



# Loyola

## HIGH SCHOOL

### Science & Technology: Course Outline Secondary III Cycle 2 (Year 1)

**Instructor: Ms. S. Bhola**

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**Periods per cycle: 6**

#### **Description:**

This course is designed to provide the student with an overall picture of the harmonious functioning of the human body and stresses the acquisition of attitudes aimed at respect for and maintenance of health.

Students will be expected to participate in class discussions, conduct research and present findings and projects to their classmates. In addition, some laboratory experiments will be conducted to support learning.

#### **Requirements:**

- Students must come prepared to every lesson with all of their materials and are expected to further develop their work and study habits and time management skills.
- Respectful behavior towards other students and the instructor is expected at all times. Students are expected to work cooperatively with their peers.
- Students are expected to further develop good study habits. Review and practice of daily work is essential to understanding and retaining the information taught.
- All assignments must be completed on time and with care. Homework will be checked on the day it is due. Late assignments will be completed during Academic JUG. Messy or incomplete work will not be accepted.

## **Materials:**

- 3 Ring binder (1 or 1 1/2 inch) with dividers

This should be a single topic binder (only for use in this course)

- Loose-leaf paper for notes and rough work
- Several pencils, eraser, highlighters

Students should bring their textbook (*Synergie*) and iPad to every class. Personal devices (e.g., laptops) are not permitted.

## **Evaluation, Components & Competencies:**

<b>Component</b>	<b>Science Competencies</b>	<b>Examples</b>	<b>Weighting</b>
<b>Practical</b>	Seeks answers or solutions to scientific or technological problems Communicates in the languages used in science and technology	Labs, lab reports activities, lab exam, etc.	<b>40%</b>
<b>Theory</b>	Makes the most of his knowledge of science and technology Communicates in the languages used in science and technology	Tests, quizzes, homework, June exam, etc.	<b>60%</b>

## **Term breakdown**

Term 1	20%	Ends Nov. 2 <sup>nd</sup>
Term 2	20%	Ends Feb. 13 <sup>th</sup>
Term 3	60% (June exam is worth 40% of this term)	Ends May 30 <sup>st</sup>

For each term report, students will also have comments regarding at least two (2) of the following four (4) cross-curricular competencies:

- Exercises critical judgment
- Organizes his work
- Communicates effectively
- Works in a team

## **Extra Help**

Extra help sessions are announced before every major evaluation. Students may also email the instructor to arrange for additional help. Tutorials are usually held during lunch or after school.

## **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
- Approximately five groups from each class will present their projects and be judged at the annual Science Fair on February 22<sup>nd</sup>. It is possible that some groups will be selected to further represent Loyola at the Regional Science Fair.
- Please note that all students must make themselves available for the **afternoon and evening of Friday February 22<sup>nd</sup>** 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**.

## **Moodle Page**

Sec 3 Science Ms. Bhola

## Topics: Science & Technology: Secondary 3 (Cycle Two Year One)

Term 1	Term 2	Term 3
<b>Scientific Method</b> <ul style="list-style-type: none"> <li>Laboratory report writing</li> <li>Laboratory safety</li> </ul>	<b>Science Fair</b> <ul style="list-style-type: none"> <li>Results, analysis and presentation</li> </ul>	<b>Biotechnology</b> <ul style="list-style-type: none"> <li>Pasteurization</li> <li>Manufacture of vaccines</li> <li>Assisted reproduction</li> <li>Cell cultures</li> <li>Genetic transformation (GMO's)</li> </ul>
<b>Science Fair</b> <ul style="list-style-type: none"> <li>Research and experimentation</li> </ul>	<b>Excretory System</b> <ul style="list-style-type: none"> <li>Urinary system (kidneys, bladder, urethra)</li> <li>Components of urine (water, salts, urea)</li> <li>Maintaining a balanced metabolism (kidneys, lungs, sweat glands)</li> </ul>	<b>Science Techniques</b> <ul style="list-style-type: none"> <li>Introduction to dimensional analysis (solving problems in one line while crossing out units)</li> </ul>
<b>Nutrition &amp; Digestive Systems</b> <ul style="list-style-type: none"> <li>Types of food (water, protein, carbohydrates, fats, vitamins, minerals)</li> <li>Energy value of different foods</li> <li>Digestive tract (mouth, esophagus, stomach, small intestine, large intestine, anus)</li> <li>Transformation of food (mech/chemical)</li> <li>Digestive glands (salivary glands, gastric glands, pancreas, liver, intestinal glands)</li> </ul>	<b>Nervous &amp; Musculoskeletal Systems</b> <ul style="list-style-type: none"> <li>Central nervous system (brain, spinal cord)</li> <li>Peripheral nervous system (nerves)</li> <li>Neuron (synapse, axon, dendrites)</li> <li>Neural inflow (voluntary act, reflex act)</li> <li>Sensory receptors (eye, ear, skin, tongue, nose)</li> <li>Musculoskeletal system (bones, joints, muscles)</li> <li>Function of bones, joints and muscles</li> <li>Types of muscles</li> <li>Types of joint movement</li> </ul>	<b>Organization of Matter</b> <ul style="list-style-type: none"> <li>Pure substance (compound, element)</li> <li>Homogeneous and heterogeneous mixture</li> </ul>
<b>Circulatory &amp; Respiratory Systems</b> <ul style="list-style-type: none"> <li>Respiratory system (nasal cavity, pharynx, trachea, bronchi, lungs)</li> <li>Functions of blood constituents (plasma, formed elements)</li> <li>Compatibility of blood types</li> <li>Circulatory system (types of blood vessels)</li> <li>Lymphatic system (lymph, antibodies)</li> </ul>	<b>Waves</b> <ul style="list-style-type: none"> <li>Frequency, wavelength and amplitude</li> <li>Decibel scale</li> <li>Electromagnetic spectrum</li> <li>Deviation of light waves</li> <li>Focal point of a lens</li> </ul>	<b>Properties of Matter</b> <ul style="list-style-type: none"> <li>Characteristic physical properties (melting point, boiling point, density, solubility)</li> <li>Characteristic chemical properties (reaction to indicators)</li> <li>Concentration</li> <li>Solute</li> <li>Solvent</li> </ul>
<b>Fluids</b> <ul style="list-style-type: none"> <li>Compressible and incompressible fluids</li> <li>Relationship between pressure and volume</li> </ul>	<b>Review of reproductive systems</b>	<b>Changes in Matter</b> <ul style="list-style-type: none"> <li>Physical changes (dissolution, dilution, phase changes)</li> <li>Chemical changes (synthesis and decomposition, oxidation, precipitation)</li> <li>Forms of energy (chemical, thermal, mechanical)</li> <li>Particle model</li> </ul>