

Candidate's name: Joni Hesselgrave

Grade/Class/Subject:	Grade 7 Mathematics	School:	Lakeview Elementary
Date:	Friday, February 25, 2022	Allotted Time:	35 minutes
Topic/Title:	Quiz (covering material from Unit 3, Lesson 1 Material – Fractions to Decimals)		

1. LESSON ORIENTATION

Key resources: [Instructional Design Map](#)

Briefly, describe purpose of lesson, and anything else to note about the context of lesson, students, or class, e.g. emergent learning needs being met at this time, elements of focus or emphasis, special occasions or school events.

The purpose of this lesson is to provide a **low-stakes quiz** and collect **summative feedback** from students to gauge overall understanding of the material covered in Unit 3, Lesson 1 (converting **fractions to decimals** using base 10 calculations, patterns, predictions, and calculators) as well as the processes required to determine whether a decimal will terminate (terminating decimal) or repeat (repeating decimal).

2. CORE COMPETENCIES

Key resources: <https://curriculum.gov.bc.ca/competencies>

Core /Sub-Core Competencies <i>(check all that apply):</i>	<i>Describe briefly how you intend to embed Core Competencies in your lesson, or the role that they have in your lesson.</i>
<input checked="" type="checkbox"/> COMMUNICATION – Communicating <input type="checkbox"/> COMMUNICATION – Collaborating <input type="checkbox"/> THINKING – Creative Thinking <input checked="" type="checkbox"/> THINKING – Critical Thinking <input checked="" type="checkbox"/> THINKING – Reflective Thinking <input type="checkbox"/> PERSONAL AND SOCIAL – Personal Awareness and Responsibility <input type="checkbox"/> PERSONAL AND SOCIAL – Positive Personal and Cultural Identity <input type="checkbox"/> PERSONAL AND SOCIAL – Social Awareness and Responsibility	<p>C Communicating encompasses the set of abilities that people use to impart and exchange information, experiences, and ideas; to explore the world around them; and to understand and effectively use communication forms, strategies, and technologies.</p> <ul style="list-style-type: none"> Students will communicate their understanding of mathematical vocabulary and language as they engage in mathematical problems pertaining to fractions, decimals, and the conversion of one to the other. <p>T Critical and Reflective Thinking encompasses a set of abilities that people use to examine their own thinking and that of others. This involves making judgments based on reasoning, where students consider options, analyze options using specific criteria, and draw conclusions. People who think critically reflect on the information they receive through observation, experience, and other forms of communication to solve problems.</p> <ul style="list-style-type: none"> Students will think critically and reflectively, drawing upon information, reasoning, and specific criteria/processes, to convert fractions to decimals. Students will analyze patterns to predict fraction to decimal conversions and verify their thinking with calculators. Students will use patterns and long division to determine if decimals repeat or terminate.

3. INDIGENOUS WORLDVIEWS AND PERSPECTIVES

Key resources: First Peoples Principles of Learning (FPPL); [Aboriginal Worldviews and Perspectives in the Classroom](#)

FPPL to be included in this lesson <i>(check all that apply):</i>	<i>How will you embed Indigenous worldviews, perspectives, or FPPL in the lesson?</i>
<input checked="" type="checkbox"/> Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits, and the ancestors. <input checked="" type="checkbox"/> Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place). <input checked="" type="checkbox"/> Learning involves recognizing the consequences of one's actions. <input type="checkbox"/> Learning involves generational roles and responsibilities. <input type="checkbox"/> Learning recognizes the role of Indigenous knowledge. <input type="checkbox"/> Learning is embedded in memory, history, and story. <input checked="" type="checkbox"/> Learning involves patience and time. <input type="checkbox"/> Learning requires exploration of one's identity. <input type="checkbox"/> Learning involves recognizing that some knowledge is sacred and only shared with permission and/or in certain situations.	Throughout Mathematics lessons, I will encourage students to be patient and kind to themselves as they learn new concepts. Lessons will be delivered via open, non-judgmental group discussions, posited on positive teacher/student and student/student relationships and connections. Ideas and concepts will be learned experientially, through a mixture of explicit instruction, modelling, scaffolded support, and practice. Student understanding will be dependent upon their participation in, and attentiveness to, class and group discussions and the assigned practice questions (done in class, with support as needed).

