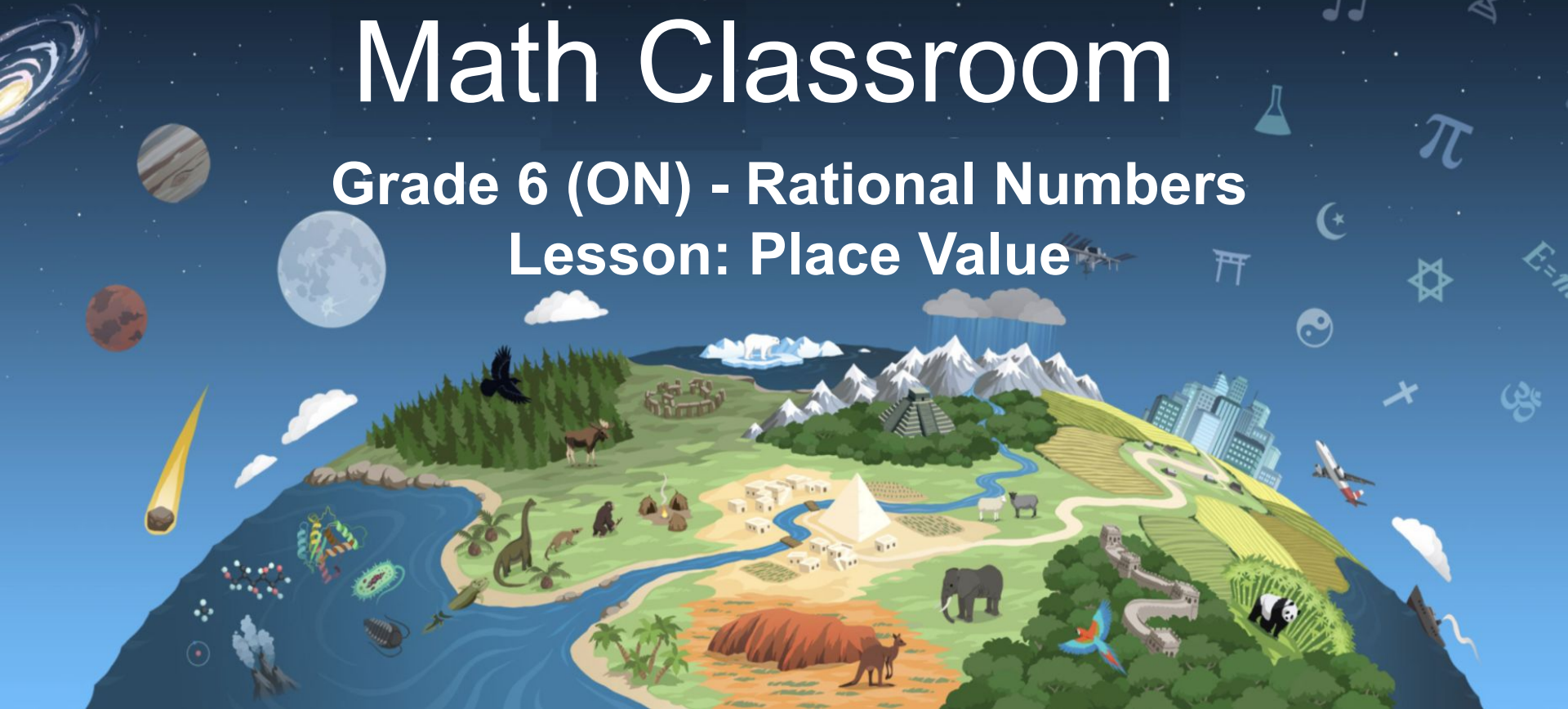


Binogi in Your Math Classroom

Grade 6 (ON) - Rational Numbers
Lesson: Place Value



Supported by



Resource Guide for Teachers

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Please visit:

<https://escapeprojects.ca/> for additional resources and information

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Grade 6 - B1. Number Sense

: Example of Learning Objectives and Big Ideas

Overall Expectation

B1. demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life

Specific Expectation

B1.1 read and represent whole numbers up to and including one million, using appropriate tools and strategies, and describe various ways they are used in everyday life

Learning Objectives

To be able to identify the value of each digit in a number.

Big Ideas

The value of a digit helps when comparing numbers.

Assessment

1. Assessment FOR

: Diagnostic questions, Minds On, Action, Consolidation

2. Assessment AS: Consolidation

B1.1 Mathematical Terms and Resources/Materials

Vocabulary

place value, ones, units, tens, hundreds, thousands, millions, base ten, digit, base 10, number

Pair/Group Activities

Please follow your school's Covid-19 safety protocols for any pair/group activities.

Language Friendly Pedagogy

At the beginning of the lesson, students will be invited to add key terms in their Concept Detective and add any new words that they come across throughout the lesson.

