Lesson 11: Analyze Subtraction Algorithms

Standards Alignments

Addressing 3.NBT.A.2

Teacher-facing Learning Goals

- Analyze different steps in subtraction algorithms and reason about when certain steps might be more productive.

Student-facing Learning Goals

- Let's think about subtraction algorithms in more detail.

Lesson Purpose

The purpose of this lesson is for students to consider subtraction algorithms in more detail, with a focus on decomposing as needed and on cases when it is necessary to decompose multiple units to subtract across zeros.

In a previous lesson, students used a subtraction algorithm in which single digits were used to record the result of subtraction in any place value position and one or two digits were used to record any decompositions. They did any necessary decompositions before beginning to subtract. In this lesson, students make sense of and use an algorithm in which subtraction begins with the ones, decomposing units as needed as they work from right to left. Students also consider a case in which it is necessary to decompose a hundred and a ten in order to get more ones because there is a zero in the tens place.

Access for:

Students with Disabilities

- Engagement (Activity 1)

English Learners

- MLR8 (Activity 1)

Instructional Routines

Number Talk (Warm-up)

Lesson Timeline

Warm-up	10 min
Activity 1	20 min
Activity 2	15 min

Teacher Reflection Question

How did your students use their prior understanding of subtracting with an algorithm to solve problems in which they have to decompose place value units across zeros?

Lesson Synthesis	10 min
Cool-down	5 min

Cool-down (to be completed at the end of the lesson) 5 min

Subtraction Reflection

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Student-facing Task Statement

You've learned many ways to subtract large numbers, including strategies and algorithms.

1. What is your favorite way to subtract large numbers?
2. What's a way that you would like to learn more about and use more?

Student Responses

Sample response:

1. I like to count back by place value.
2. I am still learning to use an algorithm in which I first write the numbers as a sum of hundreds, tens, and ones.