Red Cabbage Challenge!

Challenge: Create a Red Cabbage Indicator. Then upload your pictures to:
https://surreyscouts.smugmug.com/upload/rJCRRm/science

Materials & Equipment

- 1 whole red cabbage
- water
- a knife
- a grater
- 2 large bowls measuring cups and spoons
- a slotted spoon
- a strainer
- a very clean glass jar
- a small white dish

Procedure

1. Cut the cabbage into quarters. Grate it section by section into a large bowl. Add between 1 and 2 cups water, enough to cover the cabbage. Let the cabbage stand in the water, stirring occasionally so that all the cabbage is moistened

2. When the water is a strong red, remove as much of the grated cabbage as you can with the slotted spoon and save it in your second bowl. Pour the water solution through the strainer into the glass jar. Add the strained cabbage to the rest of the cabbage you have saved.

3. Put about a tablespoon of your cabbage-juice indicator into a small white dish. Test for an acid by adding a substance you know to be an acid to the cabbage juice. Notice the colour it becomes in acid. Now use a fresh sample of cabbage juice and add a substance you know to be a base (baking soda). Again notice the colour change. Pretty gorgeous! Now add acid to the base-and-indicator mixture to reverse the colour change. What happens when you add base to the indicator showing the acid colour? An acid and a base will react with each other to neutralize each other. The original colour of the red cabbage is pretty close to neutral. Now you can test some foods to see which category they fall into. Here is a list to get you started:

   - Cooking water from boiled vegetables, including beans, peas, onions, carrots, turnips, celery, asparagus, etc.
   - Liquids from canned vegetables and fruits
   - Cream of tartar
   - Soda pop
   - Egg whites
   - Fruit juices
   - Tomatoes
   - Cottage cheese

Or

Eat the cabbage until you tongue turns purple.

Then put some lemon juice on it. What colour does it turn?