4. BIG IDEAS

Key resources: <https://curriculum.gov.bc.ca/> (choose course under Curriculum, match lesson to one or more Big Ideas)

<i>What are students expected to UNDERSTAND? How is this lesson connected to Big Idea/s or an essential question?</i>
Big Idea: Decimals, fractions, and percents are used to represent and describe parts and wholes of numbers.
Elaboration: What is the relationship between decimals, fractions, and percents?
Note: In this lesson, only the relationship between fractions and decimals will be discussed (percent comes later in Unit).
<ol style="list-style-type: none"> Decimals are another way to write fractions. It is important to understand the relationships between them. Percents and hundredths are the same. Percent is another way to write fractions and decimals. Place value allows us to compare, order, and operate with decimals using strategies similar to those used with whole numbers. Estimation plays an important role in decimal computations.

5. LEARNING STANDARDS/INTENTIONS

Key resources: <https://curriculum.gov.bc.ca/> (choose course under Curriculum)

Curricular Competencies: <i>What are students expected to DO?</i>	Content: <i>What are students expected to learn (KNOW)?</i>
<p>Students will convert fractions to decimals, using base 10 calculations, patterns, predictions, and calculators (when needed). Students will use patterns and long division to determine if a decimal terminates (terminating decimal) or repeats (repeating decimal).</p> <p>That is, students are expected to DO the following:</p> <p>1. Reasoning and analyzing:</p> <ul style="list-style-type: none"> Use reasoning and logic to explore, analyze, and apply mathematical ideas. Demonstrate and apply mental math strategies. Use tools or technology to explore and create patterns and relationships. Model mathematics in contextualized experiences. 	<p>Students will know that decimals are another way to write fractions and that the relationship between fractions and decimals is important. Students will know how to recognize and use base 10 calculations and patterns/predictions to convert fractions to decimals. Students will know what a terminating decimal and a repeating decimal is and how to determine which one a decimal is.</p> <p>That is, students are expected to KNOW the following:</p> <ul style="list-style-type: none"> Multiplication and division facts to 100 (developing computational fluency). Relationships between decimals, fractions, ratios, and percents (the latter two relationships will be elaborated on later in the Unit).

2. Understanding and solving:

- Apply multiple strategies to solve problems in both abstract and contextualized situations.
- Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving.
- Visualize to explore mathematical concepts.

3. Communicating and representing:

- Use mathematical vocabulary and language to contribute to mathematical discussions.
- Explain and justify mathematical ideas and decisions.
- Communicate mathematical thinking in many ways.
- Represent mathematical ideas in concrete, pictorial, and symbolic forms.

4. Connecting and Reflecting:

- Reflect on mathematical thinking.
- Connect mathematical concepts to each other and to other areas and personal interests.
- Use mathematical arguments to support personal choices.



6. ASSESSMENT PLAN

Key resources: [Instructional Design Map](#) and <https://curriculum.gov.bc.ca/classroom-assessment>

How will students demonstrate their learning or achieve the learning intentions? How will the evidence be documented and shared? Mention any opportunities for feedback, self-assessment, peer assessment and teacher assessment. What tools, structures, or rubrics will you use to assess student learning (e.g. Performance Standard Quick Scale)? Will the assessments be formative, summative, or both?

Throughout the week, students will demonstrate their learning and understanding of “Fractions to Decimals” (i.e., how to convert fractions to decimals using base 10 calculations, patterns, predictions, and calculators, and how to determine if a decimal will terminate or repeat using patterns and long division) in several ways:

- (1) In the responses they provide during class discussions.
- (2) In the responses they provide during self-assessed thumbs up/down polls.
- (3) In their responses to practice questions.
- (4) In a **low-stakes, summative, quiz (Friday’s)**.

