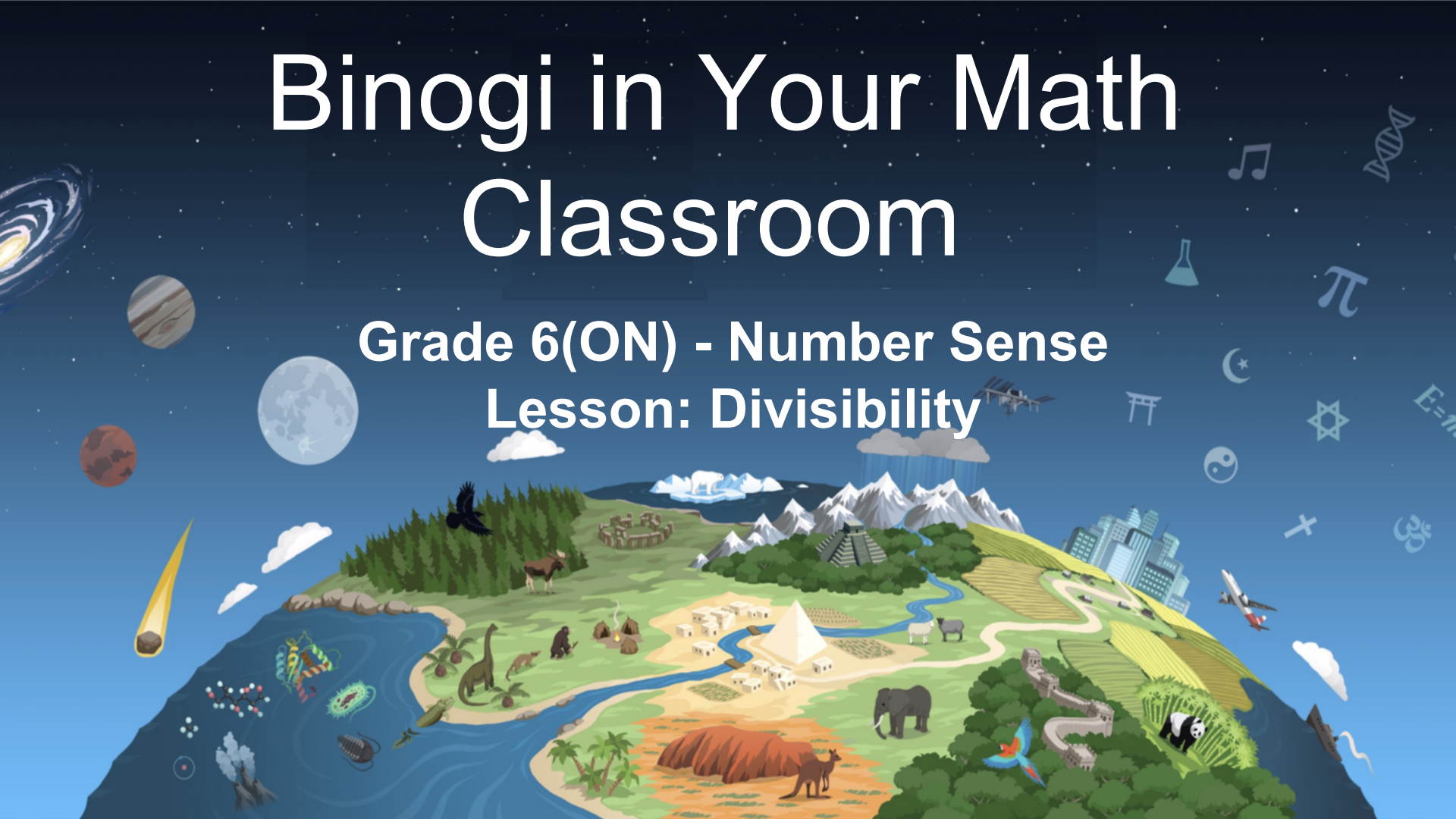
Binogi in Your Math Classroom

Grade 6(ON) - Number Sense
Lesson: Divisibility



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Resource Guide for Teachers

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Please visit:
https://escapeprojects.ca/ for additional resources and information.

