

The School Store

Lynn had one dollar to spend at the school store. She wanted to buy 4 pencils and 9 stickers . The price list had this information on it:

Pencils	Two for 30 cents
Stickers	Three for 10 cents

Did Lynn have enough money to buy the pencils and stickers? Show your math thinking.

The School Store

Suggested Grade Span

Grades Pre K–2

Grade(s) in Which Task Was Piloted

Grade 1

Task

Lynn had one dollar to spend at the school store. She wanted to buy 4 pencils and 9 stickers. The price list had this information on it:

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Stickers	Three for 10 cents

Did Lynn have enough money to buy the pencils and stickers? Show your math thinking.

Alternative Versions of Task

More Accessible Version:

Lynn had one dollar to spend at the school store. She wanted to buy 4 pencils and 8 stickers. The price list had this information on it:

Pencils	10 cents each
Stickers	5 cents each

Did Lynn have enough money to buy the pencils and stickers? Show your math thinking.

More Challenging Version:

Lynn had one dollar to spend at the school store. She wanted to buy 5 pencils and 8 stickers. The price list had this information on it:

Pencils	Two for 30 cents
Stickers	Three for 12 cents

Did Lynn have enough money to buy the pencils and stickers? Show your math thinking.

NCTM Content Standards and Evidence

Number and Operation Standard for Grades Pre K–2

Instructional programs from Pre-Kindergarten through grade 12 should enable students to...

- Compute fluently and make reasonable estimates.
 - *NCTM Evidence:* Develop and use strategies for whole-number computations, with a focus on addition and subtraction.
 - *Exemplars Task Specific Evidence:* This task requires students to find the total amount of money required
- Understand numbers, ways of representing numbers, relationships among numbers, and number systems.
 - *NCTM Evidence:* Count with understanding and recognize “how many” in sets of objects.
 - *Exemplars Task Specific Evidence:* This task requires students to determine how many sets of 2 there are in 4, and how many sets of 3 there are in 9.

Time/Context/Qualifiers/Tip(s) From Piloting Teacher

This is a medium length task. Providing students with manipulatives such as coins, pencils and stickers may be helpful to some students when completing this task.

Links

Many schools have school stores which is an excellent place for students to practice their skills with money. Students in your class could set up their own stores where items are priced as those in the task. Each student could be given a shopping list and a certain amount of money to spend. Students will enjoy being customers as well as storekeepers.

Common Strategies Used to Solve This Task

A combination of charts, diagrams and number sentences will be used by students to solve this task.

Possible Solutions

Original Version:

4 pencils = 2 sets of 2 x 30 cents = 60 cents

9 stickers = 3 sets of 3 x 10 cents = 30 cents

Total is 90 cents, so she does have enough money.

More Accessible Version:

$4 \text{ pencils} \times 15 \text{ cents} = 60 \text{ cents}$

$8 \text{ stickers} \times 5 \text{ cents} = 40 \text{ cents}$

Total is one dollar, so she has exactly enough money.

More Challenging Version:

Pencils = $30\text{¢} \div 2 = 15\text{¢}$ per pencil $\times 5$ pencils = 75¢

Stickers = $12\text{¢} \div 3 = 4\text{¢}$ per sticker $\times 8$ stickers = 32¢

Total = \$1.07 so no, she does not have enough money.

Task Specific Assessment Notes

General Notes: This task assesses students' concepts of money, as well as number sense and a basic sense of ratio. Students will need to combine all of these math concepts and skills, along with problem solving and communication strategies to solve the task.

Novice: The novice will demonstrate little or no understanding of the task. The students may randomly manipulate data presented in the task with no reasoning. No correct reference will be made to the number of sets of pencils or stickers that need to be purchased. There will be no useful approach to finding the sum of money that needs to be spent.

Apprentice: The apprentice will have a partially correct solution, or a strategy that will work for solving part of the task. The apprentice may be able to determine the number of sets of pencils and stickers that need to be purchased, and may be able to find a total, but then will not go on to compare the total to \$1.00 or will do so incorrectly. Apprentice solutions may also have correct approaches, but incorrect solutions due to computation errors.

Practitioner: The practitioner will achieve a correct solution to the task with supporting work. The number of sets of pencils and stickers will be accurately determined, a correct sum found, and compared to \$1.00 to show the student has enough money to make the purchase.

