Harvey High School
To Wisdom We Climb

Grade 12 HOME LEARNING PLAN

TEACHER	Email	Homeroom	Grade/subjects taught
Mr. Woodworth	Kyle.woodworth@nbed.nb.ca		120 Pre Calculus
Mrs. Henry	Ara.henry@nbed.nb.ca	12AB	112/3 history & Law 120
Mr. White	David.white@nbed.nb.ca		FILA 120
Mrs. Arsenault	catherine.arsenault@nbed.nb.ca		Physics 122 & Chem 122
Mrs. Miller	Andrea.miller@nbed.nb.ca		12 FI Leadership
Ms. Parra	Julia.parra@nbed.nb.ca		Culinary Technology 120
Mr. Finley	Neal.finley@nbed.nb.ca		11/12 Skilled Trades
Ms. Crawford	Catherine.crawford@nbed.nb.ca		Indigenous Studies 120
Mme. Noble	Tina.noble@nbed.nb.ca		VP
Ms. Parra	Julia.parra@nbed.nb.ca		Resource
Mrs. Drummond	Cynthia.drummond@nbed.nb.ca		MS Resource
Ms. Collicott	Crysta.collicott@nbed.nb.ca		Principal
School Email	harveyhigh@nbed.nb.ca		

	WEEKLY PLAN – April 14-17
Subject	
Literacy	Online Resources: https://ca.ixl.com/ New Brunswick Public Libraries offer many learning experiences and free access to downloadable ebooks. To access this site, you will need your library card number. If you don't have one, get one online https://www2.gnb.ca/content/gnb/en/departments/nbpl.html **FILA:** Using the subjonctif verb tense, write a paragraph for one of the prompts below: (expressions that precede the subjonctif are included in brackets) 1. Imagine que tu partes en vacances. Dresse une liste de tout ce qu'il faut faire pour se préparer, les défis possibles, etc. (il faut que, il est possible que, il est peu probable que, avant que, en attendant que) 2. Est-ce que le programme d'Immersion doit se cibler sur les classiques littéraires ou les films et la musique contemporaine? Défendes ton opinion. (vouloir que, préférer que, m'attendre à ce que, sans que, pour que)

	3. Choisis un leader politique – Blaine Higgs, Justin Trudeau, Donald Trump, Angela Merkel, etc. Que penses-tu de la manière dont elle ou il s'adresse à la crise de COVID-19? Défendes ton opinion. (il semble que, c'est dommage que, avoir peur que, douter que, être + adjectif que [être content que, être impressionné.e que, etc.]) Students interested in optional interactive French activities or the Oral Proficiency Interview please contact Mr. White (david.white@nbed.nb.ca) or check out the Teams site on Office 365.

Numeracy	I am going to post an introduction to graphing reciprocal functions on my teacher page on the school website (Click here to go to the website). I have posted a blank copy of the notes for the section, along with a pdf copy of my completed notes. Because this would have been a new topic for this unit, I would recommend that you watch the following video which describes the topic: https://www.youtube.com/watch?v=pqJ3_FSX23Y. On my teacher page on the school website I have posted the following:
	  1) A link to my notes for this section.
	  2) Two worksheets to practice graphing reciprocal functions. Complete all questions on worksheet 1. On worksheet two complete questions 1a, c, 2a-d
	  3) An answer key for both worksheets.
	
	Online Resources:
	Khan Academy offers math instruction for all levels of learners, organized by both subject and grade. https://www.khanacademy.org/math
	https://www.aaamath.com/
	https://ca.ixl.com/

