Eureka Math

4th Grade
Module 3
Lesson 24

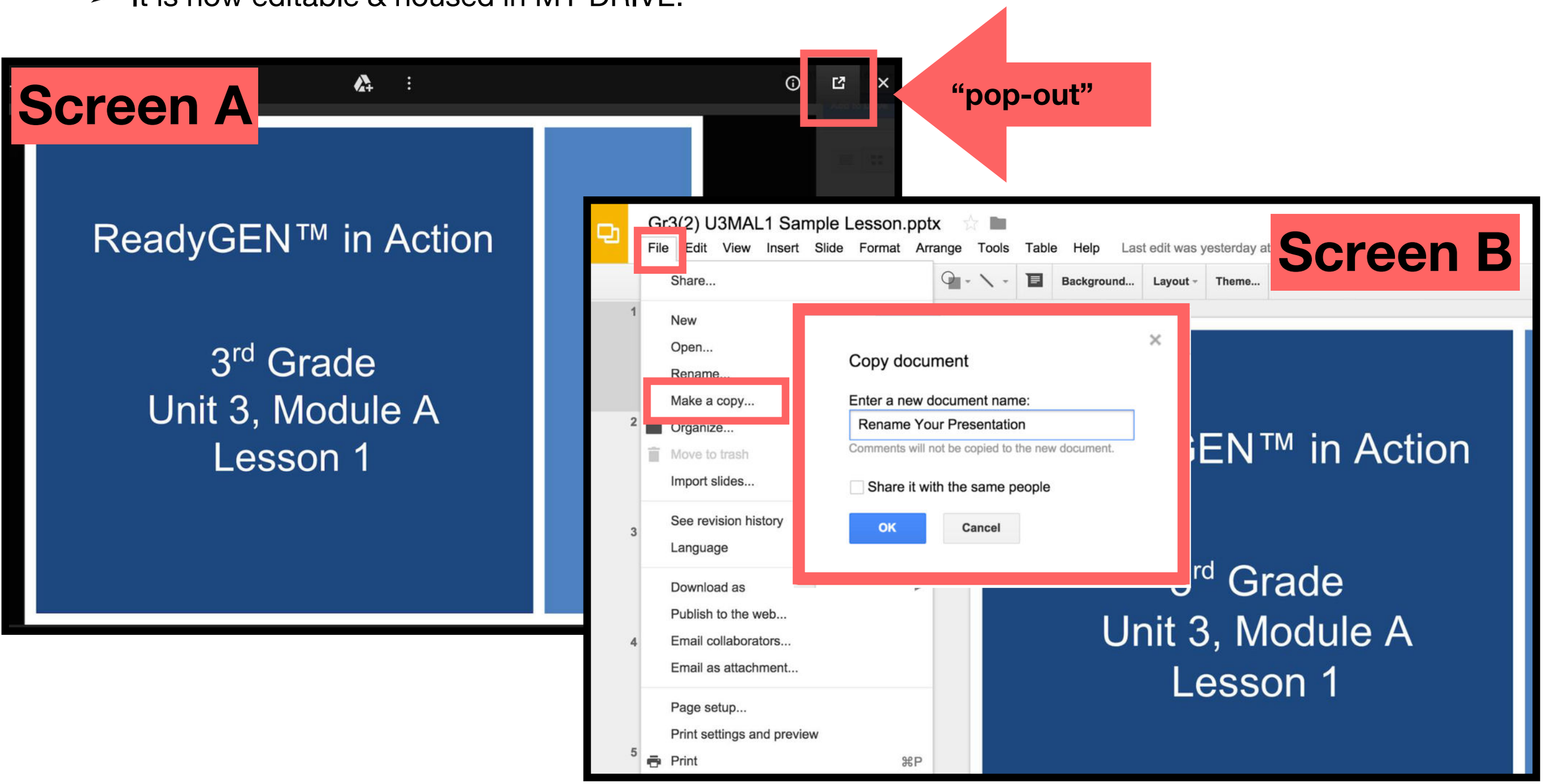
At the request of elementary teachers, a team of Bethel & Sumner educators met as a committee to create Eureka slideshow presentations. These presentations are not meant as a script, nor are they required to be used. Please customize as needed. Thank you to the many educators who contributed to this project!

