Snail Trails

On Monday your snail made a slime trail 2 inches long. On Tuesday the slime trail was 4 inches long. If this same progress continues, how long will the slime trail be on Friday?

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Grade Levels Pre-K-2

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Context

As part of a science unit, each student in our multi-age first and second grade classroom has been observing and caring for their own New England Land Snail. Using a variety of materials, students have been observing how the foot muscle moves, and measuring the slime trails the snails make. This provided the idea for our math problem.

What This Task Accomplishes

This task assesses student's number sense, observations of number patterns, non-standard measurement strategies and calendar skills. It also provides an opportunity for students to try different ways to solve the same problem.

What the Student Will Do

In solving this problem the children utilized their previous experiences from looking at real slime trails that they had measured with centimeter cubes. The children were encouraged to choose from a variety of manipulatives, especially the young first graders, to represent the inches of the slime trails. Some children needed to use the classroom calendar to determine the days of the week.

Time Required for Task

45 minutes

Interdisciplinary Links

The children loved making the habitats for their land snails in clear plastic containers and learning how to care for a living organism. Activities included food tasting predictions, graphing Olympic courses made for snail races, songs and literature. Shell sorting provides an opportunity to introduce students to Venn Diagrams. Students also compared body structures and habitats to our two classroom hermit crabs. Some students took their snail home at the end of the month with a promise to continue their care.

Activities that extended math language and interdisciplinary projects that encouraged comparisons came from the following literature selections:

Snail's Spell by Jo Ryder

A House for Hermit Crab by Eric Carle

Inchworm by Leo Lionni

Teaching Tips

If you do not have the pleasure or resources to obtain live snails, you could use a collection of shells. Slime trails could be made with glue and frosted white glitter. Oak tag snail bodies with the foot extended could be used to measure objects in the room as well as a child's hand, foot, leg or pencil.

Suggested Materials

- New England Land Snails
- Shells
- Math manipulatives (centimeter cubes, inch tiles, Unifix cubes, rulers, beans, etc.)

Possible Solutions

There are a wide variety of strategies that students can use to arrive at the solution of 10 inches.

Benchmark Descriptors

Novice
The student attempts the task, but does not use the information provided to help solve the problem. The student does not accurately represent four inches on Tuesday, and then is unable to determine the correct pattern. There is no use of mathematical terms, symbols or notation.

Apprentice
The student has a partial understanding of the problem. The student used the calendar for the days of the week and used materials to make the slime trails. The student made observations about the numbers that were not used, but was not able to explain the pattern for a complete solution.

Practitioner
The student has solid understanding of the task and uses strategies that solve the problem two ways. The student notices the pattern, clearly explains the procedure taken and uses mathematical notation.

Expert
The student indicates verbally that there is a deep understanding of the problem. The student has applied accurate procedures to solve the problem two ways. The student extended the concept and created a similar slime trail problem of his/her own using a different pattern.

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Novice

Snail Trails

On Monday your snail made a slime trail 2 inches long. On Tuesday the slime trail was 4 inches long. How long will the slime trail be on Friday?

M   T   W   Th   F

This student used unifix cubes to start the task but did not use the data to help find the solution.

This student did not provide any notations or communicate what strategies were being used. The student does not understand the whole task.

Snail Trails

Apprentice

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Monday ⬭ ⬭ 2

Tuesday ⬭ 4

The student did not fully understand the growth by two's, but used a good strategy.

