Bundles of Books

Created by Kate Beck
George Mason University, COMPLETE Math
Fall 2015

The Task

Nate's grandma bought him 4 new books to read. She spent $38, and each book cost the same amount of money. Nate wants to return one of the books to the store. How much money will he get back?

Nate is a fast reader! He can read 4 books in one hour. If he has 38 books to read, how many hours will it take him to read them all?

Big Ideas

- The role of remainders in division situations
- The relationship between division and fractions
- The relationship between fractions and decimals

Standards of Learning for Grades 3-4-5

3.3a The student will name and write fractions represented by a model.

3.6 The student will represent division, using area, set and number line models.

4.2c The student will identify the division statement that represents a fraction.

4.4c The student will divide whole numbers, finding quotients with and without remainders.

5.2a The student will recognize and name fractions in their equivalent decimal form and vice versa.

5.4 The student will create and solve single-step and multistep practical problems involving division with and without remainders of whole numbers.

5.5b The student will solve single step practical problems involving decimals.

Standards of Learning for Grades 6-7-8

Process Goals

- Problem Solving and Reasoning – Students will apply an understanding of division to solve the problems. Students will use logical reasoning to determine what to do with the remainder in each case.
- Connections and Representations – Students will recognize and use connections between multiplication and division, as well as connections between fractions and decimals to solve the problems. They will use a variety of representations as they solve and communicate their thinking.
- Communication – Students will justify their findings and present their results to the class with precise mathematical language.

Related Task – Fun at the Fair

- Mrs. Hoffmann brings her 6 children to the fair. She buys a big box of 45 mini-donuts for the children to share equally. How many mini-donuts will each child get?
- The children are ready to go on the fair rides! Mrs. Hoffmann buys a bag of 45 ride tokens for the children to share equally. If each ride costs one token, how many rides can each child enjoy?

Related Task – Party Time

- Andrew is planning a surprise birthday party for his dad. Sixty people will be at the party, and each table will seat 8 people. How many tables does Andrew need?
- Andrew has 60 balloons to use for decorating the tables. If he wants every table to look exactly the same, how many balloons will be at each table?

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Lesson Plan

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Materials

- The tasks copied front to back
- Paper
- Scissors
- Money Manipulatives (bills and quarters)
- Unifix cubes
- Large presentation paper
- Markers

Facilitating Task

- This task can be completed individually or in small groups of 3-4 students.
- Read the task together and answer clarifying questions.
- Make materials available to the students/groups.

If students work in groups:

- *Give students individual think time before coming together.*
- *Each group will record the group's thinking and solution on the large presentation paper. They will present their findings to the class.*

If students work individually:

- *After solving, pair students to discuss and share strategies for 5-10 minutes.*
- *Select between 4 and 6 students with unique solution strategies to share with the class.*

- Allow 15-20 minutes for sharing and connections.
- Begin with the most concrete strategy and move to the most abstract strategy. Ask questions to highlight connections between strategies.
- Wrap up the lesson with a discussion of these questions: How are these problems the same? How are they different? As a class, record observations about the role of remainders in division.

Misconceptions	Suggested Prompts or Questions
• Dollars can't be split. • He'll have to round up to the next hour. • There are 50 minutes in half an hour. • You can drop the remainder in either case. • The two solutions are unrelated.	•How can we find out how much each book cost? •Is there a way to split the last two dollars? •How many cents are in half of a dollar? •How long will it take him to read the last two books? •How long does it take him to read one book? •How are these problems the same? •How are they different?

Bundles of Books

Name_____
Date_____

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Answer the question using pictures, words, tables, graphs, and/or symbols.

Nate is a fast reader! He can read 4 books in one hour. If he has 38 books to read, how many hours will it take him to read them all?

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