Pogs

5 children found a container of Pogs in the park. Since they could not find the person to whom it belonged, they decided to share the Pogs.

If each child received 13 Pogs, how many Pogs were there all together?

Grade Levels Pre-K-2

Pogs

5 children found a container of Pogs in the park. Since they could not find the person to whom it belonged, they decided to share the Pogs.

If each child received 13 Pogs, how many Pogs were there all together?

Context

My students are very interested in Pogs so I thought designing a problem around Pogs would engage their interest. We have discovered that Pogs make great manipulatives for our math center. Children love counting them.

What This Task Accomplishes

This problem is one to which students who collect Pogs can relate. Observing how students approach the solution shows their understanding of number sense and operations. Student solutions show how a student uses and thinks of addition. Less able students can use manipulatives and/or drawings to help them solve the problem. Students with more advanced number skills can demonstrate this by adding the number 13 five times.

What the Student Will Do

In solving this problem, students were encouraged to use manipulatives or drawings to find a solution. I asked them not only to give me a solution, but also to write about how they found their solution. Students who quickly reached a solution were challenged to try to find a different way to solve the problem.

Time Required for Task

45 minutes

Interdisciplinary Links

Students could also sort Pogs by attribute, explore the probability of getting a design side up and create a pictograph of the class' favorite Pogs.

Teaching Tips

Since my students knew what Pogs were, I did not need to explain this. For those who do not know, Pogs are very similar to the old bottle caps found on milk bottles. They are now made of

light cardboard with designs on the top. Children stack them, hit them with a "slammer" and try to have the Pogs land with the design side up. For areas where Pogs are not familiar, one could change the word Pogs to marbles, or some other item familiar to the students.

I made sure that my students understood the problem before they went off to try to find a solution. I also suggested that they use manipulatives or drawings to help in solving the problem.

Suggested Materials

- Manipulatives
- Paper
- Pencil

Possible Solutions

There are a variety of strategies that students can use to arrive at the solution of 65 Pogs.

Benchmark Descriptors

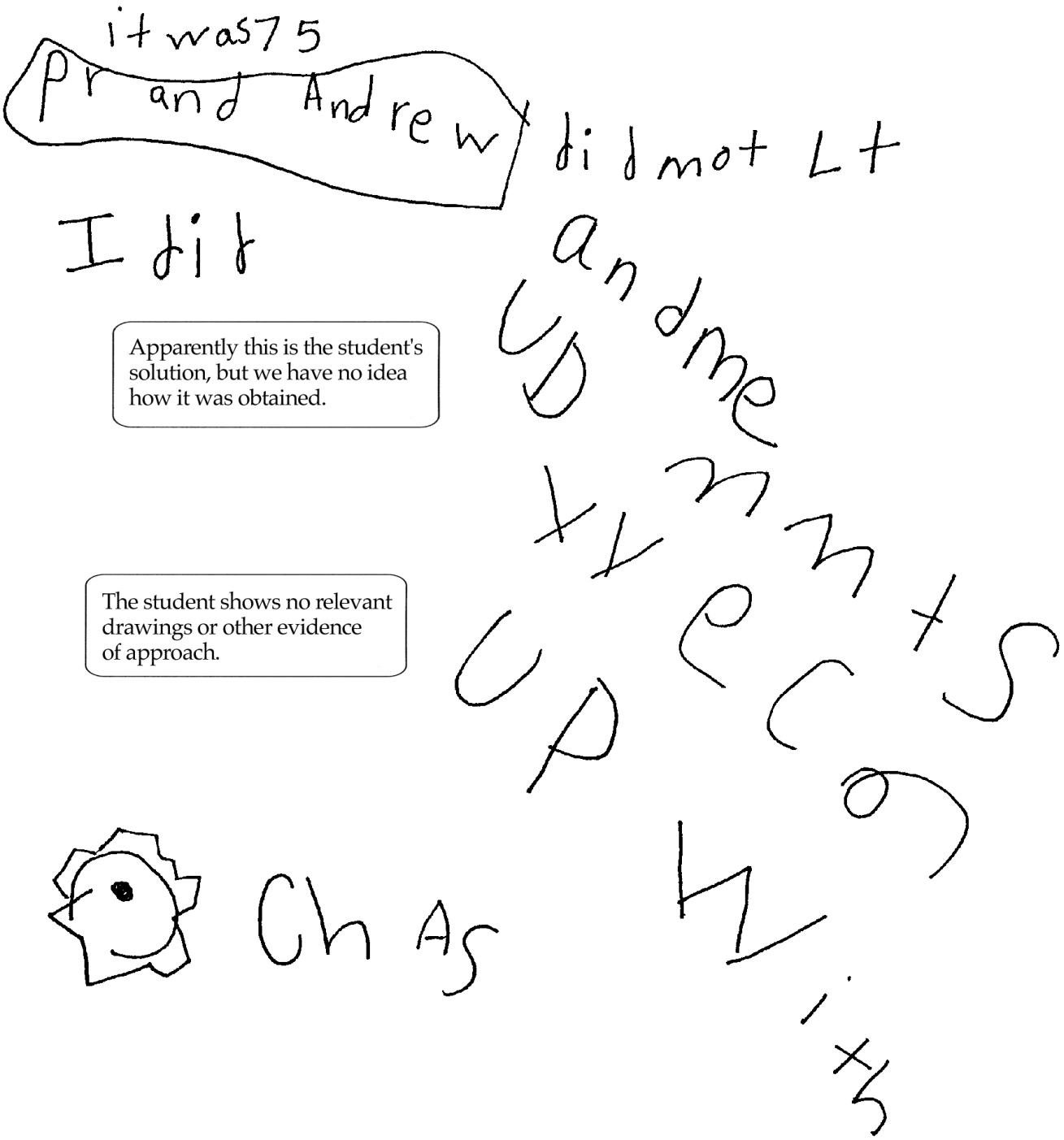
Novice
The student attempts the task without an apparent strategy and seems to have no organization, nor evidence of approach. There is no evidence that the student was trying to achieve a total of Pogs, or that there were five children involved.

