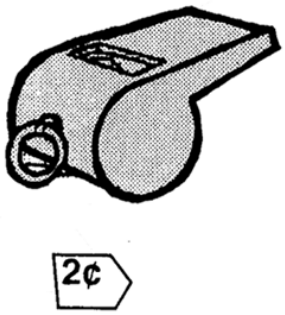
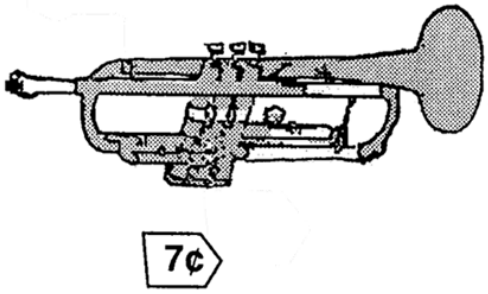
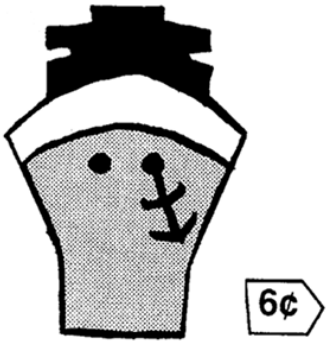
Birthday Gift Shopping

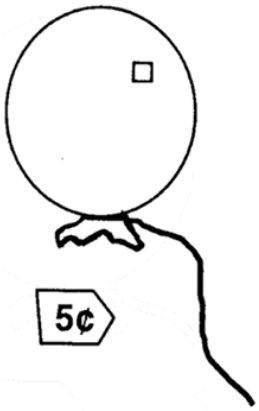
You have 13 cents to spend at the store on gifts for your friend's birthday. Show by writing and/or drawing what you would choose to buy from the product list if you spent all 13 cents. (See the product list below for items.)

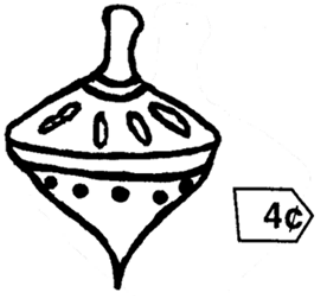
Can you show more than one way? Write number sentences that show your answer(s).











Grade Levels Pre-K-2

Birthday Gift Shopping

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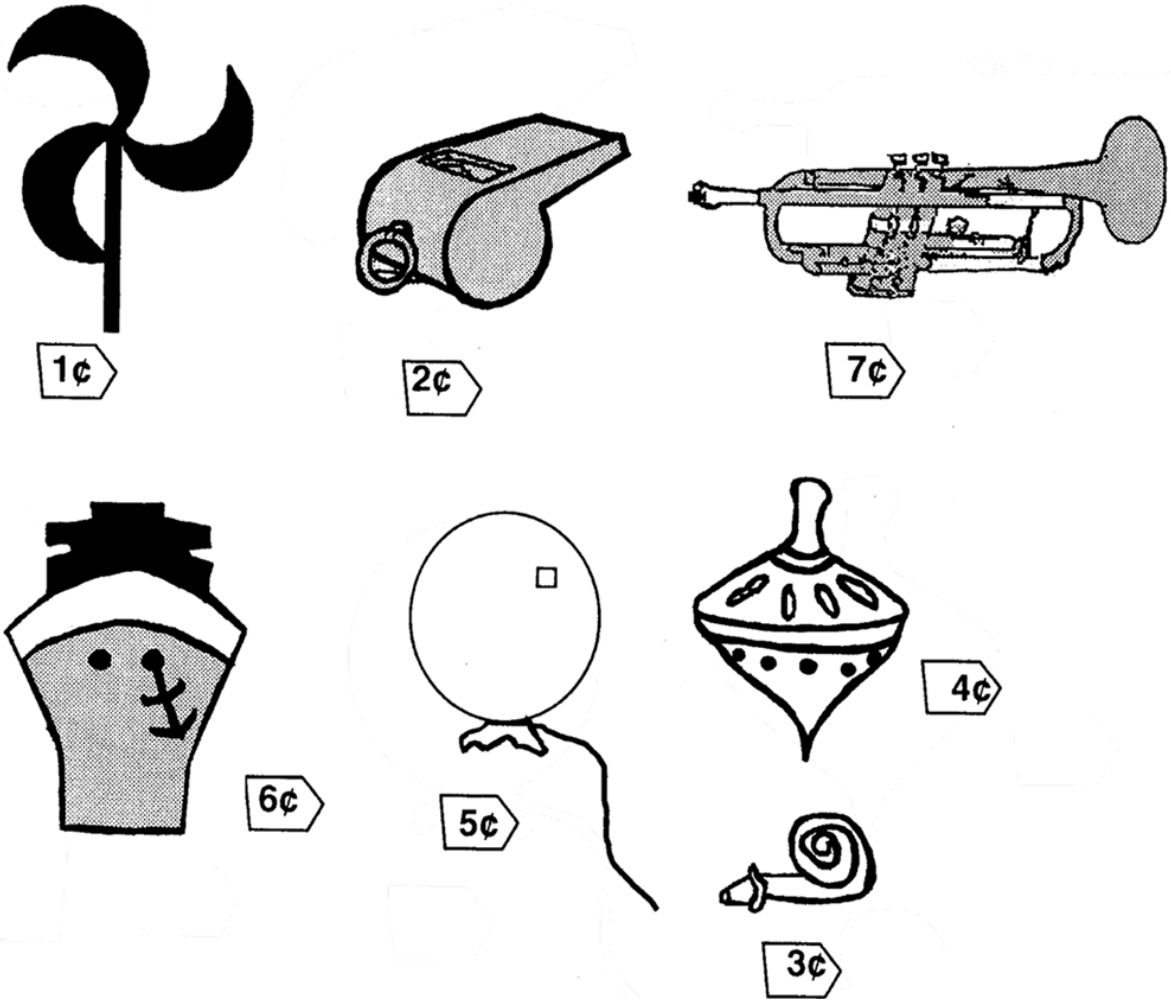


