Science 8

Processes of Science

Prescribed Learning Outcome:

A1. SAFETY - I can demonstrate safe procedures.

	Date	Date	Date	Date	Date
Learning Outcome:	Level o	f profi	ciency ((M, P, S	5, N)
1. I can identify a variety of dangers in procedures					
(ex. Cuts from sharp objects; explosions or burns					
from handling chemicals or heating materials)					
2. I can identify appropriate equipment for a lab					
activity (ex. Bunsen burner vs hotplate, glassware					
for chemicals.					
3. I can identify and use appropriate personal					
protective equipment (ex. Hand and eye					
protection) and procedures (ex. Hair tied back,					
clear work area, no loose clothing, no horseplay)					
4. I can use proper techniques for handling and					
disposing of lab materials (ex. Using special					
containers for caustic chemicals).					
5. I can, with teacher support, <u>describe</u> appropriate					
emergency response procedures (ex. How to use a					
fire extinguisher / blanket, eye wash station, first					
air for cuts and burns, knowing who to contact and					
how)					
6. I can describe safe dissection techniques involved					
in an actual (or virtual) dissection.					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____

Prescribed Learning Outcome:

A2. USE THE SCIENTIFIC METHOD - I can perform experiments using the scientific method.

	Nata	Nata	Nata	Nata	Nata
	Date	Date	Date	Date	Date
Learning Outcome:	Level o	f profi	ciency ((M, P, S	, N)
1. I can describe the elements of a valid experiment					
 Formulate an hypothesis 					
Make a prediction					
• Make a prediction					
 Identity controlled vs experimental 					
variables					
 Observe, measure, and record using 					
appropriate units interpret data					
 Draw conclusions 					
2 There use information and conclusions of a basis for					
2. I can use information and conclusions as a dasis for					
further comparisons, investigations, or analyses.					
3. I can communicate results using a variety of					
methods.					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____

Prescribed Learning Outcome:

A3. GRAPHING - I can represent and interpret information in graphic form.

	Date	Date	Date	Date	Date
Learning Outcome:	Level o	f profi	ciency ((M, P, S	5, N)
1. I can identify and use the most appropriate type					
of graph to represent a given type of data (ex. Pie,					
bar, table, line graph)					
2. I can convey information, using appropriate units					
as applicable, in					
 Bar graphs (ex. Variables in aquatic 					
environments)					
 Line graphs (ex. Mass vs volume) 					
 Pie charts (ex. parentages of water 					
distribution)					
• Tables					
 Diagrams (ex. of a cell, of systems) 					
3. I can distinguish between dependent and					
independent variables in a graph.					
4. I can draw a best fit line or curve given a set of					
data points on a graph.					
5. I can extrapolate and interpolate points on a					
graph.					
6. I can use appropriate scale and axis to create a					
graph.					
7. I can extract relevant information from pie					
charts, bar graphs, line graphs, and tables.					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____

Prescribed Learning Outcome:

A4. MODELING - I can use models to explain how systems operate.

	Date	Date	Date	Date	Date
Learning Outcome:	Level o	f profi	ciency (<u>(M, P, S</u>	5, N)
1. I can give examples of how various processes could					
be modelled (ex. Diagrams or demonstrations of					
energy transfer, refraction, wave action, phase					
change)					
2. I can construct a variety of models (ex. A cell, the					
eye, wave components)					
3. I can describe the relationships between					
components of the model and what it represents.					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____

Prescribed Learning Outcome:

A5. SCIENTIFC LITERACY - Demonstrate scientific literacy.

	Date	Date	Date	Date	Date
Learning Outcome:	Level o	f profi	ciency ((M, P, S	i, N)
1. I can identify the main points in a science-related					
article or illustration.					
2. I can describe the qualities of the scientific ally					
literate person, such as					
 Awareness of assumptions (your own and 					
authors`)					
 Respect for precision 					
 Ability to separate fundamental concepts 					
from irrelevant or unimportant					
 Recognize that scientific knowledge is 					
continually developing and often builds upon					
previous theories					
 Recognizing cause and effect. 					
3. I can use given criteria for evaluating evidence and					
sources of information (ex. Identify supporting or					
refuting information and bias)					
4. I can explain how science and technology affect					
individuals, society, and environment.					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____

Prescribed Learning Outcome:

A6. APPROPRIATE TEAM BEHAVIOR - I can demonstrate ethical, responsible, cooperative behavior.

