Hats and Scarves

How many different snow persons can you draw with a red or green hat and a blue or orange scarf?

Grade Levels Pre-K-2

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Context

This first grade teacher did not write the problem in words, but had a picture on chart paper of a snow person, a red and green top hat and an orange and blue scarf under the snow person. She talked to her students about the problem. The teacher had some students explain their reasoning, and other students' reasoning was recorded by the teacher.

What This Task Accomplishes

Students must keep track of the two variables. They need to think about combinations. This task shows which students are beginning to use patterns to solve problems.

What the Student Will Do

The student will begin to draw snow persons with hats and scarves. Circulate around the room to see what strategies students use to keep track of their snow persons.

Time Required for Task

40 minutes

Interdisciplinary Links

This problem can be given when the class is studying weather, snow or geography.

Teaching Tips

This task can be rewritten if your climate does not lend itself to snow persons (maybe shirts and shorts). This task can also be made more difficult by adding more colored hats and/or scarves.

Suggested Materials

- Crayons
- Pencils
- Blank paper

Possible Solutions

Four different snow persons can be made (2 hats x 2 scarves).

Benchmark Descriptors

Novice
This student does not seem to understand that the problem was to find as many different snow persons as possible. They are more interested in telling a story. They seem to think that both the hats and scarves needed to be different.

Apprentice
This student seems to understand that the hats can be the same color and different colored scarves make a different snow person. The solution is not complete, but the student seems to be using a strategy that leads some way toward a solution.

Practitioner
This student has a broad understanding of the problem. She uses a strategy that leads to a solution. The student uses effective reasoning. She starts with green hats then moves on to red hats.

Expert
This student has a deep understanding of the problem and has the ability to identify the appropriate mathematical concept, "It makes four because there are two hats and two scarves." This student used refined and complex reasoning.