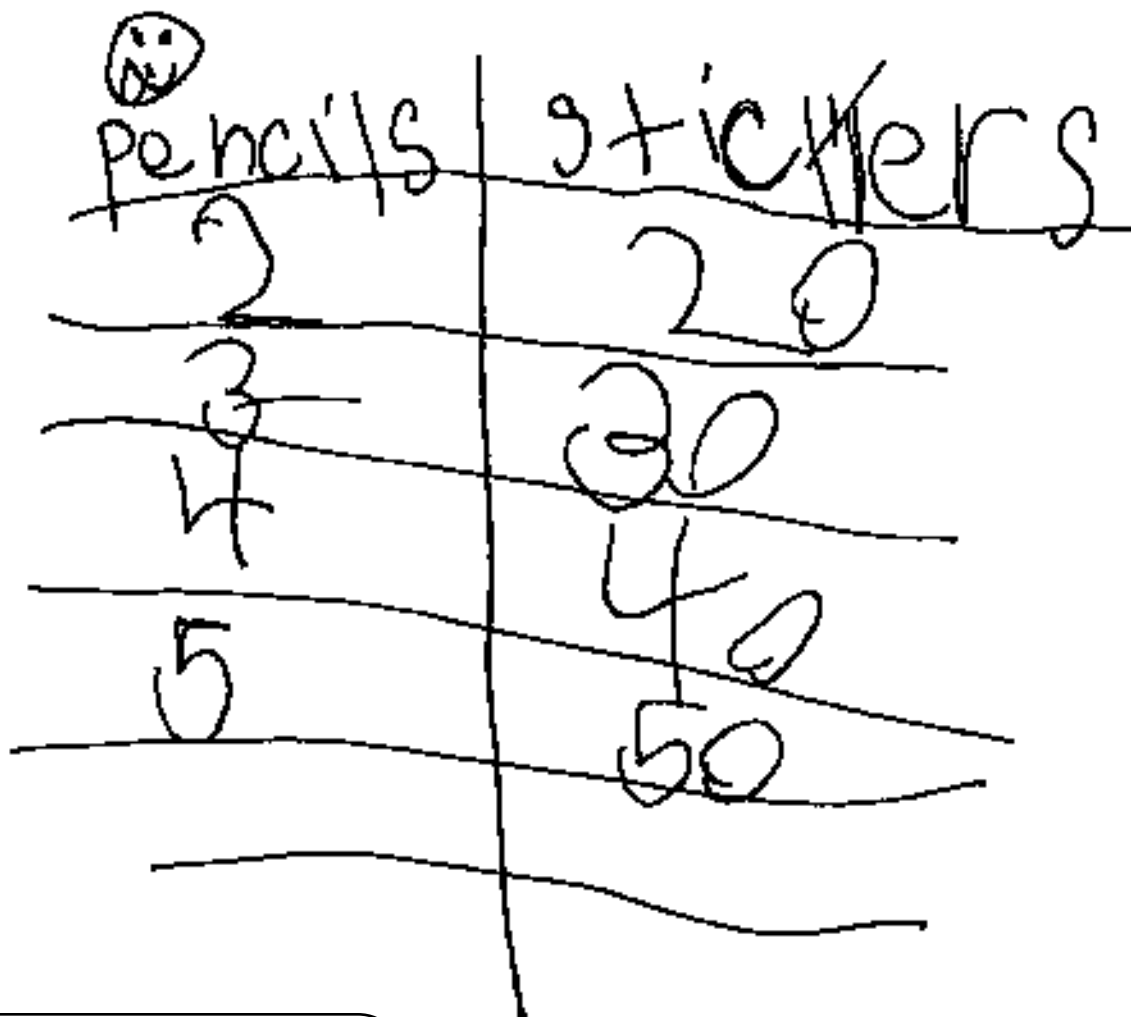
Expert: The expert will not only achieve a correct solution, but will also utilize other good problem solving strategies such as creating a rule to solve the task, verifying the solution, or going above and beyond the task requirements, such as determining the cost per pencil or per sticker, or determining the amount of money left over and what the leftover can be used for.

Author

This task was written by **Deb Armitage**, Pre K–8 Mathematics Assessment Consultant at the Vermont Department of Education. The task was piloted by teachers and students in Vermont.

Novice

Little or no understanding of the task is demonstrated.



There is a reference to the topic of pencils and stickers, but no evidence of correct reasoning about the mathematics in the task.

A representation is attempted but it lacks an association with data presented in the task.

Apprentice


A partial solution is achieved. Correct sums for pencils and stickers are achieved, but they are not totaled, nor are the amounts compared to \$1.00.



Some math language and diagrams are used to communicate.

Practitioner

30 + 30 = 60¢
9 stickers
6 pencils
 $60 + 30 = 90¢$
yes



The student has drawn two diagrams. The first is a rectangular sticker pack with a scalloped edge, containing nine small squares arranged in three rows of three. The second is a cylindrical pencil case with two windows showing pencils inside.

A correct answer is achieved.
Work is shown and labeled.
Math language and diagrams
are used to communicate.

A correct answer is achieved and communicated. All work is labeled and shown using diagrams and math language.

yes

30¢ + 30¢ = 60¢

60¢
+ 30¢

90¢

tend left
for ^{three} stickers

crstent + ten¢ + ten¢ = 30¢

A relevant observation is made about the amount left over and what it could buy.