Students will receive formative feedback at each of the three initial stages of learning, followed by summative feedback at the fourth stage.

The low-stakes, summative quiz will assess student understanding of the concepts.

Quiz results will help me determine if students need further instruction/review of the concepts or if they are ready to move to new concepts (likely to increase in difficulty).

7. DESIGN CONSIDERATIONS

Key resources: [Instructional Design Map](#)

Make brief notes to indicate how the lesson will meet needs of your students for: differentiation, especially for known exceptionalities, learning differences or barriers, and language abilities; inclusion of diverse needs, interests, cultural safety and relevance; higher order thinking; motivations and specific adaptations or modifications for identified students or behavioural challenges. Mention any other design notes of importance, e.g. cross-curricular connections, organization or management strategies you plan to use, extensions for students that need or want a challenge.

This **quiz** will be delivered to students who have been provided instruction, practice, and review (over the past three days) on how to convert **fractions to decimals** using base 10 calculations, patterns, predictions, and calculators, as well as the processes required to determine whether a decimal will terminate (terminating decimal) or repeat (repeating decimal).

Exceptionalities: Several students in this group are colour-blind, so I have chosen texts that account for colour-blindness (i.e., used black/grey and avoided red, green, and light blue). There are no other exceptionalities within the class that will interfere with student involvement in this lesson.

Required preparation: *Mention briefly the resources, material, or technology you need to have ready, or special tasks to do before the lesson starts, e.g. rearrange desks, book a room or equipment.*

I will need to do the following:

- (1) Photocopy quizzes (15 copies - 1 page, single-sided).
- (2) Have displayed on the board two example problems and how to solve, as well as extra “Helpful Reminder” handouts for students who lost theirs.
- (3) Have the answer key ready for marking.

8. LESSON OUTLINE

Instructional Steps	Student Does/Teacher Does (<i>learning activities to target learning intentions</i>)	Pacing
<p>OPENING: <i>e.g. greeting students, sharing intentions, look back at what was learned, look ahead to what will be learning, use of a hook, motivator, or other introduction to engage students and activate thinking and prior knowledge</i></p>	<p>Cue Grade Seven students that it is time for their Math quiz, referring to the visual schedule, and direct them to get a pencil, their Helpful Reminders Sheet and a calculator, before settling in at their assigned tables (relay a similar message to Grade Six Students, except they should have their multiplication tables and a pencil).</p> <p>Say “if anyone needs to use the washroom, now is the time.”</p> <p>When students are organized, ready, quiet, and “eyes on”, draw their attention to the board and to the sample questions and reminders.</p>	<p>Quick transition to quiz (5 min)</p>
<p>BODY:</p> <ul style="list-style-type: none"> • <i>Best order of activities to maximize learning -- each task moves students towards learning intentions</i> • <i>Students are interacting with new ideas, actively constructing knowledge and understanding, and given opportunities to practice, apply, or share</i> 	<p>I DO: Tell students that, if they get stuck or freeze up, to consult these helpful pieces of information or they can raise their hand and ask me a question—I will give yes/no responses to let them know if they are on the right track but will not tell them how to do the questions. Let them know that if anyone does not do well on the quiz, they will have the option to practice and re-take to improve their score.</p> <p>I DO: Inform students that they will have the next 30 minutes to complete the quiz. If they finish early, they are to hand in their quiz (with name) and then QUIETLY proceed to work on unfinished work (reference the list of tasks on visual schedule).</p>	<p>30 min</p>

