



## SCIENCE

**TITLE:** Comparing Volumes

**SUBJECT:** Science

**GRADE LEVEL:** 5-8

**MATERIAL(S):** 1 cup of popcorn,  $\frac{1}{2}$  cup of liquid vegetable oil, 2 quart measuring cup, tablespoon, ruler, medium saucepan with lid or electric popper

**OBJECTIVE(S):** Volume comparison test for various ratios of oil to kernels

### **OVERVIEW:**

1. Draw out a data chart to record final results. Your control variables are *1T. Oil:  $\frac{1}{2}$  C. Popcorn and 4T. Oil:  $\frac{1}{2}$  C. Popcorn*. Your results will include *Volume, Number of Unpopped Kernels, and Popped Kernel Size*.
2. Turn stove on high, or plug in electric popper.
3. Pour 1 tablespoon of oil into pan or popper, drop 2 kernels of popcorn into oil and cover with lid. After the two kernels begin spinning, pour level one-half cup of popcorn into oil and cover with lid. If you're using a saucepan, shake it well until popcorn has stopped popping then remove from heat.
4. Measure the amount of popcorn and record it.
5. Count the number of unpopped kernels and record them.
6. Measure the size of one popped kernel, in inches, and record using the following scale:  
*Large = more than  $\frac{3}{4}$ "*  
*Medium =  $\frac{1}{2}$ " to  $\frac{3}{4}$ "*  
*Small = less than  $\frac{1}{2}$ "*
7. Repeat steps 2-6 using 4 tablespoons of oil and  $\frac{1}{2}$  cup of popcorn. Record all your information and compare to above.

### **Questions:**

- 1) Which amount of oil produced the most popcorn?
- 2) Which amount of oil produced fewer unpopped kernels?
- 3) Which amount of oil produced largest popcorn pieces?
- 4) Why does the amount of oil affect the way popcorn pops?