Directions for customizing presentations are available on the next slide.

Customize this Slideshow

Reflecting your Teaching Style and Learning Needs of Your Students

- ➢ When the Google Slides presentation is opened, it will look like Screen A.
- ➢ Click on the “pop-out” button in the upper right hand corner to change the view.
- ➢ The view now looks like Screen B.
- ➢ Within Google Slides (not Chrome), choose FILE.
- ➢ Choose MAKE A COPY and rename your presentation.
- ➢ Google Slides will open your renamed presentation.
- ➢ It is now editable & housed in MY DRIVE.

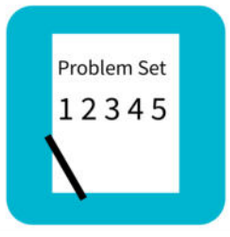


Icons

Read, Draw, Write

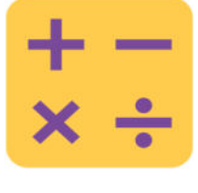
Learning Target

Personal White Board



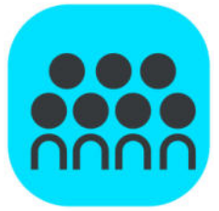
Problem Set

Manipulatives Needed



Fluency

Think Pair Share



Whole Class

Individual

Partner

Small Group

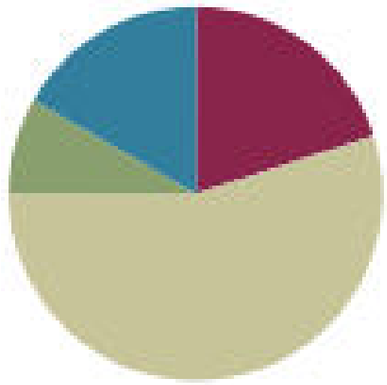
Small Group Time

Lesson 24

Objective: Determine if a whole number is a multiple of another number.

Suggested Lesson Structure

Fluency Practice	(12 minutes)
Application Problem	(5 minutes)
Concept Development	(33 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



Objective: Determine if a whole number is a multiple of another number.

Group Counting

Count forward and backward. Watch me for the signal to change direction.

Count by:

- Twos to 20
- Threes to 30
- Fours to 40
- Fives to 50
- Sixes to 60
- Tens to 100

Prime or Composite?

5

Prime or composite?

Write the factor pair of 5.

Prime or Composite?

15

Prime or composite?

Write the factor pair(s).

Prime or Composite?

12

Prime or composite?

Write the factor pair(s).

Prime or Composite?

19

Prime or composite?

Write the factor pair(s).

Prime or Composite?

24

Prime or composite?

Write the factor pair(s).

Test for Factors

30, 45, 48, 56

On your personal white board, write the number that has 10 as a factor.

Test for Factors

30, 45, 48, 56

Write the division equations that prove both 5 and 2 are factors of 30.

Test for Factors

30, 45, 48, 56

Write the numbers that have 6 as a factor.

Test for Factors

30, 45, 48, 56

Prove that both 3 and 2 are factors of 30 and 48, using the associative property.

Test for Factors

30, 45, 48, 56

Write the numbers that have 8 as a factor.

Test for Factors

30, 45, 48, 56

Prove that both 4 and 2 are factors of 48 and 56, using the associative property.

Application Problem

8 cm × 12 cm = 96 square centimeters. Imagine a rectangle with an area of 96 square centimeters and a side length of 4 centimeters. What is the length of its unknown side? How will it look when compared to the 8 centimeter by 12 centimeter rectangle? Draw and label both rectangles.

Concept Development

Materials

- [ ] (S) Personal white board, crayons

Multiples

Turn to your partner and count by fours, taking turns with each new number. So, for example, you start by saying 0, your partner says 4, then you say 8. You have one minute. Ready? Begin.

Stop. What number did you count up to?

Tell me some things you noticed.

