

Bachelor of Education (Elementary) & Bachelor of Education (Secondary) STEM Lesson Plan

3 (of four in

Lesson Title: Variable Equation Practice Lesson # unit) Date: April 8, 2020
 Name: Melissa Green Subject: Mathematics Grade(s): 4

Rationale:

This lesson allows students with the experience of working with a partner to solve addition and subtraction equations with an unknown variable. This lesson will allow for further learning moving forward in algebra to include more difficult questions. Having students work at the white board will allow the teacher to see which students are engaged, which students are struggling and where more teaching and practice needs to take place to support students in reaching success.

Core Competencies:

Communication	Thinking	Personal & Social
<ul style="list-style-type: none"> • <i>Communicating</i> This lesson sees multiple communication skills both with other students, with the teacher, and with the whole class. Students are engaging in listening, the interpretation of information, and the consideration of diverse perspectives connected to their learning. 	<ul style="list-style-type: none"> • <i>Critical and reflective thinking</i> Students will both be examining their own thinking and the thinking of other students through this lesson. This will be done through observation, sharing, and hands on learning. • <i>Creative thinking</i> Through this lesson students will be engaging in the generation of ideas and strategies. Through hearing the thinking of other students they will be both evaluating their own thinking and further developing their thinking. 	<ul style="list-style-type: none"> • <i>Personal awareness and responsibility</i> Throughout this lesson students will be expected to self-regulate their behaviours to meet the expectations of the learning time together. Students will self-advocate by expressing their individual learning needs and seek help as they need it. In the midst of learning new material students will learn how to self-persevere in the midst of engaging with new concepts. • <i>Social awareness and responsibility</i> While learning new material, students will be engaging in problem solving with other students who have different ways of solving the same problem. Students will learn how to show empathy, disagree respectfully, and create space for others to use their voice.

Big Ideas (Understand)

Development of computational fluency and multiplicative thinking requires analysis of patterns and relations in multiplication and division.

Learning Standards

(DO)

(KNOW)

Learning Standards - Curricular Competencies	Learning Standards - Content
<ul style="list-style-type: none"> • CC1 – Use reasoning to explore and make connections • CC14 – Reflect on mathematical thinking 	<ul style="list-style-type: none"> • C1 - Algebraic relationship among quantities

Instructional Objectives & Assessment

Instructional Objectives (students will be able to...)	Assessment
<ul style="list-style-type: none"> • TSWBAT work with a partner to complete the practice sheet questions on the board. 	<ul style="list-style-type: none"> • Formative <i>for</i> learning and Formative <i>as</i> learning What: Students will complete the equations on the practice sheet on the white board. How: Teacher will observe and make notes about the work taking place on the boards while circulating the classroom. Students will be learning from one another as they work together.
<ul style="list-style-type: none"> • TSWBAT explain to the teacher their thinking and solving process using mathematical language. 	Formative <i>for</i> learning What: Student explains their thinking and solving process using mathematical language. How: Teacher asks the student questions and prompts further thinking.
<ul style="list-style-type: none"> • TSWBAT share one thing they have learned with the class. 	Formative <i>as</i> learning What: Students will share one thing they have learned with the class. How: Students will learn from one another.

Prerequisite Concepts and Skills:

- Students are familiar with the expectations for working at the white boards
- Students are familiar with using both words and numbers to describe changing patterns
- Students have grasped the core concepts of addition, subtraction, multiplication and division
- Students have learned about the terminology and symbols of equations with missing variables
- Students are familiar with engaging in “Number Talks” as the beginning of a lesson

Indigenous Connections/ First Peoples Principles of Learning:

“Learning involves patience and time.”

This lesson honours the fact that learning pre-algebraic and algebra skills will take both patience and time. Students will be given the time and space that they need individually to grasp these skills and experiences. When inviting students to respond and explain their sharing a generous wait time will be given to allow students the opportunity to consider and gather their thoughts and then share their thinking or ask their question. Students will also be given the time at the white boards to engage to work on problems with a missing variable with a classmate for collaboration and learning together.

Universal Design for Learning (UDL):

- Students will have expectations of work shared both verbally and through a sample where possible. This will meet the needs of both auditory and visual learners.
- The teacher will use a variety of assessment forms in order to reach each student.
- The activities can be adapted so that each student can be successful and reach their individual learning goals.

Differentiate Instruction (DI):

- Different levels/versions of practice sheets can be made to meet the learning goals of different students. In this lesson students who are more likely to need more challenge will be paired together and students who may require a more simple entry point will be paired together.
- Body breaks
- Break cards
- Brain breaks
- Fidgets

<p>to student as they each share one thing they learned or did for the first time during our work block.</p> <ul style="list-style-type: none"> • Thank the students. Invite them to erase the white boards and put the practice sheet in the bin provided. Provide instructions for what is coming next. 	<ul style="list-style-type: none"> • Students erase the boards and put practice sheets in the and then follow next step instructions. 	
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Organizational Strategies:

- Use the chime to gain classroom attention
- Hand out practice sheets as students are paired off
- Have white board pens and erasers already at the white board work areas
- Have a bin out for the practice sheets at the end of the lesson.

Proactive, Positive Classroom Learning Environment Strategies:

- Depending on what block is taking place before this lesson a “brain break” may begin the lesson as a way of moving and refocusing into what is to come.
- Teacher will move around the room during the work block and provide encouragement and support to students.
- Students who are one task will be praised.
- Challenges will be dealt with in a respectful manner and not publically wherever possible.
- Expectations around behaviour will be reviewed before the work block begins.
- Wait seven seconds after asking a question to allow time for students to process and think about their answer or question.
- Teacher will spend more time near students who are distracting one another or off task and provide ongoing support. If necessary, students who are distracting one another will be moved to different work areas.

Extensions:

- This lesson will be extended further within the unit moving towards solving equations with unknown variables through number sentences at a more difficult level, beginning to transition into including solving equation using multiplication.

Reflections (if necessary, continue on separate sheet):

N/A