CONTENT OF LEARNING AND EVALUATION SITUATIONS

Secondary III

No.	Title	Description	Duration	SSC	Concepts	Concept review handouts (or Activity Book)	Labs
LES1	A legal investigation	Various businesses in a certain municipality have been mysteriously robbed. To find the culprit, authorities ask students to conduct a variety of tests to uncover the characteristic properties of samples taken by investigators.	4 periods	SSC1 – Science	• Characteristic physical properties (melting point, boiling point, density, solubility) • Characteristic chemical properties (reaction to indicators) • Pure substance (compound, element)	5, 6	6, 9–12, 14
LES2	For better and for taste	Students must analyze a company's frozen desserts to produce a new recipe that better meets the needs of target clientele.	4 periods	SSC2 – Science	• Types of foods (water, proteins, carbohydrates, fats, vitamins, minerals) • Energy value of different foods	25	41–49
LES3	Custom-made chairs	Students must design an armchair adapted to a target clientele (children, adults, etc.), in accordance with precise specifications. The chair is to be represented in a multiview projection.	4 periods	SSC2 – Science	• Geometric lines • Forms of representation (sketch, perspective drawing, oblique projection) • Basic lines • Orthogonal projections (multiview, isometric) • Dimensioning • Scales	51–53	(Tech) 1, 2, 4
LES4	When the temperature rises	Students must prepare an experimental protocol to observe the effect of a temperature increase on a physical or chemical change.	5 periods	SSC1 (SSC3) – Science	• Physical changes (dissolution) • Chemical changes (decomposition and synthesis, oxidation, precipitation) • Forms of energy (thermal)	7–9	16, 19–24
LES5	Organ donation	Students evaluate the possibility of harvesting organs for donation from the victim of a head injury. They play the roles of doctor, organ-donor coordinator and the victim's family members and try to arrive at an informed decision.	5 periods	SSC2 – Science	• Functions of blood constituents (plasma, formed elements) • Compatibility of blood types • Tissues • Organs • Systems	21, 30	56, 57
LES6	A magic box	Many people are fascinated by magic tricks, which are often based on optical illusions. Students must build a magic box, using plane mirrors to create an optical illusion.	4 periods	SSC1 – Tech	• Electromagnetic spectrum • Deviation of light waves • Standards and representations (diagrams and symbols) • Sections	16, 53, 54	33

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					• Dimensioning		
LES7	Travelling through time	Students must produce an ad for a travel package featuring an era in geological time.	4 periods	SSC2 (SSC3) – Science	• Geological time scale • Major stages in the history of life on Earth • Extinctions • Fossils • Stratigraphic layers • Conditions conducive to the development of life	47–50	
LES8	A well-planned model	Students must build a model of one of the systems linked to nutrition to help the makers of an animated film design the setting of their movie, which takes place in the human body.	6 periods	SSC3 (SSC2) – Science	**Digestive system** • 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) **Circulatory and respiratory systems** • Respiratory system (nasal cavity, pharynx, trachea, bronchi, lungs) • Circulatory system (types of blood vessels) • Lymphatic system (lymph, antibodies) **Excretory system** • Urinary system (kidneys, ureters, bladder, urethra) • Maintaining a balanced metabolism (kidneys, lungs, sweat glands)	26–29, 31–33	50–55, 58–61
LES9	Tanning salons	Students must debate the advantages and disadvantages of tanning beds and make appropriate recommendations to the Ministère de la Santé et des Services sociaux.	4 periods	SSC2 – Science	• Amplitude • Wavelength • Frequency • Electromagnetic spectrum	13, 14	29–31

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LES10	Expedition to the Far North	In the context of an adventure tourism workshop, students must plan an expedition to the Far North. They will determine, through experimentation, the amount of fuel required to obtain enough water from snow or ice to prepare their meals for a day.	4 periods	SSC1 – Science	• Physical changes (dissolution, dilution, phase changes) • Forms of energy (chemical, thermal, mechanical, radiation) • Particle model	1, 7, 8	16–18
LES11	Take a deep breath	Students must assemble a spirometer and analyze its operation in order to suggest appropriate modifications for marketing the instrument.	5 periods	SSC2 – Tech	• Compressible and incompressible fluids • Pressure • Relationship between pressure and volume	10–12	25–28
LES12	Light years away	Students must prepare an exhibit of the eight planets of the solar system by creating a scale model based on a regulation-size sports field.	4 periods	SSC3 (SSC2) – Science	• Scale of the universe • Location of the Earth in the universe • Astronomical unit • Light year • Scales	45, 46, 53	(Tech) 6
LES13	Addiction: the price to pay	During an internship in a drug treatment centre, students must present a poster to their patients, showing the desirable and undesirable effects of their substance abuse on various systems of the body. Students must also write a text on suitable approaches to drug rehab for their patients, including suggestions of information sources and local services.	5 periods	SSC2 – Science	• Central nervous system (brain, spinal cord) • Peripheral nervous system (nerves) • Musculoskeletal system (bones, joints, muscles) • Puberty (male and female) • Hormone regulation in men (spermatogenesis, erection, ejaculation) • Hormone regulation in women (oogenesis, ovarian cycle, menstrual cycle)	22–24, 34–36, 39	40, 62, 63, 68
LES14	Driving safely	Students must build a miniature prototype of an eco-friendly vehicle and analyze the constraints the materials are subjected to during frontal collision tests.	4 periods	SSC1 – Tech	• Constraints (tension, compression, torsion) • Mechanical properties • Types and properties of materials (ferrous alloys, nonferrous metals and alloys, wood and modified wood)	55–57	(Tech) 11–13

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LES15	Antioxidants at work	Students must design and conduct an experiment to determine whether soaking pieces of apple in a vitamin C solution is a good way to prevent oxidation.	4 periods	SSC1 – Science	• Homogeneous and heterogeneous mixtures • Properties of solutions (concentration, solute, solvent) • Physical changes (dissolution, dilution)	2, 3, 8	1–5
LES16	An artificial limb	Using an everyday object as a reference system, students must draw up plans for an exoskeleton part that performs a specific function (e.g. allows the user to pick up an object).	4 periods	SSC2 – Tech	• Typical functions • Linking of mechanical parts • Function, components and use of motion transmission systems (friction gears, pulleys and belt, gear assembly, sprocket wheels and chain, wheel and worm gear) • Function, components and use of motion transformation systems (screw gear system, cams, connecting rods, cranks, slides, rotating slider crank mechanisms, rack-and-pinion drive)	58, 59	(Tech) 15–17
LES17	It's more than a common sense	A company in the aerospace industry is seeking to recruit people with highly attuned senses to detect possible flaws during space flights. Students will design a sensory acuity test that they will administer to themselves and to classmates.	5 periods	SSC1 – Science	• Sensory receptors (eye, ear, skin, tongue, nose) • Decibel scale • Focal point of a lens	15, 17, 37, 38	32, 34–36, 64–67
LES18	Bio-technology: for or against	During a televised debate on biotechnology, students will share their opinions on various issues (e.g. Should vaccination be mandatory?). Students will participate in the debate both by acting as experts on a particular subject and by questioning classmates on other subjects.	6 periods	SSC2 – Science	• DNA • Mitosis • Functions of cell division (reproduction, growth, regeneration) • Meiosis and sexual development (meiosis, fertilization) • Genetic diversity • Processes (pasteurization, manufacture of vaccines, assisted reproduction, cell cultures, genetic transformation [GMOs])	18–20, 40–44	37, 38, 69–72