Multiples

Let’s try that again, beginning where you left off. This time, as you count, think about what patterns there are. Ready? Begin.

Multiples

When we skip-count by a whole number, the numbers that we say are called **multiples.**

Talk to your partner about what you noticed.

Multiples

How is a multiple different from a factor?

Multiples

Why is 24 a multiple of 4?

Is 24 a multiple of 5?

What about 8? Is 24 a multiple of 8?

Multiples

We know 96 is a multiple of 4 from our Application Problem, since 4 times 24 is 96. What did we do to figure that out?

Multiples

How can we find out if 96 is a multiple of 3?

Can you use the associative property?

What did you discover?

Multiples

What is the factor pair of 3?

If you count by 32 three times, will you get to 96?

Is 96 a multiple of both 3 and 32?

List the first five multiples of 3.

What number did you begin with?

Multiples

Since zero times any number is zero, zero is a multiple of every number, so we could consider it the first multiple of every number. However, when we skip-count, we usually start with the number we're counting by. So, we usually think of the number itself, in this case 3, as the first multiple, instead of 0. That way, the first multiple is 1×3, the second is 2×3, and so on.

Solve a Division Problem

Shout out a multiple of 6.

Is any multiple of 6 also a multiple of 2 and 3?

Let’s use the associative property (and commutative property) to find out.

$$60 = 10 \times 6$$
$$= 10 \times (2 \times 3)$$
$$= (10 \times 2) \times 3 = 20 \times 3$$

Solve a Division Problem

$$60 = 10 \times 6$$
$$= 10 \times (2 \times 3)$$
$$= (10 \times 2) \times 3 = 20 \times 3$$

Yes, 60 is a multiple of 3. If we count by 3 twenty times, we get to 60.

Solve a Division Problem

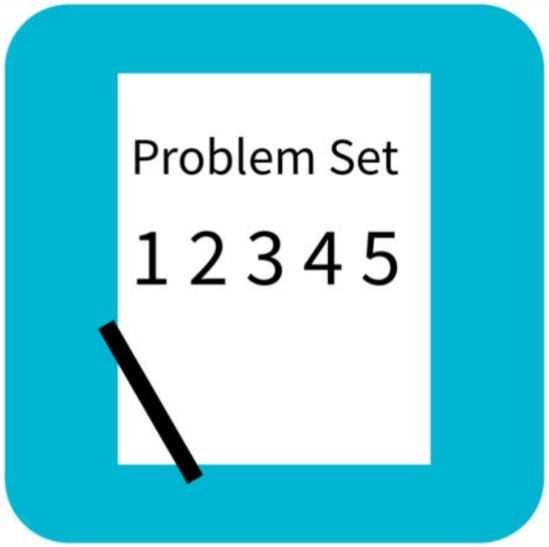
Let’s use a letter to represent the number of sixes to see if this is true for all sixes.

$$n \times 6 = n \times (2 \times 3)$$

$$n \times 6 = (n \times 2) \times 3$$

$$n \times 6 = (n \times 3) \times 2$$

Discuss with your partner why these equations are true. You might try plugging in 4 or 5 as the number of sixes, n, to help you understand.



Problem Set

Name _____ Date _____

1. For each of the following, time yourself for 1 minute. See how many multiples you can write.

   a. Write the multiples of 5 starting from 100.

   b. Write the multiples of 4 starting from 20.

   c. Write the multiples of 6 starting from 36.

Debrief

Participate in the discussion by...

- Thinking about the question.
- Sharing your work.
- Explaining your strategy.
- Listening to others.

Debrief

- What strategy did you use in Problem 2?
- In Problem 5, Parts (c) and (d), what patterns did you discover about multiples of 5 and 10?
- Explain the difference between factors and multiples.
- Which number is a multiple of *every* number?
- In Problem 1, which multiples were the easiest to write: the fives, fours, or sixes? Why?

Exit Ticket

Name _____ Date _____

1. Fill in the unknown multiples of 11.

5 × 11 = _____

6 × 11 = _____

7 × 11 = _____

8 × 11 = _____

9 × 11 = _____