Science	## Physics 122 <u>Elastic & Inelastic Collisions</u> Collisions in which kinetic energy is conserved are elastic. Collisions in which kinetic energy is not conserved are inelastic. The equation $E_K = \frac{1}{2}mv^2$ is used to calculate the total kinetic energy of all objects before and after a collision and determine if kinetic energy was conserved (stayed the same) or lost (final kinetic energy less than initial kinetic energy). Keep in mind that energy does not have direction, so all values for kinetic energy will be positive. Mathematically, squaring the velocity in the equation takes care of any negative signs. The law of conservation of momentum can be used to calculate any unknown values for velocity in these questions. Here is a short video (6:10) on elastic and inelastic collisions - https://www.youtube.com/watch?v=8ko3qy9vgLQ See the documents section of my Teacher's Page for a sample problem and answers to the following practice problems: https://secure1.nbed.nb.ca/sites/ASD-W/harveyhighschool/Teachers/pages/docs.aspx?FilterField1=Blog%5Fx0020%5FCategory&FilterValue1=Mrs.+Arsenault 1. A ball of mass 10 kg moving with a velocity of 20 m/s collides with a second ball of mass 20 kg moving along the same line with a velocity of 10 m/s. After the balls collide the 10 kg ball is still moving in its original direction, but it only has a velocity of 8.0 m/s. Is the collision elastic? 2. Two balls are rolling towards each other. They each have a mass of 3.72 kg. The first has a velocity of 6.6 m/s and second has a velocity of 4.1 m/s. After the collision, they are both traveling in the original direction of the first ball, the first with a velocity of 2.6 m/s and the second with a velocity of 2.9 m/s. Is the collision elastic? <u>Projectiles</u> Definitions: Projectile motion – the type of motion exhibited by any object launched near the surface of the earth and acted on by only the force of gravity Trajectory – the path described by an object moving due to a force or forces Projectile – any object given an initial thrust and then allowed to soar through the air affected only by the force of gravity Range – the horizontal distance that the projectile travels The horizontal motion of a projectile does not influence the vertical motion. Therefore, we can treat the motion in the two dimensions independently. • Gravity is the only force influencing projectile motion (we ignore air friction) • Take 2 marbles, 2 tennis balls, etc., if you roll one off the edge of a table and drop the second one from the same height as the first one leaves the edge of the table – Do they hit the floor at the same time? Does the one being rolled drop straight down or continue moving in a horizontal direction as it falls and land away from the table?

- Gravity ($a_y = -9.81 \text{m/s}^2$) affects only the vertical motion, equations for uniformly accelerated motion apply to the y-direction ($v_{fy} = v_{iy} + a_y\Delta t$ and $\Delta y = v_{iy}\Delta t + \frac{1}{2}a_y\Delta t^2$)

- No forces affect horizontal motion (no air), so equations for uniform motion apply ($\Delta x = v_x\Delta t$)
- The horizontal and vertical motions are taking place during the same time interval (Δt). This provides a link between the motion in these dimensions

Video (12:26) on horizontally launched object: https://www.khanacademy.org/science/physics/two-dimensional-motion/two-dimensional-projectile-mot/v/horizontally-launched-projectile

See the documents section of my Teacher's Page for a sample problem and answers to the following practice problems: https://secure1.nbed.nb.ca/sites/ASD-W/harveyhighschool/Teachers/pages/docs.aspx?FilterField1=Blog%5Fx0020%5FCategory&FilterValue1=Mrs.+Arsenault

1. An airplane is dropping supplies to an isolated town. The airplane is flying at an altitude of 635 m and is moving at a constant horizontal velocity of 47.5 m/s. At what horizontal distance should the pilot release the cargo so it lands at the drop point.

2. You roll a golf ball off a table. The height of the table is 1.40 m and the golf ball hits the floor 1.68 m horizontally from the table, what was the initial velocity of the golf ball?

Chem 122
Le Châtelier's Principle
In many reactions the conversion of reactant to product and product to reactant happen simultaneously. This is shown with a double arrow.

$$2SO_{2(g)} + O_{2(g)} \rightleftharpoons 2SO_{3(g)}$$
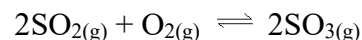
When the rates of the forward and reverse reactions are equal, the system is at chemical equilibrium. This is a dynamic equilibrium since both the forward and reverse reactions are still occurring, they are just occurring at the same rate. Reactants and products are present in constant amounts, but not necessarily equal amounts in a system at equilibrium. Le Châtelier's Principle states that if a system in dynamic equilibrium is disturbed, the system will react to restore equilibrium. When the rates of the forward and reverse reactions again become equal, equilibrium is restored but at a different equilibrium position.

We will look at three factors that can be changed to disturb a dynamic equilibrium:
1. Concentration
- If a substance is added, the reaction moves away from that substance so its amount will be reduced

- o Adding <u>product</u> to a reaction pushes the reversible reaction in the direction of the <u>reactants</u>
- o Adding <u>reactant</u> to a reaction pushes the reversible reaction in the direction of the <u>products</u>
- If a substance is removed, the reaction moves toward that substance so its amount will be increased
  - o Removing <u>product</u> pushes a reversible reaction in the direction of the <u>products</u>
  - o Removing <u>reactant</u> pushes a reversible reaction in the direction of the <u>reactants</u>

2. Temperature
- Adding heat pushes the reaction in the direction that absorbs heat (endothermic)
- Removing heat pushes the reaction in the direction that releases heat (exothermic)

3. Pressure
- Changes in pressure only affect <u>gases.</u> The equation must have an <u>unequal number of moles of gases</u> in the reactant and product for this to affect the equilibrium
- <u>Increasing pressure</u> on a system results in a shift in the equilibrium position toward the side of the reaction with <u>fewer moles of gas</u>.
- <u>Decreasing pressure</u> on a system results in a shift in the equilibrium position toward the side of the reaction with <u>more moles of gas</u>.