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Grade 6 - B2. Divisibility
: Example of Learning Objectives and Big Ideas

Overall Expectation

B2. Operations

use knowledge of numbers and operations to solve mathematical problems encountered in everyday life

Specific Expectation

B2.2 understand the **divisibility rules** and use them to determine whether numbers are divisible by 2, 3, 4, 5, 6, 8, 9, and 10

Learning Objectives

Learn the divisibility rules
Show whether a number is divisible by 2, 3, 4, 5, 6, 8, 9, and 10

Big Idea

There are rules that help us identify whether a number is divisible by certain prime numbers. These rules help us when we solve mathematical problems

Assessment

1. Assessment FOR (formative assessment)

:Minds On, Action

2. Assessment OF (self- and peer-assessment)

Consolidation

Source:
https://www.dcp.edu.gov.on.ca/en/curriculum/elementary-mathematics/grades/g6-math/strand-b/b2

B2.2 Mathematical Terms and Resources/Materials

Vocabulary

number, divide(d), Factor, divisibility, rules, divisibility rules, evenly, another, determine, integers, sign, positive, negative, decimal numbers, whole numbers

Pair/Group Activities

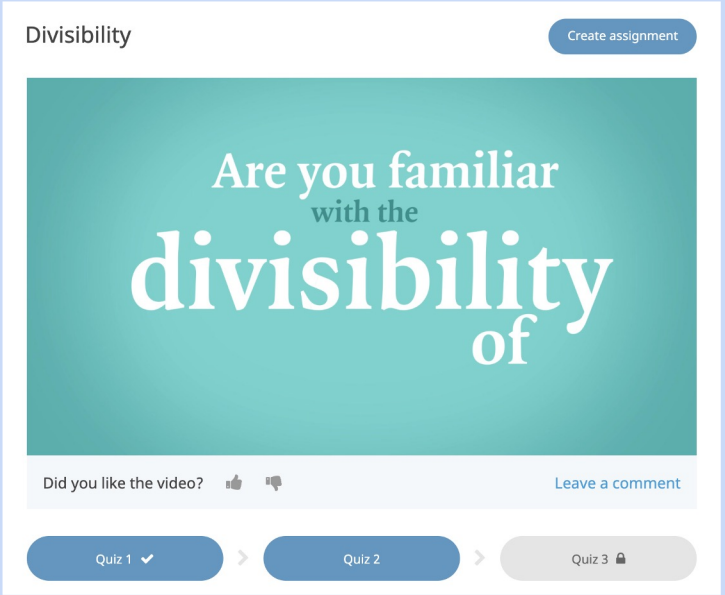
Please follow your school's **Covid-19 safety protocols** for any pair/group activities.

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: Divisibility



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

1. Share learning objectives -
2. Co-create success criteria
    - Sample : I know the rule of divisibility by 5
    - I can explain why a number is or is not divisible by 5

1. Ask the students to write the word ***divisibility & divisibility rules*** in their Concept Detective and tell them to think about the meaning of these words throughout the lesson. (other concepts that students may need to add to their document include: ***number, divide(d), Factor, divisibility, rules, divisibility rules, evenly, another, determine, integers, sign, positive, negative, decimal numbers, whole numbers and any new terms they learned***).
2. Diagnostic Questions: Teachers should systematically start with 2 or 3 diagnostic questions

    a) by using the previous year's specific expectation:

