Classroom-Ready RICH MATH TASKS

GRADES 4-5

Engaging Students in Doing Math

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CORWIN | Mathematics

Thank you

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Please enjoy this complimentary excerpt from *Classroom-Ready Rich Math Tasks, Grades 4-5* by Beth McCord Kobett, Francis (Skip) Fennell, Karen S. Karp, Delise Andrews, and Sorsha-Maria T. Mulroe.

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Grade 4

Mathematics Standard

- Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted.

Mathematical Practices

- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.

Vocabulary

- quotient
- remainder
- dividend
- divisor
- justify
- expression

Materials

- Lunchtime Logistics student page, one per group
- chart paper
- markers
- Interpreting Remainders student page
- Base Ten Block student page

Task 5
Lunchtime Logistics

Reason about remainders

TASK

Lunchtime Logistics

Mrs. Chu is an assistant principal at a local elementary school. She is trying to figure out the number of tables she will need to seat students in the cafeteria during lunch. She knows that nine students can sit comfortably at one table.

Grade	Number of Students	Number of Tables Needed
K	59	
1	138	
2	75	
3	152	
4	65	
5	64	

1. How many children will need to sit at a table that isn't full?

2. How many tables are needed for each grade? Fill in the chart.

TASK PREPARATION

- Assign students to work in groups of 4. Plan for heterogeneous groups.

LAUNCH

1. Present part of the task:

> Mrs. Chu is an assistant principal at a local elementary school. She is trying to figure out the number of tables she will need to seat students in the cafeteria during lunch. She knows that nine students can sit comfortably at one table.
>
> | Grade | Number of Students | Number of Tables Needed |
> |---|---|---|
> | K | 59 | |
>
> How many tables will be completely filled?

2. Utilize *See-Think-Wonder.* Ask students, "What do you *see* and *think* you know so far?"

3. Record student ideas.

4. Ask students, "What questions or wonders do you have?"

ACCESS AND EQUITY

Provide enough time through a *Turn and Talk* for students to ask a peer a question; this may help them access the problem.

FACILITATE

1. Assign students to their groups. Distribute materials. Give groups time to explore how to find a solution to the question. Monitor students who may need support with dividing a 2-digit dividend by a 1-digit divisor.

2. Then ask for and list possible solutions (some groups may arrive at an answer of 6, while others might give an answer of 7).

3. Ask, "Who would like to justify their group's solution?" After the student explains the expression they used to solve the problem (59 ÷ 9), pause and ask, "Why did many of you also choose 59 as your dividend and 9 as your divisor?"

4. Ensure that there is agreement that the quotient for 59 ÷ 9 is 6, with a remainder of 5 students. Then ask, "While 7 is a reasonable quotient, why does it not precisely answer the question?"

5. Discuss with students the "treatment" of the remaining students in this scenario by using questioning to elicit students' ideas:

   » If the question is, "How many tables will be completely filled?" the solution would be 6. However, there would be children who would not have a seat. What do we do with the children who do not have a seat?

   » If the question is, "How many tables are needed?" then we would include the remainder, and the solution would be 7 tables, because we need to account for the 5 extra kindergartners who need a table. *Note: Some students may argue that only 6 tables are needed because as we are considering kindergartners, they may be able to fit 5 extra students in 6 tables. Accept this student reasoning AND indicate that students must provide this written justification in their work.*

   » If the question is, "If as many tables as possible are filled with equal groups of 9 students, how many students will still need a table?" then the solution would be the remainder, which is 5 students.

6. Assign specific groups to calculate the number of tables needed for a particular grade (e.g., Group 1 works on Grade 1, . . .). Have all groups work on the last question.
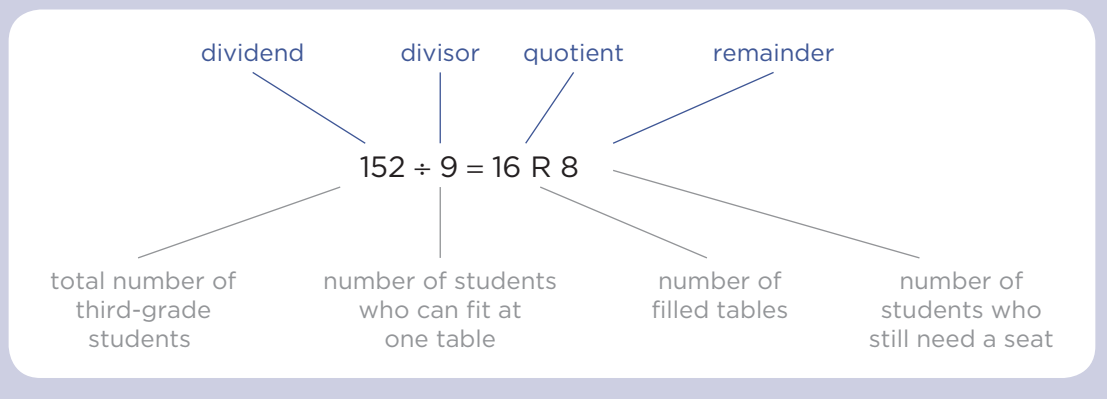
CLOSE: MAKE THE MATH VISIBLE

1. Monitor group work and select and sequence how you will post student work on chart paper based on the division strategies they employ.

2. After group work is posted on the walls of the classroom in a particular sequence, call on groups to explain their solutions. Invite questions from other groups.

