

Name:

## In a Pickle

### How did we keep food from rotting before we had refrigerators?

Before we had refrigerators and freezers, families had to find ways to preserve foods to keep through the winter. People tried lots of ways of keeping foods fresh, but all of them were in an attempt to stop microorganisms (food decomposers) like yeasts, bacteria, and molds from growing. This meant keeping foods protected from becoming too warm or wet. Drying or dehydrating meat or vegetables worked well because microorganisms need moisture to live and reproduce. Drying foods for safety is easy if you live in a dry place, but what if you live in a warm, rainy place? Keeping food cool (such as in a cool root cellar) kept foods safe for a short time, but many cultures discovered that pickling is a way great way to preserve food for longer periods of time.

There are many ways to make pickles. The goal is always to create an environment where microorganisms can't live. Most microorganisms that can make you sick can't live in very acidic environments. Household vinegar (used for cooking or cleaning) is usually at least 5% acidity. That makes vinegar too acidic for dangerous microorganisms to live so it's perfect for pickling! Be careful, too much vinegar can make pickles too tart, tough or shriveled. But too little vinegar might not kill the microorganisms that could make you sick. Let's find out how much vinegar you need for perfect pickles!

<b>Total Tablespoons of Solution Needed (A)</b>	<b>Fraction vinegar (B)</b>	<b>Fraction Water (C) (1-B = C)</b>	<b>Tablespoons vinegar needed (AxB)</b>	<b>Tablespoons water needed (AxC)</b>
32 Tablespoons (2 cups)	1/2			
32 Tablespoons (2 cups)	1/4			
32 Tablespoons (2 cups)	1/8			
32 Tablespoons (2 cups)	1/16			
32 Tablespoons (2 cups)	1/32			