* How can we use multiplication facts to help us find division facts**?** * How can we use the multiplication facts to know that answer to:

a) 24 ÷ 6

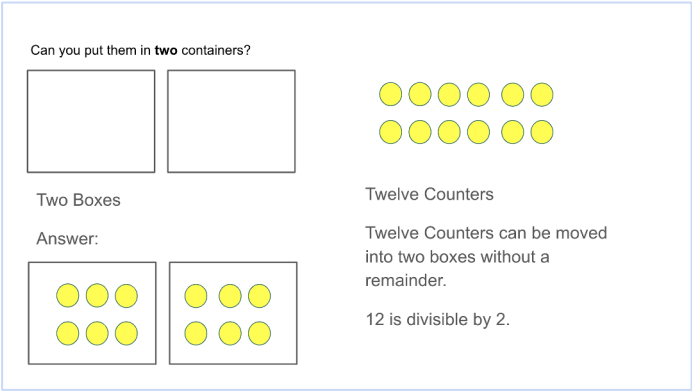
b) 25 ÷ 5

b) OR by students doing Binogi quizzes

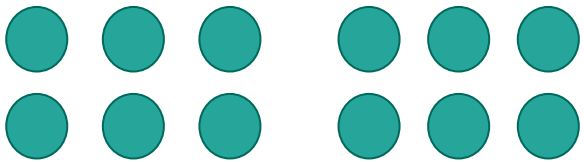
Grade 5	Grade 6	Grade 7
B2.2 recall and demonstrate multiplication facts from 0 × 0 to 12 × 12, and related division facts	**B2.2** understand the divisibility rules and use them to determine whether numbers are divisible by 2, 3, 4, 5, 6, 8, 9, and 10	**B2.2** understand and recall commonly used percents, fractions, and decimal equivalents

Source: https://assets-us-01.kc-usercontent.com/fbd574c4-da36-0066-a0c5-849ffb2de96e/c2dea171-e219-4ec0-b097-24c959fcc924/Number_AODA.pdf

Minds On

Task Component	Instruction	Assessment Focus Look Fors	Notes
Before (Activation/ Review) ~5-10 mins	Ask students about how many different ways we can divide 12 into equal parts without remainder. Give students 12 counters and ask them to try the different ways they can divide 12 evenly. If teaching online, ask students to move counters in the following slides Complete Activity: Divisibility of 12 counters by different numbers. 	How do students represent their understandings and linkages between concepts? How does the activity connect to, and help prepare students for problem solving? How are you interacting with your students?	Teacher records answer / wonderings / understandings. Asks students to elaborate/explain their responses with the class.

Action

Task Component	Instruction	Assessment Focus Look Fors	Notes
During **(Working on it)** **~20 mins**	Tell students that: There are number patterns that can be used to quickly test whether a number can be evenly divided by another number. Small numbers are easy to sort like you did in the example. However, for big numbers, divisibility rules allow us to check whether a number is divisible by a number. Start by thinking about divisibility by 2. Which of the following numbers are divisible by 2? How do you know? 2, 12, 24, 13, 25, 38, 66,69,102,10001,10002 	What role do I and my students play during the problem solving process? What strategies do we predict students will use to do the math? What strategies are students using to do the math?	Have your students watch the videos in the language of their choice. Record students' thoughts. Think-pair-share: student think on their own first, then share with their partner, then with the class.

Consolidation

Task Component	Instruction	Assessment Focus Look Fors	Notes
After (Reflecting/ Connecting/ Consolidating)~15 mins	Recall the divisibility rule for "2" and ask students to revisit the meaning of divisibility and divisibility rules in their concept detective. Use the "Create assignment feature on Binogi and assign the divisibility video as a homework" Ask students to watch the video. Encourage students to fill in the following sheet in a language of their choice to record their learning from the video.	How are you consolidating student learning? Which strategy was used (Congress, Gallery Walk, Bansho, etc.) and why? How do you determine what should be highlighted? How is it connected to the learning goal/expectations? How is student thinking annotated? What roles do you and your students take on during the consolidation?	

Parents and Community Connection

Home Assignment

: 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