Wednesday 6

I used shells Everytime I Skipped 1,3,5,7,9

Thursday

Friday 8

The student could verbalize what numbers were not used but could not explain what they saw happening with the numbers used to solve the problem.
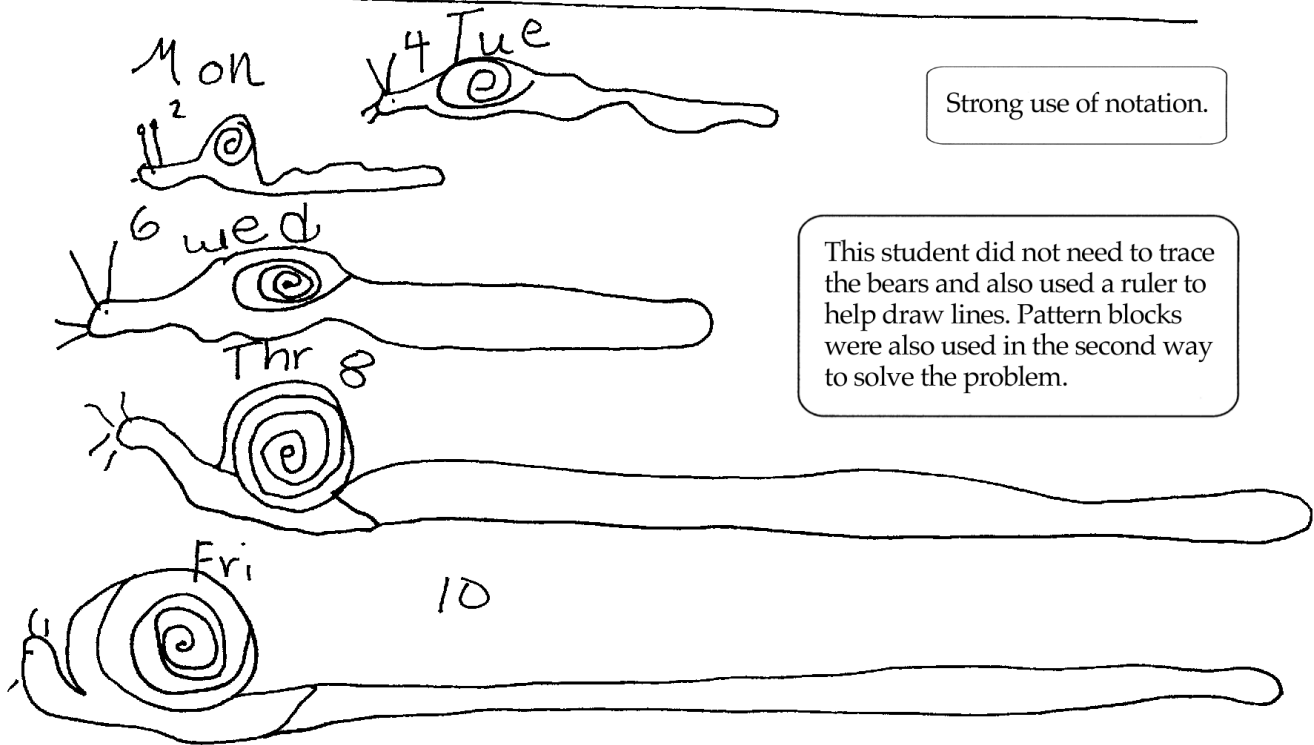
This student used real shells that were alike and looped them together to make trails.

Snail Trails

Practitioner

Snail Trails

On Monday your snail made a slime trail 2 inches long. On Tuesday the slime trail was 4 inches long. How long will the slime trail be on Friday?
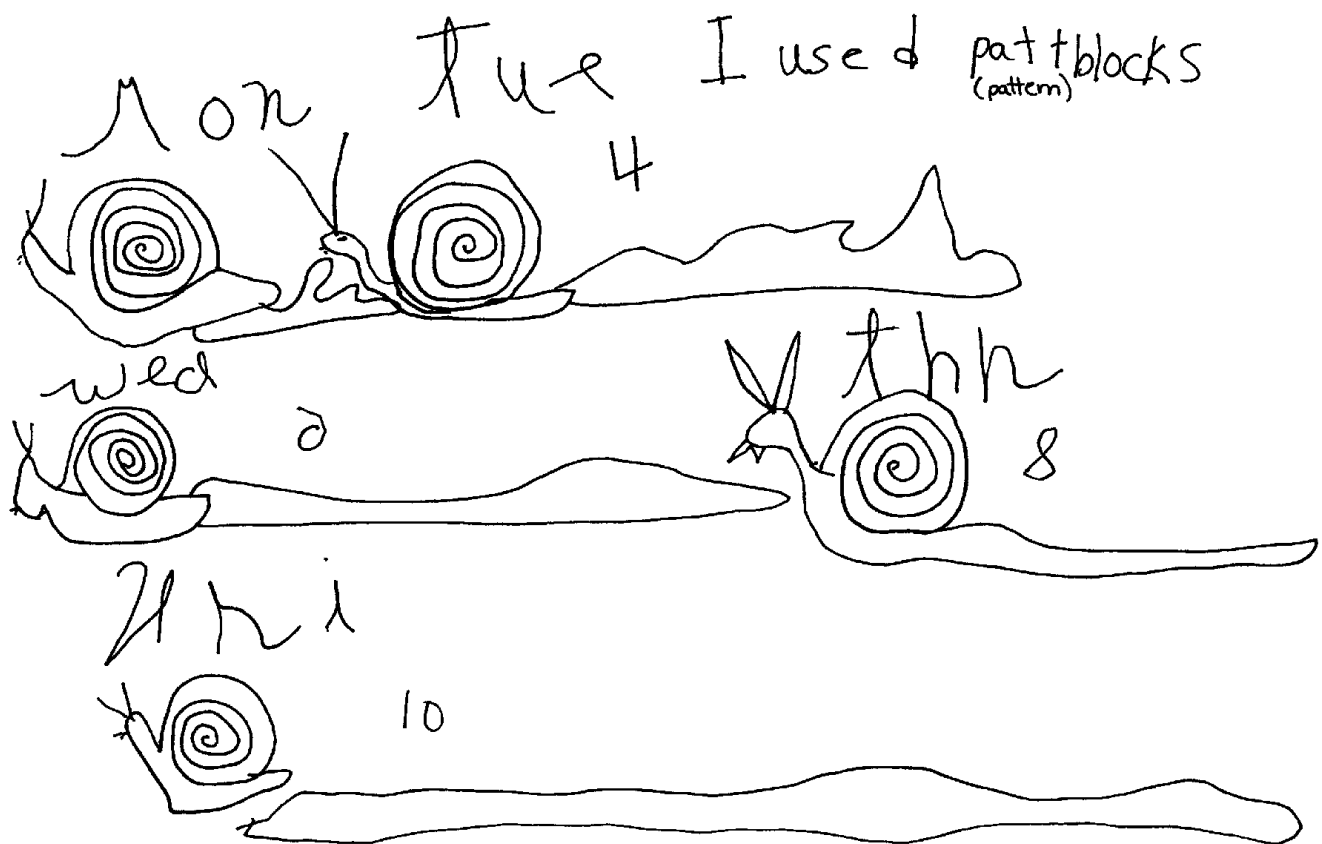
Mon
2

