

Problem of the Month



Squirreling It Away



Level A:

Austin has a bag of 17 acorns. Eight squirrels came up to him. He gave each squirrel an acorn. Then five more squirrels came up to him and he gave away one acorn to each of them. How many more squirrels can he still feed?

Show how you figured it out?

How do you know you have the right answer?

Level B:

Austin likes to watch squirrels find and store acorns for the winter. Brown Squirrels can carry two acorns at a time. Gray Squirrels can carry three acorns at a time and Black Squirrels can carry five acorns at a time. There is a pile of 24 acorns.

How many trips would a Brown Squirrel need to make to store all of the acorns in the pile?

How many trips would a Gray Squirrel need to make to store all of the acorns in the pile?

How many trips would a Black Squirrel need to make to store all of the acorns in the pile?

If all three squirrels worked together to store the acorns how many trips would the squirrels need to make to store all of the acorns?

Explain your solution.

Level C:

Brown Squirrels can carry 2 acorns at a time. Gray Squirrels can carry 3 acorns at a time.
Black Squirrels can carry 5 acorns at a time.

Suppose the three squirrels all wanted to store acorns for the winter. Depending on how motivated each squirrel was they would end up with different amounts. For instance suppose the Brown Squirrel took 4 trips, the Gray Squirrel took 2 trips and the Black Squirrel took 2 trips. The Brown Squirrel would end up with 8 acorns, the Gray Squirrel would have 6 acorns and the Black Squirrel would have 10 . Between them they took every one of the 24 acorns.

How many different ways could the three Squirrels divide up the 24 acorns and not leave any left over? Each Squirrel must carry their maximum load each trip.

How do you know that you have found all of the ways?

Level D:

The Squirrels are rather smart. They realize that they can carry less than their maximum loads. How many different ways could the Squirrels divide up the 24 acorns.

Explain your solution.

Level E:

Suppose there are a different number of acorns than 24. Determine a generalization for finding how 3 squirrels can divide up any given number of acorns.

Explain your solutions.

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Primary Version

Materials: A set of acorns or cubes (1-10) for each pair of students. Paper and pencil, crayons, or markers to use, write or draw.

Discussion on the rug: "Here are some acorns. What animal likes to eat acorns?" (Teacher continues to ask children to name animals who like acorns). (Teacher holds five acorns in her hand) Suppose I have 5 acorns and one squirrel came up to me and I gave it an acorn, how many would I have left?" The teacher encourages the students to find answers for different amounts of acorns and ask the students to explain how they know.

In small groups: (Each group has a set of acorns or cubes) (Teacher asks the following questions. Go on to the next question if students have success)

1. You have 10 acorns. Four squirrels come to you. You give each squirrel one acorn. How many acorns did you give? How many are left? Now two more squirrels come to you and you give them each an acorn. How many did you give now? How many are left? How many more squirrels can you feed?
2. (Select a set of numbers that is reasonable for your class) You have ___ acorns. ___ squirrels come to you. You give the squirrel each one acorn. Now ___ more squirrels come to you and you give them each an acorn. How many more squirrels can you feed? (At the end of the investigation, have students

either draw a picture or dictate to you to represent their solution).