See the documents section of my Teacher's Page for a sample problem and answers to the following practice problems:
https://secure1.nbed.nb.ca/sites/ASD-W/harveyhighschool/Teachers/pages/docs.aspx?FilterField1=Blog%5Fx0020%5FCategory&FilterValue1=Mrs.+Arsenault
Practice Problems:

1. How will the following affect the equilibrium for the reaction:

$$2SO_{2(g)} + O_{2(g)} \rightleftharpoons 2SO_{3(g)} + energy$$
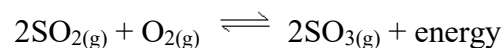
a) $O_{2(g)}$ is added   _____

b) Temperature is increased   _____

c) $SO_{3(g)}$ is removed   _____

d) The pressure is decreased _____

2. How will the following affect the equilibrium for the reaction:
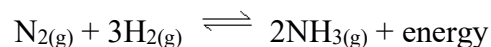
$4NH_{3(g)} + 5O_{2(g)} \rightleftharpoons 4NO_{(g)} + 6H_2O_{(g)} + energy$

a) Temperature is decreased _____

b) $NH_{3(g)}$ is removed   _____

c) $H_2O_{(g)}$ is added   _____

d) The pressure is increased _____

3. List as many ways as you can think of to cause the following reaction to make more $NH_{3(g)}$

$N_{2(g)} + 3H_{2(g)} \rightleftharpoons 2NH_{3(g)} + energy$

Equilibrium Constants
An equilibrium constant is used to describe the position of an equilibrium.
The equilibrium law for an equation is written with symbols.
Using concentration values to arrive at a numerical answer is the equilibrium constant.

$K_{eq} = \dfrac{[C]^c \, x[D]^d}{[A]^a \, x[B]^b}$ is the equilibrium law for the equation aA + bB → cC + dD

Products are over reactants and coefficients in the balanced chemical equation become exponents in the equilibrium law.
When concentration values are substituted for symbols, the equilibrium constant can be calculated.
If the calculated value for K_{eq} is greater than 1, the products are favored.
If the calculated value for K_{eq} is less than 1, the reactants are favored.
K_{eq} is reported without units.
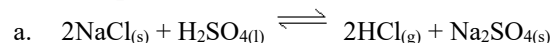Video (6:14) on equilibrium constant – https://www.youtube.com/watch?v=xfGlEXWDRZE
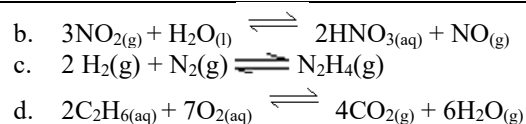See the documents section of my Teacher's Page for a sample problem and answers to the following practice problems:
https://secure1.nbed.nb.ca/sites/ASD-W/harveyhighschool/Teachers/pages/docs.aspx?FilterField1=Blog%5Fx0020%5FCategory&FilterValue1=Mrs.+Arsenault
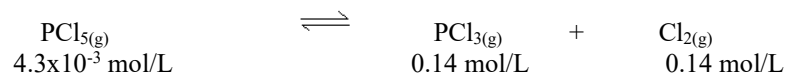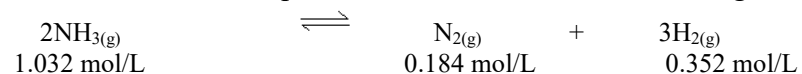Practice Problems:
1. Write the equilibrium law for each of the following chemical reactions.
   a. $2NaCl_{(s)} + H_2SO_{4(l)} \rightleftharpoons 2HCl_{(g)} + Na_2SO_{4(s)}$

b. $3NO_{2(g)} + H_2O_{(l)} \rightleftharpoons 2HNO_{3(aq)} + NO_{(g)}$

c. $2\,H_2(g) + N_2(g) \rightleftharpoons N_2H_4(g)$

d. $2C_2H_{6(aq)} + 7O_{2(aq)} \rightleftharpoons 4CO_{2(g)} + 6H_2O_{(g)}$

2. Calculate the equilibrium constant for the following reactions:

$2NH_{3(g)}$	$\rightleftharpoons$	$N_{2(g)}$	$+$	$3H_{2(g)}$
1.032 mol/L		0.184 mol/L		0.352 mol/L