4 Tue

Strong use of notation.

6 wed

This student did not need to trace the bears and also used a ruler to help draw lines. Pattern blocks were also used in the second way to solve the problem.
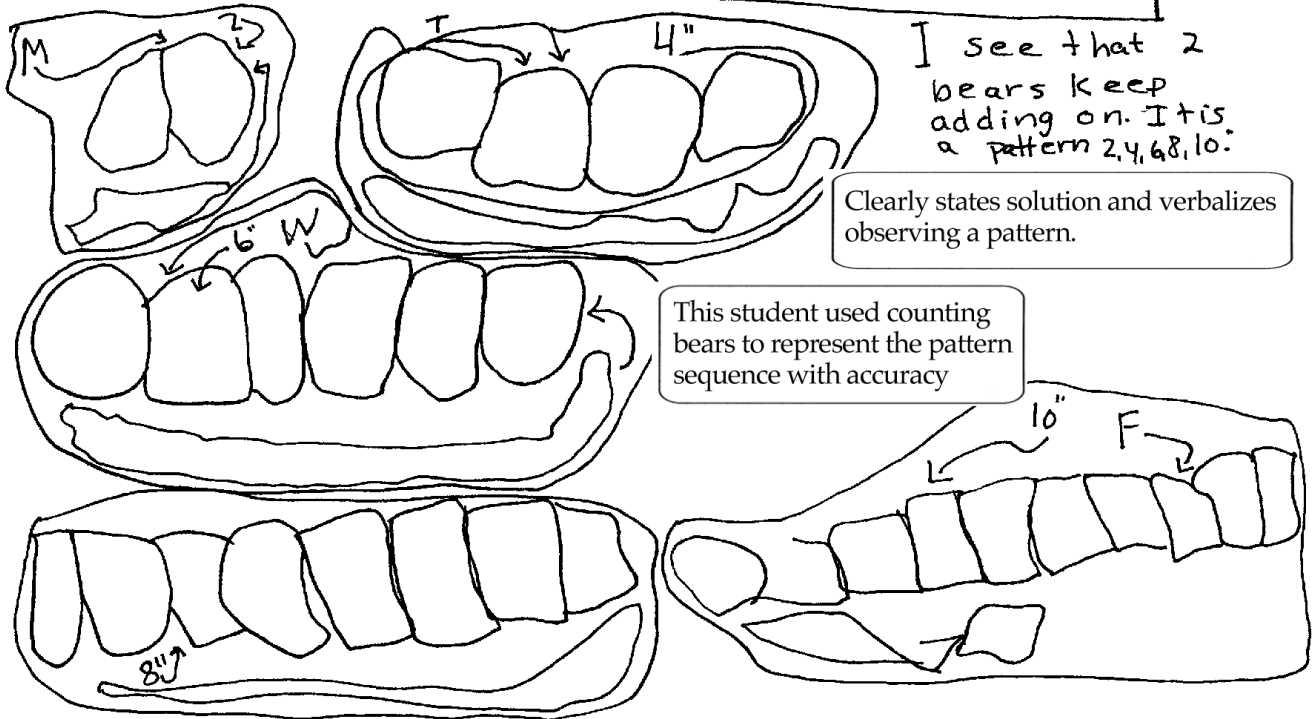
Thr 8