		. .			
	Date	Date	Date	Date	Date
Learning Outcome:	Level o	f profi	ciency ((M, P, S	i, N)
1. I can describe and demonstrate		•			
 Ethical behaviour (ex. Honesty, fairness, 					
reliability)					
Open mindedness (av Opening eveningtion					
• Open-mindedness (ex. Orgoing examination					
and reassessment or own beliets)					
 Willingness to question and promote 					
discussion.					
 Skills of collaboration and co-operation 					
Respect for the contributions of others					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____

Prescribed Learning Outcome:

A7. TECHNOLOGY CONNECTION - I can describe the relationship between scientific principles and technology.

	Date	Date	Date	Date	Date
Learning Outcome:	Level o	f profic	ciency ((M, P, S	5, N)
1. I can give examples of scientific principles that					
have resulted in the development of technologies					
(ex. Velocity é acceleration - technologies related					
to transportation and athletics)					
2. I can identify a variety of technologies and explain					
how they have advanced our understanding of					
science (ex. Seismographic instruments and GPS -					
plate tectonics and Earth`s layers)					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____

Prescribed Learning Outcome:

A8. - USES OF TECHNOLOGY - I can demonstrate competence in the use of technologies specific to investigative procedures and research.

	Date	Date	Date	Date	Date
Learning Outcome:	Level o	f profi	ciency ((M, P, S	5, N)
1. I can select and carefully use balances and other					
measurement tools (ex. Thermometers, timing					
devices, electronic devices)					
2. I can proficiently use the internet as a research					
tool.					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____

Prescribed Learning Outcome:

B1. LIVING THINGS - I can identify the various characteristics of living things

	Date	Date	Date	Date	Date
Learning Outcome:	Level o	f profi	ciency ((M, P, S	, N)
1. I can identify various characteristics of living					
things (ex. Require energy, respond to the					
environment, perform gas exchange, excrete					
waste, reproduce)					
2. I can relate characteristics of living things to					
viruses, bacteria, plants, and animals.					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____

Prescribed Learning Outcome:

B2. CELLS - I can relate the main features and properties of cells to their functions.

		Date	Date	Date	Date	Date
Learni	ng Outcome:	Level o	f profi	ciency ((M, P, S	, N)
1.	I can summarize cell theory (ex. Recognize that all		1			
	living things are composed of cells, and all cells					
	come from pre-existing cells)					
2.	I can accurately list similarities and differences					
	between cell types (plant, animal, and bacteria)					
3.	I can describe the structure and function of cell					
	organelles (ex. Cell membrane, nucleus, cytoplasm,					
	mitochondrion, cell wall, chloroplast, vacuole,					
	ribosome)					
4.	I can recognize and name parts of a cell using a					
	microscope.					
5.	I can relate the concepts of osmosis and diffusion					
	to transport of materials across cell membranes.					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____

Prescribed Learning Outcome:

B3. RELATIONSHIP HIERARCHY - I can explain the relationship between cells, tissues, organs, and organ systems.

	Date	Date	Date	Date	Date
Learning Outcome:	Level o	f profi	ciency ((M, P, S	5, N)
1. I can define the terms <i>tissue, organ,</i> and <i>organ</i>					
system.					
2. I can distinguish between cells, tissues, organs,					
and organ systems, based on structure and					
function.					
3. I can identify the main components of the human					
organs systems (ex. Respiratory, circulatory,					
digestive, and excretory systems)					
4. I can describe how organ systems work together					
to obtain and transport nutrients, remove wastes,					
and exchange gases.					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____

Prescribed Learning Outcome:

B4. IMMUNE SYSTEM - I can explain the functioning of the immune system, and the roles of the primary, secondary, and tertiary defence systems.

	Date	Date	Date	Date	Date
		, , ,			
Learning Outcome:	Level o	f profi	ciency ((M, P, S	5, N)
1. I can identify components of the primary defence					
systems, including skin, tears, ear wax, saliva,					
gastric juice, cilia, mucus.					
2. I can identify phagocytic white blood cells as the					
major component of the secondary defence					
system.					
3. I can identify white blood cells that produce					
antibodies as the major component of the tertiary					
defence system.					
4. I can describe how each of the defence system					
components works (ex. Skin prevents bacteria					
from entering the body, phagocytic white blood					
cells engulf and destroy viruses and bacteria, and					
white blood cells produce antibodies that combine					
with antigens.					
5. I can describe factors that can have a negative					
effect on the body systems, including pathogens					
(ex. <i>E. coli</i> , influenza viruses, HIV) and toxins (ex.					
Botulism)					
	1				

To improve my level of proficiency, I will (describe the specific activities):

Date:_	
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Date:__

Prescribed Learning Outcome:

C1. WAVES - I can demonstrate knowledge of waves.