Context

This task was given to students who have experience finding the sum of several addends and who had been working with money.

What This Task Accomplishes

This task has 13 or more solutions, so it allows students to experience a task with multiple correct answers. It shows a child's ability to think mathematically as they combine numbers to equal a set answer. It also shows the accuracy of students' computation. The task also helps students to discover the commutative property of addition.

What the Student Will Do

The students will draw models of choices to demonstrate possible combinations of choices equal to 13 cents. The students will often check their choices to see if they total 13 cents. The completeness, correctness and the number of answers will determine the student level of performance.

Time Required for Task

Less than one hour

The time needed will vary due to mathematical ability, artistic talent, concern for neatness and number of choices found.

Interdisciplinary Links

This task can be given on the day a student in your class is having a birthday. It can be given during a unit on shopping, money or a holiday in which gift giving is involved.

Teaching Tips

It is important that children be given experience in solving open-ended problems in both guided and cooperative group settings before given a problem like this to work on independently for assessment purposes. Items in the task can be adapted along with their prices to support a different theme or higher level of calculation skill.

Suggested Materials

- Coins
- Manipulatives
- Drawing paper
- Photocopies of the objects that can be purchased (for the students to cut apart)

Possible Solutions

7 + 6 = 13 (a trumpet and a boat)

7 + 5 + 1 = 13 (a trumpet, a balloon and a pinwheel)

7 + 4 + 2 = 13 (a trumpet, a top and a whistle)

7 + 3 + 3 = 13 (a trumpet and two party horns)

6 + 6 + 1 = 13 (two boats and a pinwheel)

6 + 5 + 2 = 13 (a boat, a balloon and a whistle)

6 + 4 + 3 = 13 (a boat, a top and a party horn)

5 + 5 + 3 = 13 (two balloons and a party horn)

5 + 4 + 4 = 13 (a balloon and two tops)

4 + 4+ 4 + 1 = 13 (three tops and a pinwheel)

3 + 3 + 3 + 3 + 1 = 13 (three party horns and a pinwheel)

2 + 2 + 2+ 2 + 2 + 2 + 1 = 13 (6 whistles and a pinwheel)

1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 = 13 (13 pinwheels)

These are just a few of the acceptable answers. All solutions, which total 13 cents, are acceptable. It is important that students know that 6 + 7 is the same as 7 + 6.

Benchmark Descriptors

Novice
The Novice is unable to apply a strategy to this situation. A drawing and words are present, but they may be unrelated to the problem or the solution. Little or no math language is used to communicate.

