Muffins

I went to the store to buy a muffin. Muffins cost 25 cents each. I had a lot of change in my coin purse. How many ways could I pay for the muffin?

Grade Levels Pre-K-2

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Context

Many of the money tasks that I have found are not accessible to many kindergarten and first grade children who are beginning to learn money skills. We wrote this task to use with our first grade money unit that stresses coin recognition, coin value and "money trading".

What This Task Accomplishes

This task will identify students who have a conceptual understanding of coin recognition, coin value and exchange properties.

What the Student Will Do

Many students began by lining up their papers and tracing around coins. Most students easily solved the problem by using the quarter then two dimes and a nickel. Many children soon found that tracing the coins was more difficult and time consuming than drawing circles and labeling them with values. After finding one solution, students may need to be coached into trying to find other solutions. This often leads to many "teachable moments"!

Time Required for Task

30 minutes

Interdisciplinary Links

This task works well with a social studies unit on food and stores, or a literary unit using food books.

Teaching Tips

Set the stage for this activity with students. Talk about going to the store to buy a muffin. You could read *If You Give a Moose A Muffin* by Laura Joffe Numeroff, and even make muffins in your classroom.

Explain that you want to buy only one muffin, but do not know how to pay for it. You have a lot of coins in your wallet and do not know which ones to use. Since the muffin costs 25 cents, you

know you have a lot of choices about which coins to use.

Provide each student with a tray of money to use in solving this problem.

In this performance task, many children were very clear as to how they solved the problem without a lot of written explanation. Although the children are generally always encouraged to write their thinking on their papers, this was not essential in this task.

Suggested Materials

- Paper
- Pencil
- An assortment of coins

Possible Solutions

one dime, two nickels, five pennies
one dime, one nickel, 10 pennies
two dimes, one nickel
two dimes, five pennies
one dime, 15 pennies
four nickels, five pennies
three nickels, 10 pennies
two nickels, 15 pennies
one nickel, 20 pennies
one quarter
five nickels
25 pennies

Benchmark Descriptors

Novice
A Novice may attempt to draw and label groups of coins on the paper, but the groupings may only be random. This indicates that the student did not understand the problem, nor have an approach that would work in solving it. A Novice may also draw a muffin, but does not draw any coins, or the coins may not equal 25 cents.

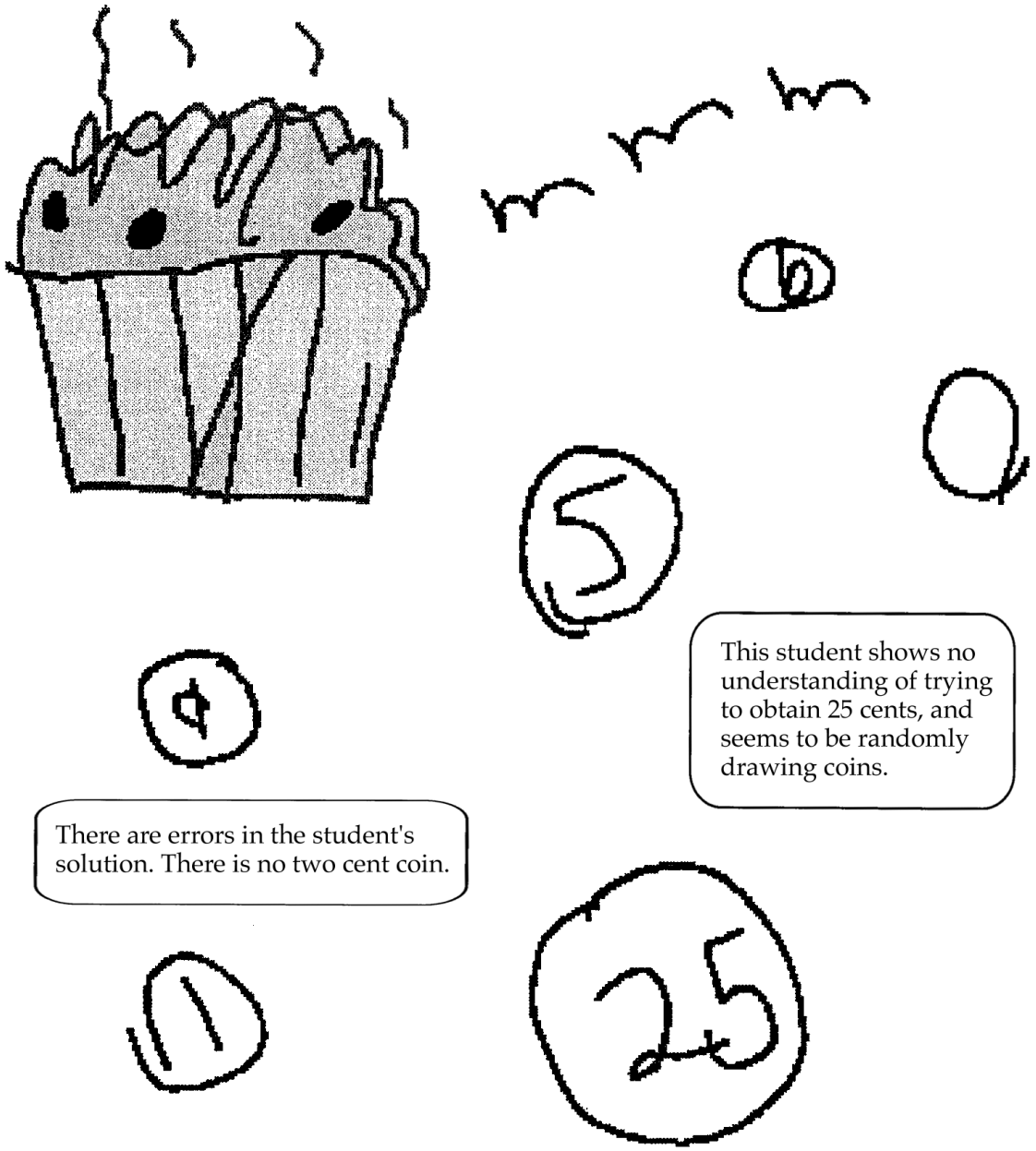
Apprentice
An Apprentice may be limited in their ability to solve the problem, even though the problem is understood. An Apprentice may begin to solve the problem, but makes mathematical errors, and is not able to obtain exactly 25 cents.