<p><i>learning, ask questions and get feedback</i></p> <ul style="list-style-type: none"> • <i>Teacher uses learning resources and strategic opportunities for guided practice, direct instruction, and/or modelling</i> • <i>Can include: transitions, sample questions, student choices, assessment notes (formative or otherwise), and other applications of design considerations</i> 	<p>I DO: Tell students that I will give them time reminders so that they can keep track of how much longer they have.</p> <p>I DO: Inform students of quiz protocol (working quietly and independently with eyes on own paper). Tell students that they can use their calculators. Tell students that they can use their calculator but, if they want to show “extending” knowledge, they can use any time remaining to show me how they converted using another method besides the calculator method (i.e., base 10, long division, or naming the pattern). Ask students if they have any questions or concerns. Address questions and concerns.</p> <p>I DO: Tell them that it is time to start and that they will have until ____.</p> <p>STUDENTS DO: Collect quizzes from front table, return to seats, and begin.</p> <p>I DO: Give time reminders.</p> <p>STUDENTS DO: Continue working quietly until finished. When done, ensure that their name is on the quiz and put it in the hand-in bin.</p>	
<p>CLOSING:</p> <ul style="list-style-type: none"> • <i>Closure tasks or plans to gather, solidify, deepen or reflect on the learning</i> • <i>review or summary if applicable</i> • <i>anticipate what’s next in learning</i> • <i>“housekeeping” items (e.g. due dates, next day requirements)</i> 	<p>When there is one minute left, cue students that they should wrap up the question they are working on and hand in (with their name clearly indicated).</p> <p>Let students know that I will score the quizzes and return with feedback. If anyone does not do well, they can practice and re-take to improve their score.</p> <p>Cue ALL students (grade six and seven) to move on to the next activity/ scheduled task.</p>	<p>5 minutes or less to wrap up.</p>

9. REFLECTION

<ul style="list-style-type: none"> • <i>Did any reflection <u>in</u> learning occur, e.g. that shifted the lesson in progress?</i> • <i>What went well in the lesson (reflection <u>on</u> learning)?</i> • <i>What would you revise if you taught the lesson again?</i> • <i>How do the lesson and learners inform you about necessary next steps?</i> • <i>Comment on any ways you modelled and acted within the Professional Standards of BC Educators and BCTF Code of Ethics?</i> • <i>If this lesson is being observed, do you have a specific observation focus in mind?</i>
<p>*To be completed at the end of the lesson.</p>

Fractions to Decimals: Helpful Reminders

- Multiplication charts and calculators can be used when needed.
- Patterns sometimes occur when we write fractions in decimal form, and we can use these patterns to make predictions.
- For fractions with denominators of 11, the repeating digits are multiples of 9—that is, numerator $\times 9 =$ repeating digits and the repeating digits follow the decimal point (e.g., $1/11 = 0.09$ repeating; $2/11 = 0.18$ repeating; $3/11 = 0.27$ repeating, etc.).
- For fractions with denominators of 9, 99, 999, etc. the numerator of the fraction is the repeating digit(s) and the repeating digit(s) follow the decimal point (e.g., $1/9 = 0.1$ repeating; $22/99 = 0.22$ repeating; $333/999 = 0.333$ repeating).
- When patterns are not evident, we can write a fraction as a decimal by changing a fraction to an equivalent fraction with a denominator of 10, 100, 1000, etc. (i.e., use multiplication or division to change fraction to a power of 10/place value number then convert to decimal). Must multiply or divide numerator and denominator by same number.
- Fractions with a denominator of 10, 100, 1000 etc. will convert to decimals that terminate.
- We can also “think money” when we are converting fractions to decimals (i.e., think 4 quarters, 10 dimes, and 20 nickels in a dollar).
- Terminating decimals have a definite number of decimal places.
- Repeating decimals have digit(s) in the decimal that repeat forever.
- If you are unsure of whether a decimal terminates or repeats, you can use long division (a calculator can trick you since it rounds up when the display runs out of space).

Convert the Fractions to Decimals

Gr 7 Quiz Friday

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://math.about.com

1.) $\frac{4}{8}$	2.) $\frac{1}{2}$
3.) $\frac{1}{4}$	4.) $\frac{4}{6}$
5.) $\frac{3}{6}$	6.) $\frac{2}{4}$
7.) $\frac{6}{8}$	8.) $\frac{5}{6}$
9.) $\frac{7}{8}$	10.) $\frac{1}{8}$
11.) $\frac{3}{4}$	12.) $\frac{2}{8}$
13.) $\frac{1}{6}$	14.) $\frac{2}{6}$