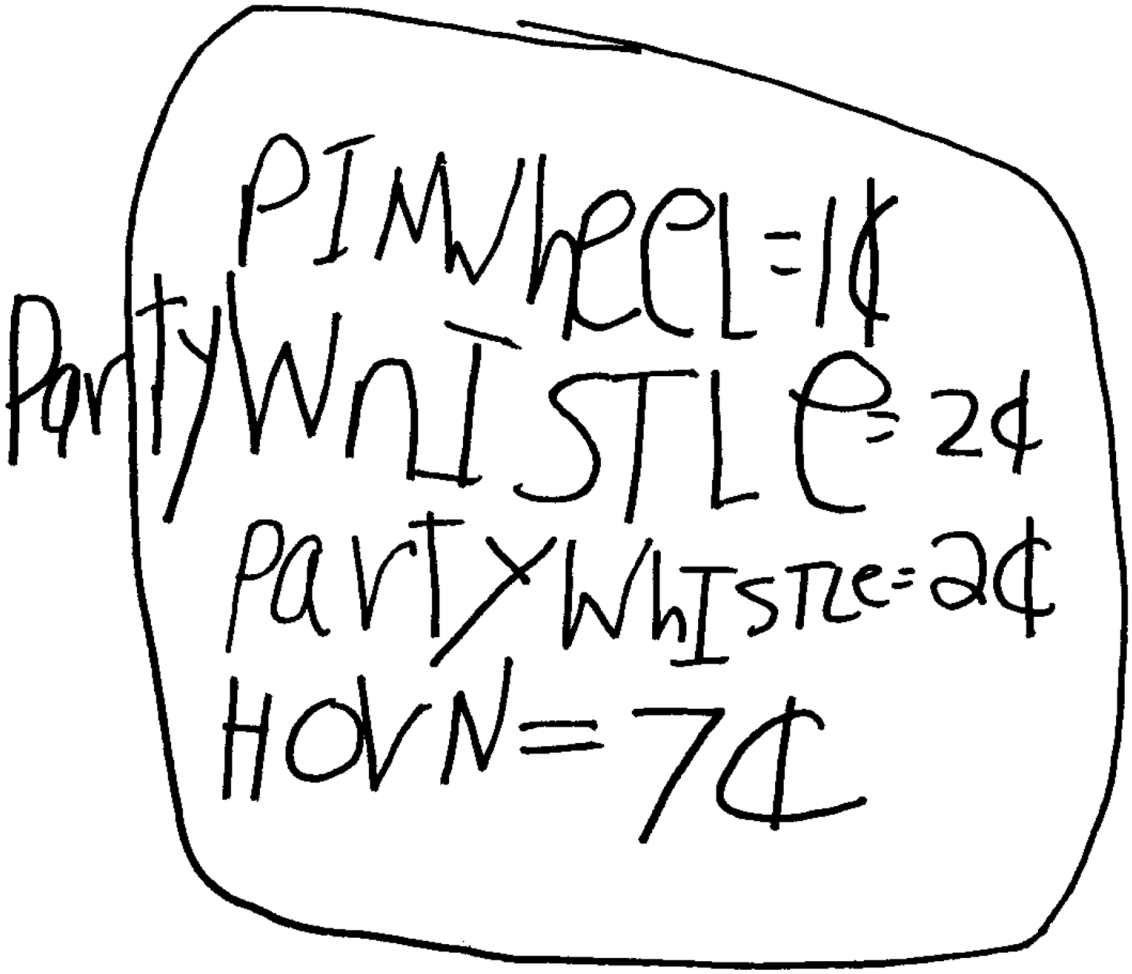
Apprentice
The Apprentice will display some understanding of the problem, but the solution contains computation errors or does not equal 13 cents. There are random and weak explanations for decisions made and there is little use of math language.

Practitioner
The Practitioner understands the problem and comes up with at least one accurate solution. Inaccurate solutions are indicated by the student if any are present. The student uses appropriate mathematical language and clearly presents the solution.

Expert
The Expert will come up with several correct solutions. The Expert will have an appropriate

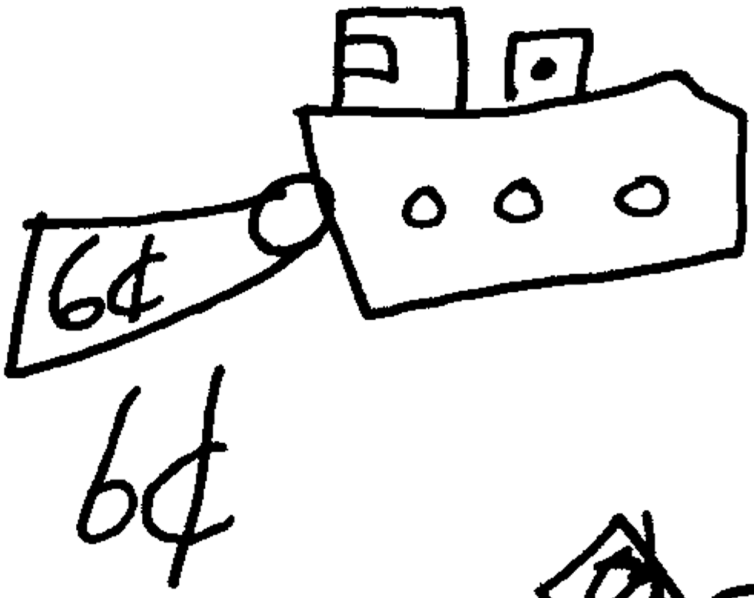
equation for each and the objects purchased will be communicated clearly. The Expert may make mathematically relevant comments such as 6 + 7 is the same as 7 + 6 or that you can buy two party horns for the same price as one boat.