Apprentice
The student has partial understanding of the task. The student demonstrates understanding of five children, and in one case assigns a total of 13 Pogs. The student also demonstrates a need to find a total, although it is unsuccessful.

Practitioner
The student has a full understanding of the task and demonstrates an understanding of five children, 13 Pogs per child, and correctly executes the finding of a total. This student uses a pictorial approach to obtain a solution.

Expert
The student has deep understanding of the task. S/he demonstrates an understanding of five children, 13 Pogs per child and correctly executes the finding of a total. This student uses an arithmetic approach to obtain a solution, combined with a pictorial approach to verify the solution.

Novice



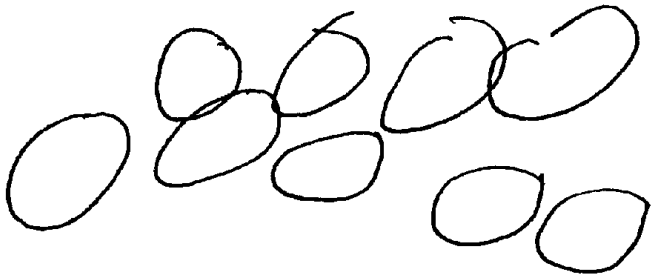
Apparently this is the student's solution, but we have no idea how it was obtained.

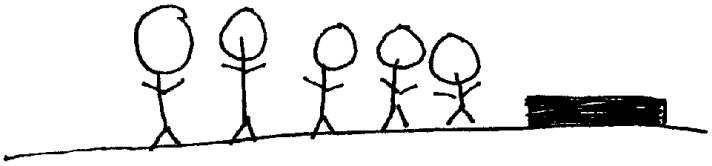
The student shows no relevant drawings or other evidence of approach.

Pogs

Apprentice

This work here is very interesting and worth pursuing. Were they estimations, multiple solutions, or were they used as counting strategies? This work suggests a "teachable moment".