$PCl_{5(g)}$	$\rightleftharpoons$	$PCl_{3(g)}$	$+$	$Cl_{2(g)}$
4.3×10^{-3} mol/L		0.14 mol/L		0.14 mol/L

Online Resources:

Explore the Earth from Home is a collection of resources to explore weather, climate, air quality, and other earth science topics. https://scied.ucar.edu/help-k-12-students-learn-about-earth-home

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Social Studies

Currently the Province of New Brunswick is in a declared state of emergency. The linked article gives a good explanation of the situation. What was new information for you here? Does reading this help make sense of the current situation in the province?

https://www.cbc.ca/news/canada/new-brunswick/covid-emergency-measures-act-1.5506995

Online Resources:

Newsela provides students with thousands of texts on topics they care about most. https://newsela.com/

	Indigenous Studies 120 Week Two Continuation of Learning April 14ᵗʰ-17ᵗʰ 2020 There are many teachings and sacred ceremony that our Indigenous brothers and sisters can share with us. The link below will take you to the "Wabanaki Collection" on the U.N.B. Wolastoqey and Mi'kmaq website. (Faculty of Education- UNB) Watch and learn from Elder - Imelda Perley as she shares her teachings. Choose one or two of the videos and write a brief reflection on what you have learned. Please feel free to think about some of the important sacred teachings you have in your own culture/family and how important they are to you. https://www.wabanakicollection.com/videos/oromocto-first-nations-ceremonies/
Phys. Ed.	It is recommended that you do 30 minutes of physical activity per day, but how do you know if the activities you do are effective? In terms of cardiorespiratory fitness (your body's ability to use oxygen effectively), you can always check by taking your pulse while exercising. Find a stopwatch (most phones have one). Find your pulse and count the number of heartbeats you get in 10 seconds. To be improving your cardiorespiratory fitness, your pulse count should be at least 24. You are working too hard if your pulse count is 30. You can increase or decrease your intensity to get your pulse count into the ideal range 24-30. Activities you can do to increase cardiorespiratory fitness could include: - running/walking/hiking/biking/swimming - an online aerobics class - an online Tabata workout - jumping rope (with or without an actual rope) - creating an obstacle course in your backyard You don't necessarily have to work on your cardiorespiratory fitness every day. You can also use your physical activity time to work on improving a skill. - Throwing and catching a ball - Basketball shots

	• Volleyball skills • Ball handling skills (dribbling, passing) • Balance Don't forget to stretch! It's very important to ensure you do not get hurt when exercising. Also, if your activity takes you out in "the real world", practice safe physical distancing, and obey all traffic regulations!
Technology	Culinary Technology 120 **Seasonings** are ingredients that enhance the flavour of food without changing the natural flavour. Examples include salt, pepper and lemon juice **Flavourings** are ingredients that change the natural flavour of the foods they are added to. Examples include vanilla and cinnamon My godmother always told me that they way to become a great cook is to read recipes. That way you learn what seasonings and flavourings work best with what ingredients. Take time to read some recipes – online, in a magazine or in an old fashioned recipe book. If you have the ingredients to do so, experiment with a single type of meat – can you notice a difference in taste if you use a seasoning compared to if you don't? To experiment with flavourings, make a batch of basic vanilla cupcakes. Divide the batter into 3 or 4 parts and add a different flavouring to each part. Which do you prefer? Which does your family prefer? **11/12 Skilled Trades** Make a list of tools and materials you have available in your home. Design a project that would use those materials and tools. Projects can be as simple as fixing a nail hole in your wall, or any other small repair in your home. Remember to wear proper PPE when using tools and to only use tools for their intended purpose. Discuss your project(s) with some in your social circle or share with Mr. Finley if you'd like. https://www.youtube.com/watch?v=BZFSdtgDFjg

Offline activities
https://www2.gnb.ca/content/dam/gnb/Departments/ed/pdf/promo/learning_at_home/QuickStart_OfflineActivities_High.pdf

Online resources
https://www2.gnb.ca/content/dam/gnb/Departments/ed/pdf/promo/learning_at_home/QuickStart_OnlineResources_High.pdf