3. Focus on student thinking and reasoning about the remainder. For example, when solving for the number of tables needed in third grade, highlight the following as shown in Figure 5.1.

STRENGTHS SPOTTING

Inviting students to engage with the thinking of their peers is an opportunity for teachers to nurture habits of mathematical discourse. Take these opportunities to lift up considerate and thoughtful interactions as they occur.

Figure 5.1 Highlighted Third-Grade Student Thinking

dividend	divisor	quotient	remainder

$$152 \div 9 = 16 \text{ R } 8$$

total number of third-grade students	number of students who can fit at one table	number of filled tables	number of students who still need a seat

4. **Hinge Question.** What is the maximum number of tables Mrs. Chu will need for any one grade?

POST-TASK NOTES: REFLECTION & NEXT STEPS

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Task 5: Interpreting Remainders
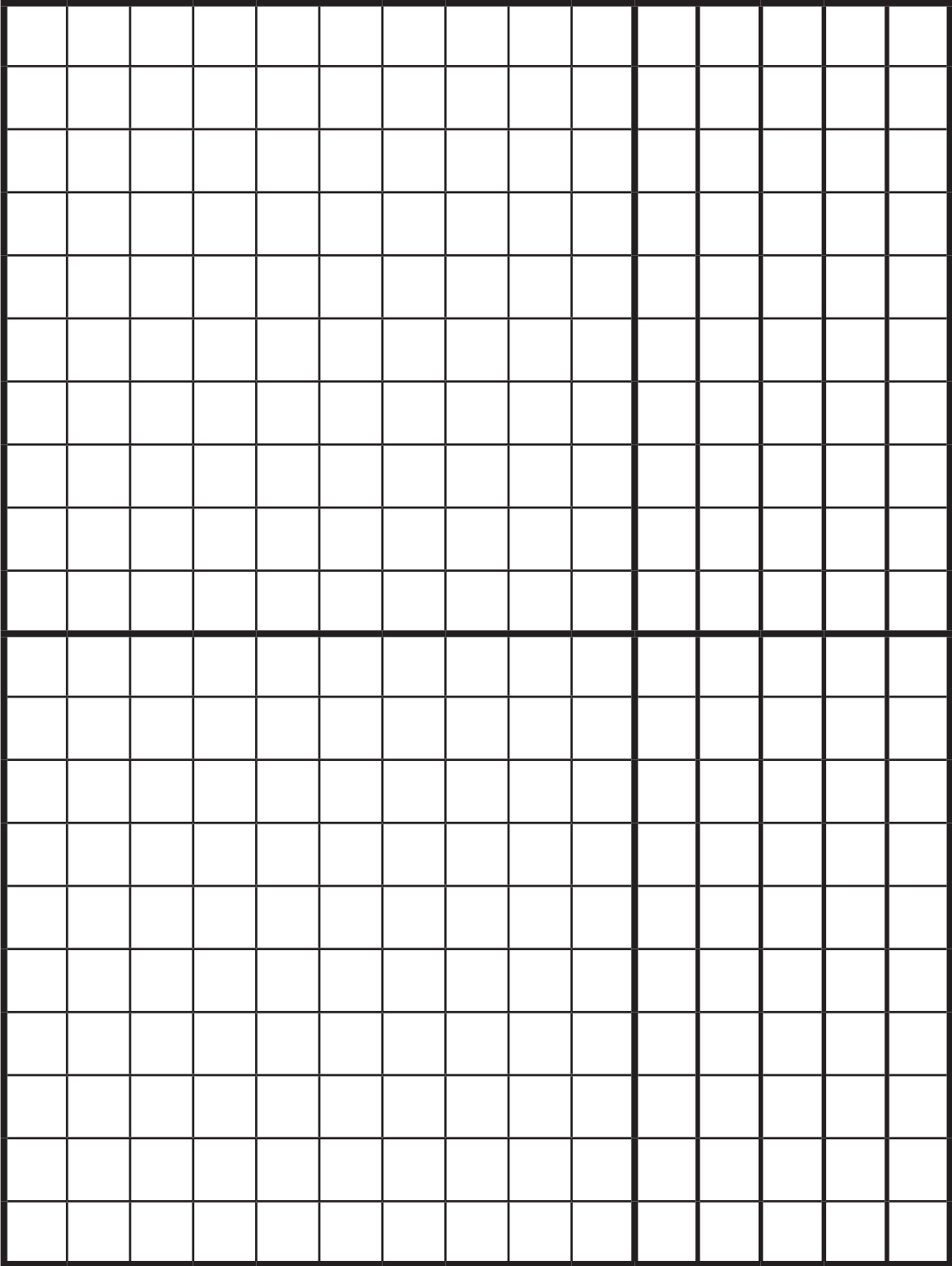
Name: _____   Date: _____

Mrs. Chu is an assistant principal at a local elementary school. She is trying to figure out the number of tables she will need to seat students in the cafeteria during lunch. She knows that nine students can sit comfortably at one table.

Grade	Number of Students	Number of Tables Needed
K	59	
1	138	
2	75	
3	152	
4	65	
5	64	

1. How many tables will be completely filled? Are there any children who still need a seat?

2. How many tables are needed for each grade? Fill in the chart.

Task 5: Base Ten Resource

BASE TEN MATERIALS PAGE 2