Practitioner
A Practitioner will obtain a correct solution indicating that the student is able to exchange coins to equal 25 cents. The student will begin to use appropriate mathematical language, and use

representations to communicate. The Practitioner's solution may be effective, but somewhat random.

Expert
An Expert's paper shows more sophisticated and clear strategies in solving the problem. The Expert will find several correct solutions, and will have well-organized work. The Expert uses clear, effective communication and attempts to verify results or demonstrate higher level thinking skills.

Novice

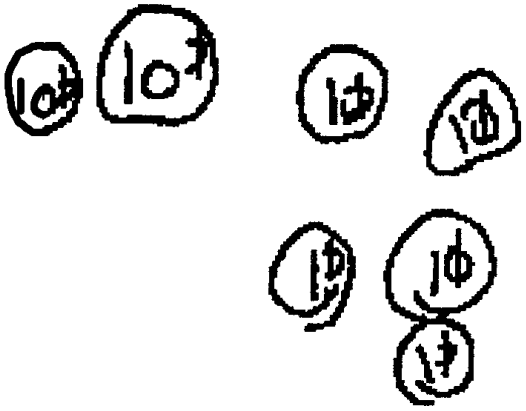


This student shows no understanding of trying to obtain 25 cents, and seems to be randomly drawing coins.

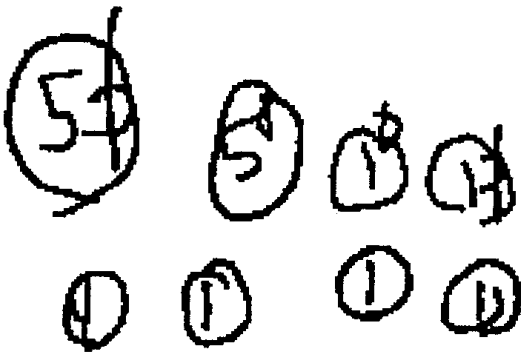
There are errors in the student's solution. There is no two cent coin.