	Date	Date	Date	Date	Date
Learning Outcome:	Level o	f profi	ciency ((M, P, S	5, N)
1. I can define <i>waves</i> and describe their					
characteristics, using examples and sketches.					
2. I can demonstrate wavelength, frequency,					
amplitude, with corresponding explanations.					
3. I can describe how waves are reflected off a					
barrier and refracted when passing from one					
medium to another.					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____

Prescribed Learning Outcome:

C2. VISIBLE LIGHT - I can explain the properties of visible light.

		Date	Date	Date	Date	Date
Learning Outcome:		Level o	f profi	ciency ((M, P, S	5, N)
1. I can connec	t the behaviour of waves to visible					
light (ex. Bot	h waves and light reflect and refract)					
2. I can identif	y and describe properties of visible					
light (ex. Pri	sm to demonstrate spectrum of colour,					
pinhole came	ra to demonstrate how light travels in					
a straight lin	e.)					
3. I can show h	ow light is transmitted and absorbed					
by different	materials (ex. Opaque, translucent,					
transparent;	creation of shadows)					
4. I can demons	strate how visible light is reflected					
(ex. Relate a	ngle of incidence and angle of					
reflection fo	r curved and plane mirrors)					
5. I can demons	strate how visible light is refracted					
(ex. Bending	of rays, changes of speed, diverging					
and convergi	ng lenses)					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____

Prescribed Learning Outcome:

C3. VISIBLE LIGHT vs OTHER ELECTROMAGNETIC - I can compare visible light to other types of electromagnetic radiation.

	Date	Date	Date	Date	Date
Learning Outcome:	Level o	f profi	ciency ((M, P, S	5, N)
1. I can differentiate radio waves, microwaves,					
infrared, visible light, ultraviolet, w-rays, and					
gamma rays in terms of wavelength, frequency, and					
energy transferred.					
2. I can relate different types of electromagnetic					
radiation to my daily life.					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____

Prescribed Learning Outcome:

C4. VISION - I can explain how human vision works.

		Date	Date	Date	Date	Date
Learni	ng Outcome:	Level o	f profi	ciency ((M, P, S	, N)
1.	I can illustrate the parts of the eye including					
	sclera, cornea, retina, lens, optic nerve and blind					
	spot, iris, and pupil					
2.	I can describe the cornea-lens-retina system					
3.	I can describe common defect in human vision (ex.					
	Near-sighted, far-sighted)					
4.	I can describe several ways of correcting or					
	extending human vision (ex. Contact lenses, laser					
	surgery, binoculars)					
5.	I can identify similarities and differences between					
	the eye and another optical system (ex.					
	Microscopes, telescopes)					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____

Prescribed Learning Outcome:

C5. FORCE - I can explain the concept of force

	Date	Date	Date	Date	Date
Learning Outcome:	Level o	f profi	ciency ((M, P, S	5, N)
1. I can define <i>force</i> (push or pull of one object on					
another)					
2. I can list different types of forces (ex. Magnetic,					
friction, gravitational, elastic, electrical)					
3. I can differentiate between mass and weight					
4. I can describe the movement of objects in terms					
of balanced and unbalanced forces.					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____

Prescribed Learning Outcome:

C6. KMT - Describe the relationship between solids, liquids, and gases, using the kinetic molecular theory.

	Date	Date	Date	Date	Date
Learning Outcome:	Level o	f profi	ciency ((M, P, S	5, N)
1. I can outline the kinetic molecular theory					
2. I can distinguish between solids, liquids, and gases					
based on particle arrangement and motion					
3. I can define terms related to changes of state (ex.					
 I can define terms related to changes of state (ex. Temperature, heat, evaporation, condensation, 					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____

Prescribed Learning Outcome:

C7. DENSITY - I can determine the density of various substances.