Binogi Related Resources

Video: [The Positional System with Base 10](#)

Assessment: 3 quizzes available* (*refer to slide 13 for more notes*)

Other Resources

[Task Cards](#)

At the beginning of class... (5 ~ 10 min)

1. Share learning objectives - *To be able to identify the value of each digit in a number.*
2. Co-create success criteria
 - Sample :
 - *I can explain base-10 system.*
 - *I can represent the value of a digit in a number.*
3. Ask the students to add the following words in their Concept Detective which they will fill out throughout the lesson: ***place value, number system, millions, base ten, digit, number, and any new terms***
4. Diagnostic Questions: Teachers should systematically start with 2 or 3 diagnostic questions by

a) using the previous year's specific expectation

- Compose the numbers 2000, 90 and 1.
- Decompose the number 190, 205.

b) OR by students do Binogi quizzes

Grade 5	Grade 6	Grade 7
B1.1 read, represent, compose, and decompose whole numbers up to and including 100 000, using appropriate tools and strategies, and describe various ways they are used in everyday life	B1.1 read and represent whole numbers up to and including one million, using appropriate tools and strategies, and describe various ways they are used in everyday life	B1.1 represent and compare whole numbers up to and including one billion, including in expanded form using powers of ten, and describe various ways they are used in everyday life

Minds On: Making Connections with First Language (~10-15 min)

1. Write a whole number on the board: ie. 85
2. Students write the number in English and in their first language individually, then if there are other peers who speak the same first language, check with them.
3. Students get into small groups (each student speak different first language), then compare how numbers are "lumped"/"based" in English and in their own language. Share the findings with the class. Teacher writes the findings on the board and clearly identifies the differences and similarities between English number system (base 10) and number systems in other languages.

ie: 85 in English: eighty-five, meaning eight 10s and five (base 10)

in French: *quatre-vingt-cinq*, meaning four 20s - five (base 20)

in Arabic: *khams wa thamanûn* (for feminine words), meaning 5 and eight 10s (base 10)

in Yoruba (Nigeria): *marundiladgrun*, meaning 5 from 90

in Alambalak (Papua New Guinea): *yima hosfihosfi tir yohtt*, meaning 20 x (2 and 2) and 5 exact

Activation: Base-10 Number System and Place Value (~30 min)

1. Watch Binogi video, [The Positional System with Base 10](#) (note: the video discusses up to ten thousands and decimal place values; ELLs can watch the video in the language they provide).

2. After the video, discuss what *Base-10 number system* means. Compare with ELLs' number system in their culture/language (refer to Minds On activity)

- *Base 10 Number System: each digit in a number can be any integer between 0 and 9, hence 10 possibilities. Also called decimal number system.*

3. Use base 10 materials and a place value chart to explain values of each place value.

- ie. 10 units make 1 ten (rod); 10 rods make 1 hund (flat).

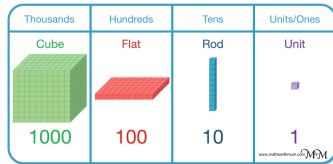


Photo Source: <https://www.mathswithmum.com/mab-dien-es-place-value-base-10-blocks/>

one millions	hundred thousands	ten thousands	one thousands	hundreds	tens	ones

Source: <https://www.dcp.edu.gov.on.ca/en/curriculum/elementary-mathematics/grades/g6-math/strand-b/b1>

- ELLs write names of the place value in their language on their place value chart. *Example below in Korean.*

one millions	hundred thousands	ten thousands	one thousands	hundreds	tens	ones
백만	십만	만	천	백	십	일

Consolidation: Formative Assessment (~5 min)

2 options:

1. Ticket out the door:

What did you learn? 😊	What are you still confused about ?

2. Binogi quizzes: students log into their own Binogi account to do 3 quizzes.

- Some of the questions are on decimal place values (can be used for students with advanced math skills)
 - Note that decimal points are represented in commas
- Quiz 1: multiple choices; questions on decimal place values
- Quiz 2: written response and multiple choices
- Quiz 3: written response

Extension/Differentiation/Modification

	Instruction	Assessment Focus Look Fors:	Notes
<p>- Individual Practice: A question(s) for extension that students can do independently to assess understanding of the concept(s)</p> <p>- Differentiation (Modifications/ extensions)</p>	<p>- Questions on comparing numbers. ie) Is the value of digit '9' in 29,038 or digit '3' in 391,002 bigger?</p>	<p>How does the individual practice question relate to the problem, skills or strategies?</p> <p>Why is the individual practice question important for teachers and students?</p> <p>Are there any other strategies that can be used to differentiate instruction?</p>	

Parents and Community Connection

: Concept Detective - students can complete any terms they did not complete and add any mathematical terms they wish to include in their glossary with their parents

: Students watch the Binogi video they watched in class at home with their parents either in English or in one of the provided languages (there is an option for subtitles). Discuss.

: After the video, have students and family members brainstorm their own question and ways to answer the question

