



Loyola

HIGH SCHOOL

Science & Technology

Secondary 3

Mr. Seccareccia

Contact

seccarecciam@loyola.ca
514 486 1101 (ext. 670)

Description

This course is designed to provide the student with an overall picture of the harmonious functioning of the human body. It stresses the acquisition of attitudes aimed at respect for, and maintenance of health. The course covers several themes: nutrition, organs and systems, as well as reproduction.

Students will be expected to participate in class discussions, conduct research, and present findings as well as projects to their classmates (cooperative learning). In addition, some laboratory experiments will be conducted (e.g. nutrition analysis, dissection of a cow eye, etc.).

Notes and instruction will involve software such as PowerPoint, Gizmos, Piktochart, Quizlet, and various others, as well as ever-reliable hand writing.

Homework is usually assigned every couple of lessons (usually worksheets). Small quizzes are frequent and reflect the content taught or assigned for reading in the previous class. Review and practice of daily work is essential to understanding and retaining the information taught. Homework submitted late will result in a penalty of 20% per day.

Extra help in the form of tutorials and meetings is offered as required by appointment and are usually held at lunch or after school.

If a student is absent from a lab activity (or knows he will be absent due to an activity, medical appointments, etc.), he must contact the lab technician, Elie Dagher (daghere@loyola.ca) ahead of time (no less than 24 hours before the lab) to make the appropriate plans to complete it.

Resources

- *Synergy* student textbook, and worksheets
- Google Classroom (class code to be given in class)
- Various apps (e.g. Gizmos) and videos to be used throughout the year

Materials

- 3-ring binder (1 or 1.5 inch) with 5 dividers
- Folder (e.g. Duo-Tang to hold Lab Reports)
- Graph paper
- Loose leaf (or notebook)
- Pencil, eraser, pens
- Scientific calculator (same calculator used for math)
- Ruler (15 cm)

Term Breakdown

Term 1: 20% of the year

Term 2: 20% of the year

Term 3: 60% of the year (June exam worth 40% of the term)

Evaluation

Practical Component (labs, reports, science fair, activities, etc.): 40%

Theory Component (homework, quizzes, tests, June exam): 60%

Science Fair

Each student in Secondary 3 Science is required to complete an experimental science project.

- Students may choose to work alone or in pairs, but are strongly recommended to stay within their own class.
- The top groups from each class will present their projects and be judged at the annual Science Fair on **February 20th, 2020**. It is possible that some groups will be selected to further represent Loyola at higher level fairs, including the regional, provincial, or possibly national science fairs.
- Please note that all students must make themselves available for the **afternoon and evening of Thursday February 20th** in the event that they are selected to represent their class at the Science Fair.
- Further details can be found on the **Science Fair Moodle site**.
- All of the assessments for Science Fair will contribute towards the student's Practical Science grades in each of the reporting periods (term 1, 2 and 3 reports).

Topics

*Note: topic order may be adjusted, and may overlap adjacent terms.

Sept - Dec	Jan - Feb	March - June
<p>Scientific Method</p> <ul style="list-style-type: none"> • Laboratory report writing • Laboratory safety <p>Science Fair</p> <ul style="list-style-type: none"> • Research and experimental design • Initial topic choices <p>Cells, Tissues, Organs, DNA</p> <ul style="list-style-type: none"> • Microscope investigation <p>Nutrition and Digestive System</p> <ul style="list-style-type: none"> • Types of food (water, protein, carbs, lipids, vitamins, minerals) • Energy value of different foods • Digestive tract (mouth, esophagus, stomach, small intestine, large intestine, anus) • Transformation of food (mechanical/chemical) • Digestive glands (salivary glands, gastric glands, pancreas, liver, intestinal glands) • Nutrient Identification lab • Worm dissection <p>Respiratory System</p> <ul style="list-style-type: none"> • Nasal cavity, pharynx, trachea, bronchi, lungs <p>Excretory System</p> <ul style="list-style-type: none"> • Urinary system (kidneys, bladder, urethra) • Components of urine (water, salts, urea) <p>Science Fair</p> <ul style="list-style-type: none"> • Longer presentations • Rough written reports due 	<p>Science Fair</p> <ul style="list-style-type: none"> • Final editing of written reports • Submission of final digital posters • Final presentations <p>Cardiovascular System</p> <ul style="list-style-type: none"> • Functions of blood constituents (plasma, formed elements) • Compatibility of blood types • Circulatory system (structures and functions, types of blood vessels, etc.) • Lymphatic system (lymph, antibodies) <p>Nervous System</p> <ul style="list-style-type: none"> • Central nervous system (brain, spinal cord) • Peripheral nervous system (nerves) • Neuron (synapse, axon, dendrites) • Neural inflow (voluntary act, reflex act) • Sensory receptors (eye, ear, skin, tongue, nose) • Drugs (categories, effects, etc.) • Eye dissection 	<p>Musculoskeletal System</p> <ul style="list-style-type: none"> • Bones, joints, muscles • Functions of each • Types of muscles • Types of joint movement <p>Reproductive Systems</p> <ul style="list-style-type: none"> • Male and female • Structures and functions • Procreation • Sexually transmitted infections <p>Organization of Matter</p> <ul style="list-style-type: none"> • Pure substances (elements, compounds) • Homogeneous and heterogeneous mixtures <p>Properties of Matter</p> <ul style="list-style-type: none"> • Characteristic physical properties (melting point, boiling point, density, solubility) • Characteristic chemical properties (reaction to indicators) • Concentration (not strength) • Solute • Solvent <p>Changes in Matter</p> <ul style="list-style-type: none"> • Physical changes (dissolution, dilution, phase changes) • Chemical changes (synthesis and decomposition, oxidation, precipitation) • Forms of energy (chemical, thermal, mechanical) • Particle model