	Date	Date	Date	Date	Date
Learning Outcome:	Level o	f profi	ciency ((M, P, S	i, N)
1. I can, for a fixed number and temperature,					
describe the differences between volume and					
density for each of the states of matter					
2. I can describe the effects of changes in					
temperature on the density of solids, liquids, and					
gases (ex. Compression and expansion)					
3. I can conduct experiments to calculate the density					
of regularly shaped objects (D = m/V) and					
irregularly shaped objects [E = m / V2 -V1)]					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____

Prescribed Learning Outcome:

C8. PRESSURE - I can explain the relationship between pressure, temperature, area, and force in fluids.

	Date	Date	Date	Date	Date
Learning Outcome:	Level o	f profi	ciency ((M, P, S	5, N)
1. I can explain pressure with reference to force and					
area (ie. Compression and expansion)					
2. I can describe the relationship between					
temperature, area, and pressure, with reference					
to the kinetic molecular theory)					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____

Prescribed Learning Outcome:

C9. CONSTRUCTED FLUID SYSTEMS - I can recognize the similarities between natural and constructed fluid systems (ex. Hydraulic, pneumatic)

	Date	Date	Date	Date	Date
		<u> </u>			
Learning Outcome:	Level o	t proti	ciency (<u>, M, P, S</u>	, N)
1. I can give examples of natural fluid systems (ex.					
Circulatory and respiratory system) and					
constructed fluid systems (ex. Hydraulic and air					
brakes)					
2. I can recognize the scientific principles involved in					
fluid systems (ex. Fluids can be compressed and					
flow; pressure differences can cause movement)					
3. I can identify possible problems in natural or					
constructed fluid systems (ex. High / low blood					
pressure)					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____

Earth and Space Science: Water Systems on Earth

Prescribed Learning Outcome:

D1. SALINITY - I can explain the significance of salinity and temperature in the world's oceans.

	Date	Date	Date	Date	Date
		<u> </u>			
Learning Outcome:	Level o	t protie	ciency (<u>(</u> M , P, S	, N)
1. I can describe the world distribution of water					
(97.2% ocean, 2.8% fresh, 2.15% ice, 0.61% ground					
water, 0.01 lakes and rivers, 0.001% atmosphere)					
2. I can identify similarities and differences between					
salt water and fresh water (ex. Freezing point,					
density)					
3. I can define <i>ocean currents</i>					
4. I can describe how winds and ocean currents					
influence regional climates (ex. Moderating					
effects)					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____

Earth and Space Science: Water Systems on Earth

Prescribed Learning Outcome:

D2. WATER, ICE AND EROSION - I can describe how water and ice shape the landscape.

	Date	Date	Date	Date	Date
Learning Outcome:	Level o	f profi	ciency ((M, P, S	5, N)
1. I can define wreathing and erosion					
2. I can describe how gravity directs the movement					
of water and ice and transports weathered					
materials through slow processes (rivers and					
glaciers) and fast processes (landslides).					
3. I can identify and illustrate various alpine and					
continental glacial features (ex. Circques, arêtes,					
horns, hanging valleys, crevasses, moraines, eskers,					
outwash, fiords, icebergs, striations, erratic)					
4. I can describe how waves and tides are generated					
(ex. Waves: wind action; tsunamis: tectonic					
processes; tides: gravitational pull)					
5. Describe the impact of water movement (ex.					
Waves, tides, river flow) on surface features (ex.					
Weathering, erosion, deposition).					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____

Earth and Space Science: Water Systems on Earth

Prescribed Learning Outcome:

D3. EFFECT ON LIVING THINGS - I can describe factors that affect productivity and species distribution in aquatic environments.

	Date	Date	Date	Date	Date
		<u> </u>			
Learning Outcome:	Level of proficiency (M, P, S, N)				
 I can identify various factors that affect 					
productivity and species distribution in aquatic					
environments (ex. Temperature, nutrients in the					
water, turbidity, currents, sunlight, salinity,					
pollutants, water depth, resource extraction,					
dams)					
2. I can describe how changes in aquatic					
environments are monitored (ex. Through the use					
of satellite imagery)					
3. I can relate human activities to the distribution of					
aquatic species, with specific reference to First					
Nations peoples in BC (ex. Harvesting technologies,					
preservation techniques, use of resource)s					

To improve my level of proficiency, I will (describe the specific activities):

Date:_____