Muffins

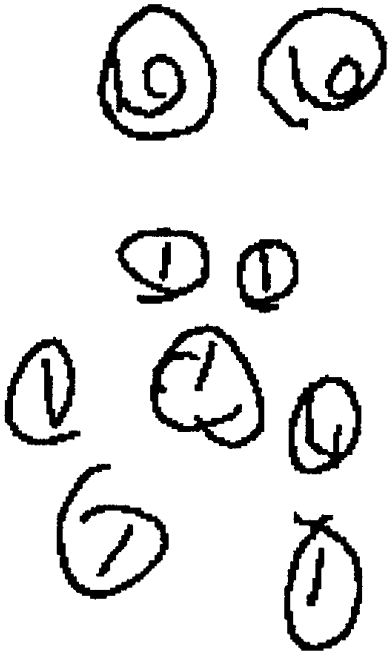
Apprentice

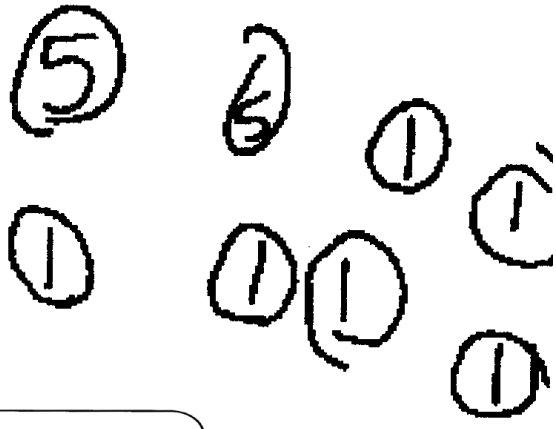


This student obtains some correct and incorrect solutions.



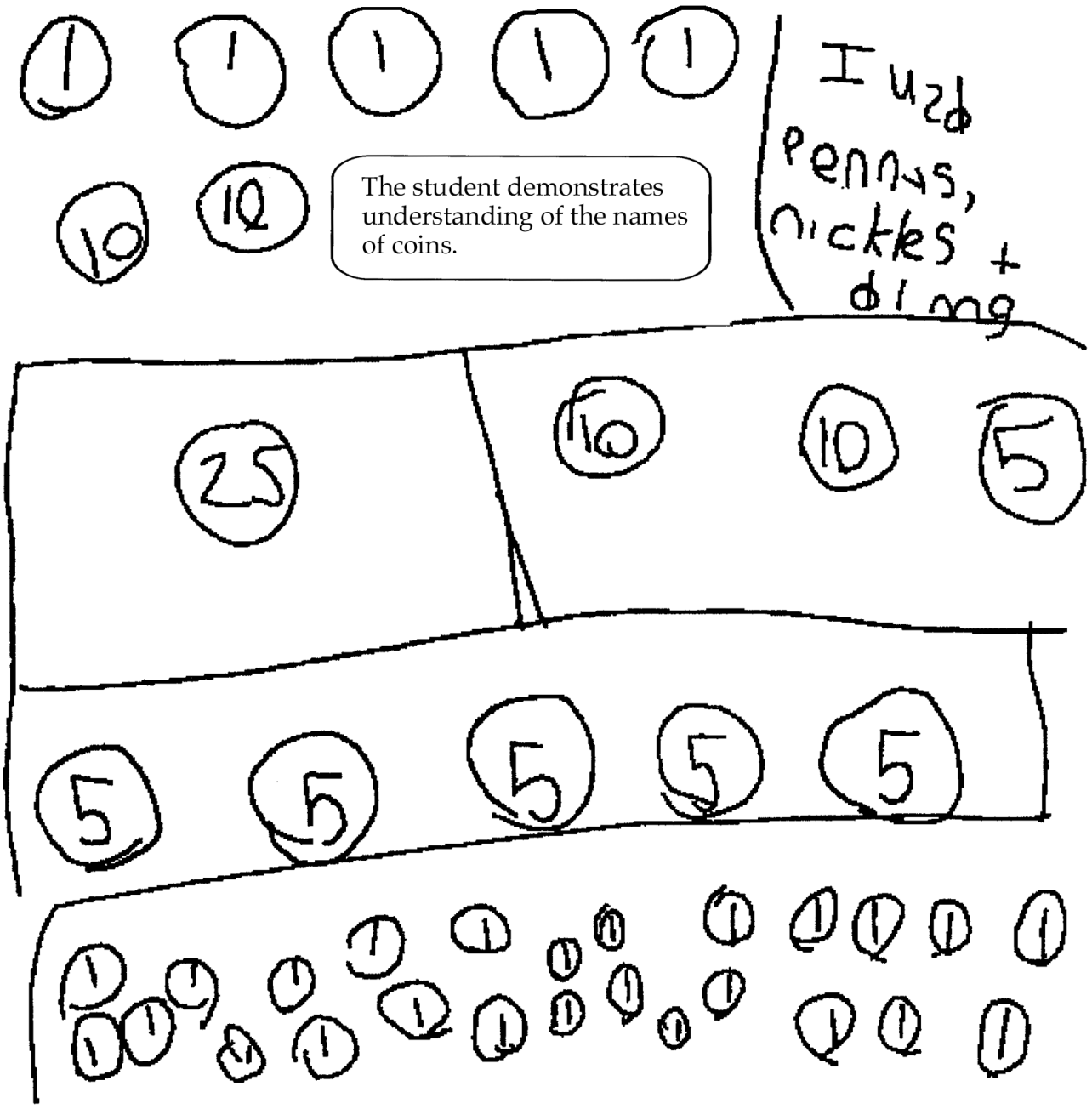
This student uses some correct symbols and mathematical representation.





