

APPLE MATH

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Primary grades often include a fall unit on such topics as apples, plants, or harvest foods. The following activity combines math skills and science processes in an "appealing" fashion as students observe and measure changes in apples caused by dehydration. Students first estimate and then calculate weight lost through dehydration. They predict, observe and record physical changes in the process. Finally, writing about the activity supports and verifies students' learning.

The activity will take two class sessions of approximately 30 to 40 minutes each. One lesson will be to weigh and record the apples before drying. The second lesson will follow whenever the dehydration has been completed, usually within two weeks.

You will need one apple for every two children, a balance scale with weights, several safety knives (these are often sold around pumpkin carving time), recording charts, and a sunny window.

Math Skills: weighing, estimating, subtracting.

Science Processes: observing, comparing, estimating, recording data.

Key question: How much weight will the apples lose when they are dehydrated? What other changes can we observe?

First Lesson

Discuss the composition of an apple. Is it solid? Does it contain moisture? What changes occur when an apple is cut and the surface exposed to air? Ask the children to predict what will happen. Encourage vocabulary development by introducing such words as evaporation, shrinkage and prediction. Record the predictions on a chart.

Now prepare the apples. The children will work in pairs. Slice an apple horizontally into four or five slices. Record the circumference of the largest slice by tracing around it on the chart. Record the date. Put a string through the apple slices. (You will use the string to hang the apples for drying.) Weigh the apple in a balance scale. If 1 gram units (centimeter cubes) are used the children can have the opportunity to practice counting skills by first grouping the gram cubes in piles of

ten and then counting the total. Record the weight. Hang the apples in a sunny window.

Second Lesson

Observe the dehydrated apples. Do they look like the slices we had in the first lesson? How are they different? Record the observations below the children's earlier predictions. How much weight do you think they lost? Estimates may be made orally or written on the board.

Weigh the dehydrated apples. Date and record the weight. Subtract to find out how much weight was lost. Trace the circumference of the largest slice. Compare it with the original tracing.

Discussion

After the children have recorded the findings, a class discussion can focus on any of the questions listed below. For each one, encourage children to listen to each other's ideas.

- Did all apples lose the same amount of weight?
- What happened to the weight?
- Why did the apples weigh less?
- What happened to the size of the largest slice?
- When you eat apples are you eating mostly solid or liquid?
- Why do we dehydrate food?

It is important that the children verbalize mathematics and science processes. Each pair of children should write its own account of the two lessons, using the data from its own experiment.

Editor's note: Kathryn Burdette has extended and expanded apple activities from AIMS and other sources in creating the above article. She notes that Fall into Math and Science (1987), published by the AIMS Education Foundation, is an excellent source for activities which integrate math and science.