Novice



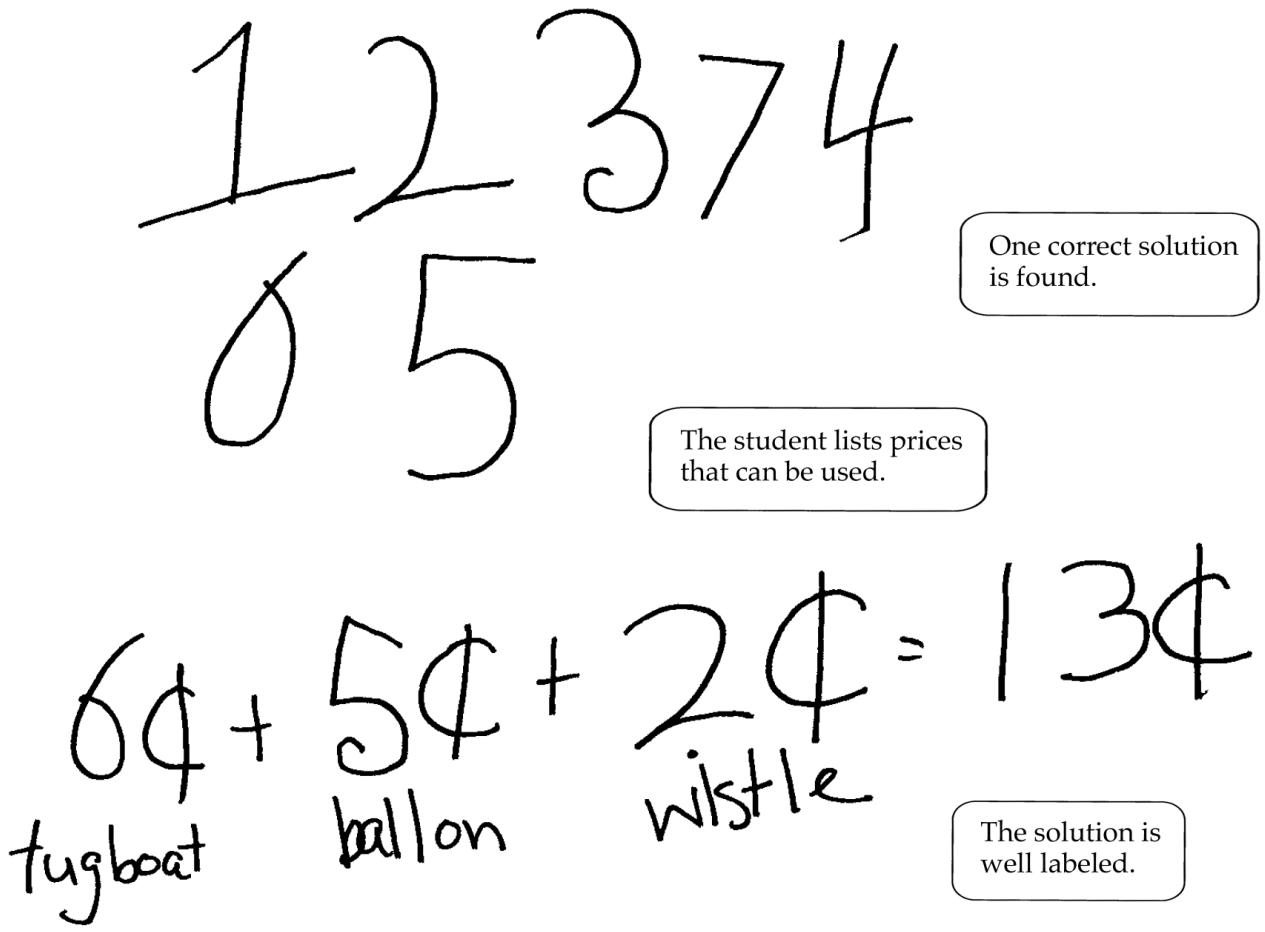
The student lists gifts, but they do not equal 13 cents.

Apprentice



The student draws a solution that equals 13 cents, but it is unclear if the student knows they equal 13 cents or if it was a coincidence.

Practitioner



Expert

Accurate math notation is used.

Here the student notices that the prices increase by a penny and show what prices may have come next.

4¢ + 7¢ + 2¢ = 13¢ 7

2¢ + 6¢ + 5¢ = 13¢

6¢ + 7¢ = 13

4¢ + 6¢ + 3¢ = 13¢

4¢ + 3¢ + 2c + 1¢ 4¢ + 2¢ = 13¢

Several correct solutions are achieved.