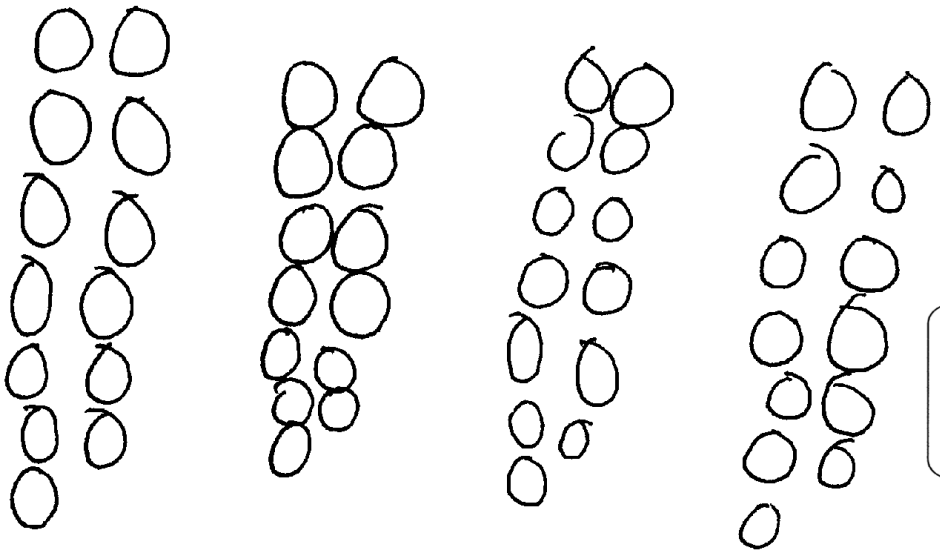




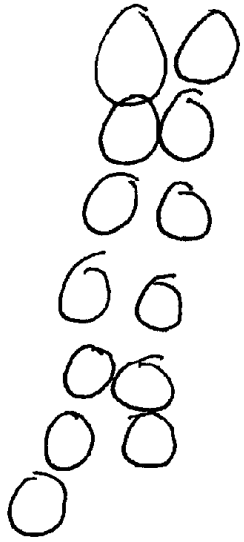
Here the student demonstrates an understanding of five children but the tally marks do not assign 13 pogs per child.

Pogs

Practitioner



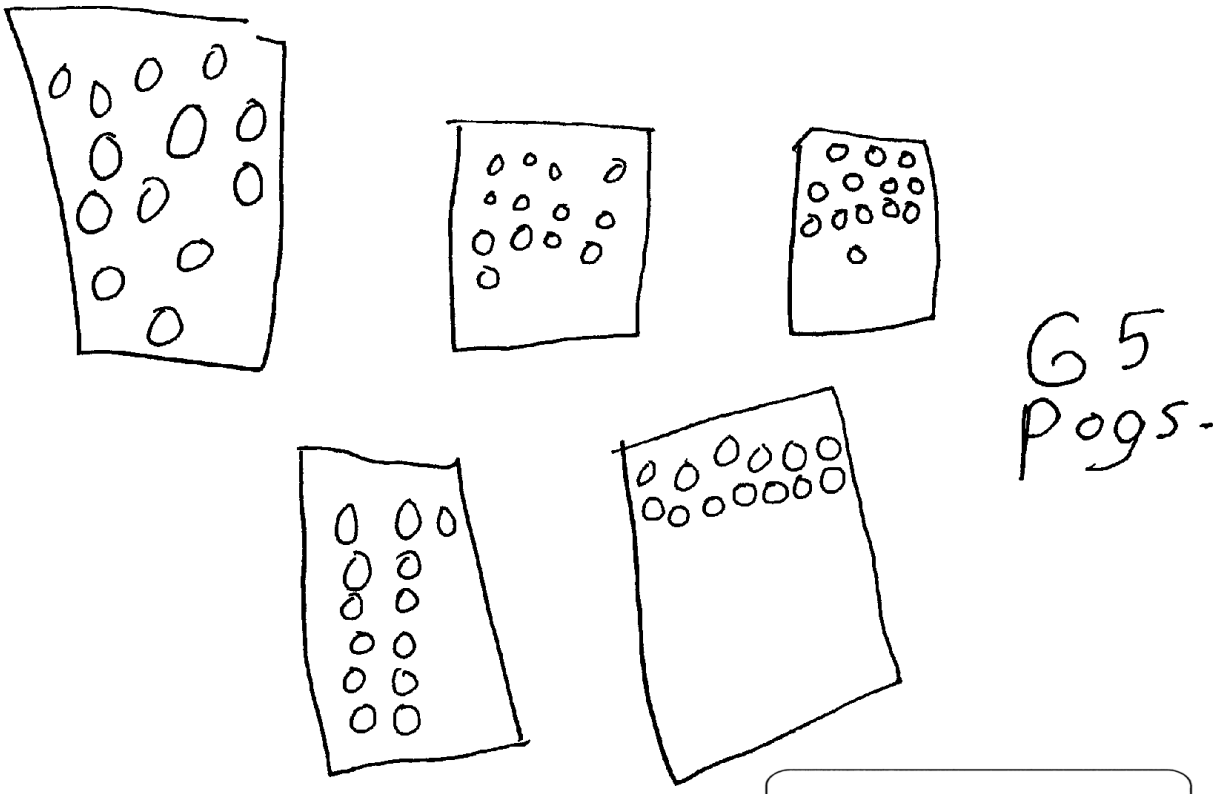
The student's picture shows five groups of 13 pogs which were relied on to obtain a solution.



Thir are five children each child Thir got 13 pogs. is 65 pogs.

Pogs

Expert



To encourage this student to explain his/her reasoning, a teacher might ask this student why s/he decided to add 6+26 instead of 26+3.

This student used both a pictorial and arithmetic approach which verifies the solution.

$$\begin{array}{r} 13 \\ +\ 13 \\ \hline 26 \end{array} \qquad \begin{array}{r} 52 \\ +\ 13 \\ \hline 65 \end{array}$$

$$\begin{array}{r} {\scriptstyle 1\ \ \ } \\ 26 \\ +\ 26 \\ \hline 52 \end{array}$$

The student could share his/her reasoning with his/her peers showing others a "new way" of adding.

Pogs