

Lesson 10: Estimation Exploration

Standards Alignments

Addressing 4.OA, 4.OA.A, 4.OA.A.3

Teacher-facing Learning Goals

- Analyze and write estimation problems.

Student-facing Learning Goals

- Let's design an Estimation Exploration activity.

Lesson Purpose

The purpose of this lesson is for students to analyze different kinds of estimation problems and ways to make estimates, and then write their own estimation problems.

Earlier in the course, students developed their ability to reason multiplicatively and to find products of multi-digit numbers. Throughout the course, students have also been prompted to make estimates. In this lesson, they apply these understandings and skills to create their own Estimation Exploration activity.

The Estimation Exploration routine encourages students to anticipate multiple ways others might make an estimate based on a given image or description, and to revise their thinking accordingly. Later in the lesson, students will facilitate their activity in small groups. The lesson may take more than one class period if students take turns facilitating their estimation problem.

Access for:

Students with Disabilities

- Engagement (Activity 1)

English Learners

- MLR8 (Activity 3)

Instructional Routines

Estimation Exploration (Warm-up)

Materials to Gather

- Tools for creating a visual display: Activity 3

Lesson Timeline

Warm-up	10 min
Activity 1	10 min
Activity 2	15 min
Activity 3	10 min
Lesson Synthesis	10 min
Cool-down	5 min

Teacher Reflection Question

Today's lesson invited students to contribute in different ways and settings. Reflect on who participated in math class today. What assumptions are you making about those who did not participate? How can you leverage each of your student's ideas to support them in being seen and heard in tomorrow's math class?

Cool-down (to be completed at the end of the lesson)

 5 min

Reflection

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Student-facing Task Statement

Describe something mathematical that you understand better after completing today's activities, or something that you find confusing or challenging.

Student Responses

Sample response: After multiplying several numbers multiple times to make estimates, I understand much more that there are different ways to break apart and rearrange the factors to make it easier to find products. Usually I'd just multiply the numbers in the order they were given.