Fri
10

Practitioner

Mon

tue I used pattblocks (pattern)
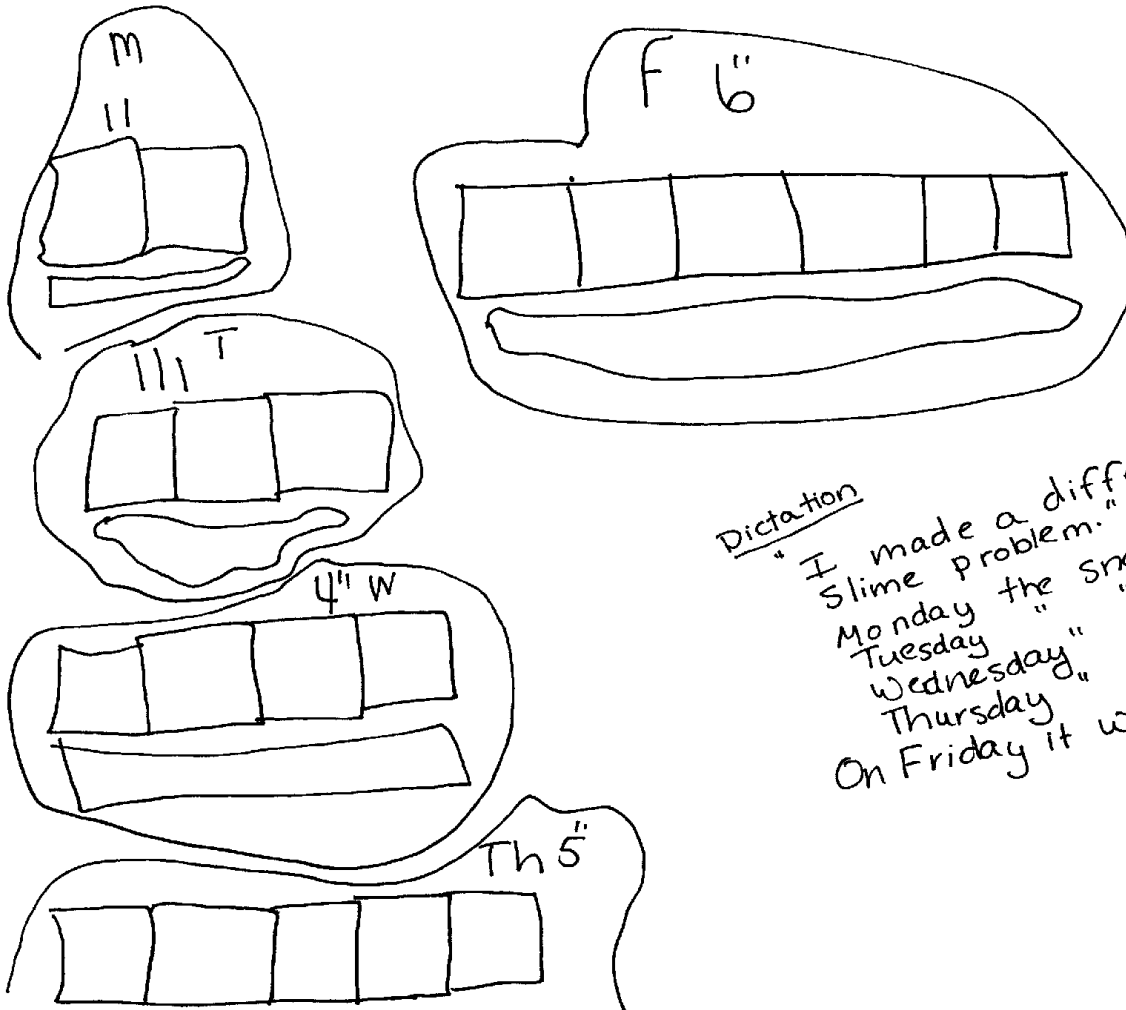4

wed
2

thh
8

Fri
10

Expert

On Monday your snail made a slime trail 2 inches long. On Tuesday the slime trail was 4 inches long. How long will the slime trail be on Friday?

M

T   4"

6" W

I see that 2 bears keep adding on. It is a pattern 2,4,6,8,10.

> Clearly states solution and verbalizes observing a pattern.

> This student used counting bears to represent the pattern sequence with accuracy

8"

10" F

Expert

M
II

F 6"

T
III I

W 4"

Th 5"

Dictation

"I made a different Slime problem."
"Monday the snail went 2."
Tuesday " " " 3"
Wednesday " " " 4"
Thursday " " " 5"
On Friday it went 6."

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