illustrate the critical role of the immune system in maintaining personal and societal health and investigate related issues.
- Describe the major organization and function of the nervous system.
- Identify possible implications of concussions on brain function.
Explain how a nerve impulse travels a particular pathway using chemical and electrical
- Describe how personal lifestyle and environmental factors can influence protection and/or control systems.

Evaluation:

Wellness checklist:	5 marks	Nervous System Anatomy Quizzes: 5 marks each	
Immune/Lymphatic Anatomy Quiz:	5 marks	Divisions of the Nervous System	
Osmosis Jones and/or Outbreak Video:	10 marks	Neuron	
Immunization/Vaccination Records	10 marks	Brain	
Daily work/Pop Quizzes:	20 marks	Endocrine System Quiz	10 marks
Immune System Test:	35 marks	Daily work/Pop quizzes:	20 marks
		Brain Dissection:	10 marks
		Concussion Assignment	10 marks
		Nervous System Test:	35 marks

Unit 6 Title: Wellness and Homeostatic Changes

Approximate Instruction Time for Unit of Study: 1.5 weeks and integrated throughout the semester.

Evaluation:

Intro Questions:	5 marks	End of Life Chart:	10 marks
Diabetes Assignment:	10 marks	Technology & Prolonging Life:	10 marks
Aging Quiz:	10 marks		

Learning Outcomes

- Analyze examples of how different body systems work together to maintain homeostasis under various conditions.
- Recognize that aging is a progressive failure of the body's homeostatic responses and describe some changes that take place in different body systems as we age.
- Compare legal and medical definitions of death and identify social issues related to the process of dying.
- Describe how technology has allowed us to control our wellness and the ethical dilemmas that use of technology can create.

Student and Parent Responsibilities

Students are expected to show up to class prepared and on time. Absences from class must be verified by parents calling the school within a day of the absence. Students will be expected to complete the missed work on the day they return. A zero is given to assignments that are not submitted by the completion of the related unit's test. Any extension will be considered by the administration only when requested by the teacher. Missed quizzes and tests **will be** given a grade of **ZERO**, unless they are excused by a parent/guardian.

For more detailed descriptions of each of the units please consult the following web address –
<http://www.edu.gov.mb.ca/ks4/cur/science/scicurr.html>