



SCIENCE

TITLE: The Effect of Moisture on Popcorn

SUBJECT: Science

GRADE LEVEL: 5-8

MATERIAL(S): 3 cups of popcorn kernels (from same source), hot air popper, large bowl, 2 quart measuring cup, 2 glass jars with lids, 3 large paper grocery bags, paper towel, ruler

OBJECTIVE(S): To measure the effect of moisture in kernels. To achieve the utmost in popability, the moisture content of popcorn should be from 13 percent to 14.5 percent; 13.5 percent is considered ideal. Moisture content over or under these percentages greatly reduces popability. Have students predict what will happen when popcorn has too much or too little moisture.

OVERVIEW:

1. Draw out a data chart to record final results. Your control variables will be your *Sample A*, *Sample B*, *Sample C*. Results will include *Volume*, *Number of Unpopped Kernels* and *Popped Kernels Size*.
2. Divide the popcorn into three 1-cup samples, by putting one cup into each of the two glass jars and labeling the jars A and B. Measure one cup onto paper towel and label the towel C.
3. Close the lid tightly on jar A.
4. Add 1/8 cup of water to jar B, and close lid tightly.
5. Spread Sample C kernels around evenly on the paper towel (variation could be to place kernels on baking sheet in 200 degree oven for 90 minutes to dry out).
6. Leave all samples in a cool, dry place for 7 days, turning the glass jars over once a day. Record any visible changes in the kernels inside the jars and on the towel.
7. After 7 days, begin experiment.
8. Preheat air popper for one minute before adding the popcorn.
9. Pour 1/2 cup of Sample A into popper and begin popping. Catch popcorn in the large bowl.
10. Measure the size of one popped kernel, in inches, and record using the following scale:
Large = more than 3/4"
Medium = 1/2" to 3/4"
Small = less than 1/2"
11. Measure all the resulting popped corn into one grocery bag (label bag A) Repeat this with 1/2 cup of Sample A kernels. Record results on data chart.
12. Repeat steps 9 through 11 with Sample B and Sample C.

Questions:

- 1) Is there a difference in look and texture between popped samples?
- 2) Which sample popped the lowest volume?
- 3) Which sample popped the highest volume?
- 4) How does moisture level of unpopped kernels affect popping volume and texture of popped corn?