This student's stradegy seems random.

Practitioner

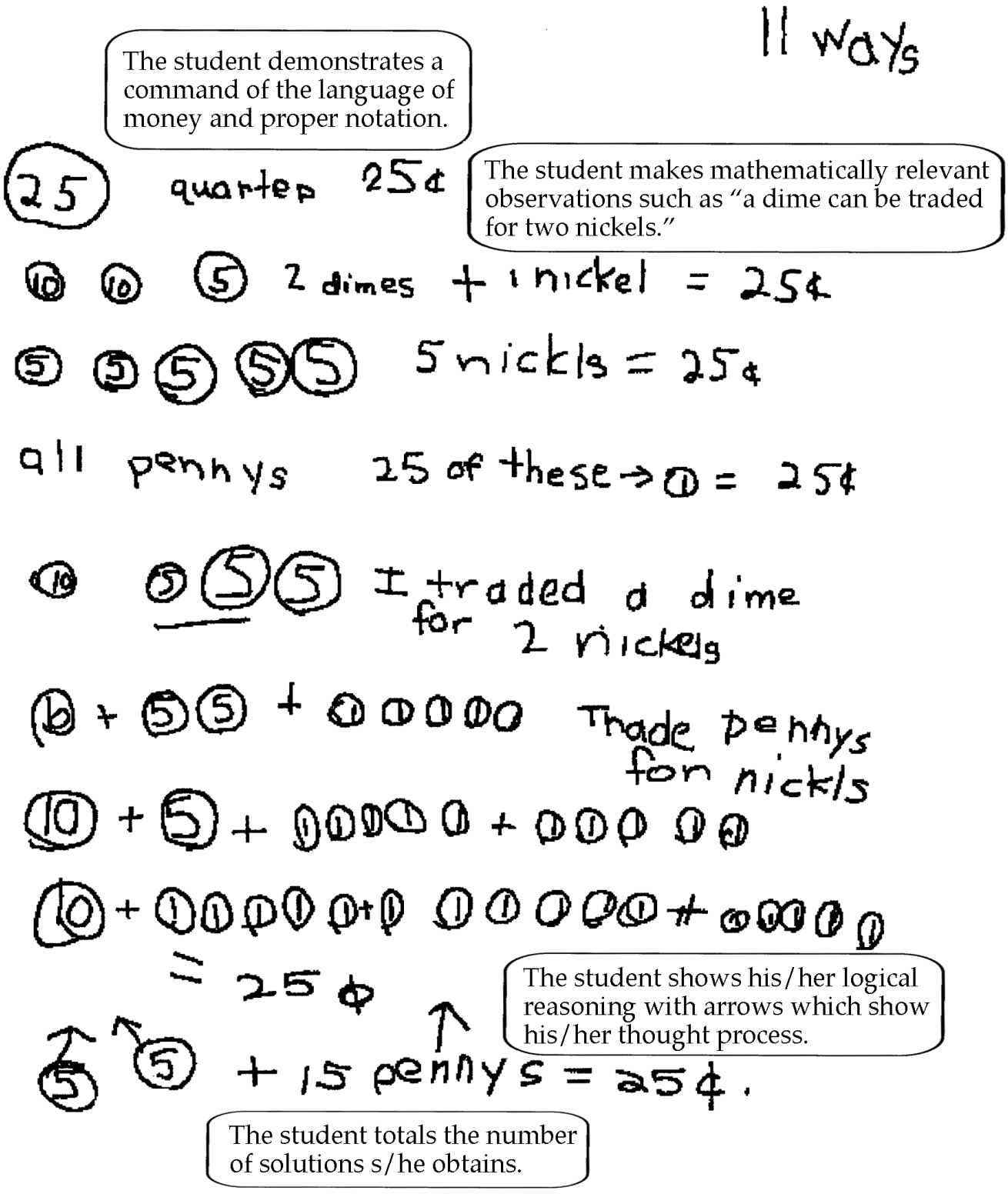


The student demonstrates understanding of the names of coins.

All of the student's solutions are correct.

The student uses appropriate mathematical representations.

Expert



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