Hot Chocolate

The pan has hot chocolate in it. It takes 3 full ladles to fill each mug. How many ladles will it take to fill mugs for 5 children that are coming in from sledding?

Hot Chocolate

Suggested Grade Span

Pre-K-2

Task

The pan has hot chocolate in it. It takes 3 full ladles to fill each mug. How many ladles will it take to fill mugs for 5 children that are coming in from sledding?

Alternate Versions of Task

More Accessible Version:

The pan has hot chocolate in it. It takes 3 ladles full to fill each mug. How many ladles will it take to fill mugs for 2 children that are coming in from sliding?

More Challenging Version:

The pan has hot chocolate in it. It takes 5 ounces to fill each mug. How many cups of hot chocolate will it take to fill mugs for 5 children that are coming in from sliding?

Context

Our first grade class has been investigating different kinds of problems for our winter theme. This task evolved from a class discussion of which tools would be quicker to fill a mug with hot chocolate. (A teaspoon, serving spoon, different measuring cups and ladle were brought into build vocabulary and reasoning skills.)

What This Task Accomplishes

This task has the children working with the number pattern of three and an introduction to grouping items by five. The problem enables students to recognize and represent mathematical relationships.

What the Student Will Do

Most children realized they needed to start with the five mugs and then figure out how to represent the ladles. Some will draw ladles, use tally marks or represent with numbers. The children are encouraged to use lots of writing skills at their own level to communicate with the math task. It is also possible that children may not listen carefully to the word "each", which will greatly effect the results.

Time Required for Task

60 minutes

Interdisciplinary Links

This task was part of our winter theme, which also included science exploration stations with ladles using water, snow and rice to pour into containers in a group of five. We examined the slowest and fastest way to fill the five containers. When using ladles of snow it can lead to more problem solving to estimate the amount of snow scooped to the amount of water that melts from the snow. The opposite science discovery could examine what happens when you freeze a ladle of water. For language arts or social studies children could investigate the origin of the ladle, material it can be made out of and how different cultures have used ladles.

Teaching Tips

You may want to have your students explore using different sized ladles and other scooping materials to be measured in a number of plastic cups or other kinds of containers before presenting this problem.

Suggested Materials

- Mugs, ladles, water or manipulatives to represent these
- Paper
- Pencil and/or crayons

Possible Solutions

This problem is not open-ended like many of the other ones we have been doing. The number of full ladles is 15 to fill all five mugs.

More Accessible Version Solution:

3 ladles x 2 mugs = 6 ladles full of cocoa

More Challenging Version Solution:

5 ounces x 5 mugs = 25 ounces ÷ 8 ounces in 1 cup = 3 cups and 1 ounce extra are needed

Task Specific Assessment Notes

Novice
Often times the Novice will try to use manipulatives to get started with a problem, but this student did not. The problem was not understood and a strategy was not employed that would

help to lead to a solution. The student started with some mathematical representation, and came up with an answer of eight by adding three ladles and five mugs.

Apprentice
The student started an appropriate strategy placing the number three under each mug, but did not complete the task, which would have led to the solution. The total of five reflects counting the mugs and not the ladles.

Practitioner
The Practitioner has a broad understanding of the problem and uses effective strategies to solve the task. The student represented the ladles in groups of three and wrote an appropriate math sentence to show the solution. The representation and written explanation are very clear.

Expert
This Expert understood the problem clearly. The student changed his/her tallying strategy to using numerical representation, which indicates a very efficient and accurate way to reach the solution. It indicates good reasoning in being able to change strategies independently.