



## **Science Adventures: Take the Adventure Home**

*Fun hands-on science activities to engage your child in discovery learning  
Developed by Science Adventures' Andy the Science Wiz*

### ***Acids and Bases***

#### **What you will need:**

A Blender  
A Strainer  
A red cabbage  
An empty water bottle  
Several portion cups  
Household items to test.

People have long been aware of the existence of different groups of chemical compounds. Some were sour-tasting, able to dissolve certain rocks or metals. These compounds are today known as acids. Other chemicals tasted bitter and dissolved oils and felt soapy. These were known as bases. Some chemicals, such as water, appeared to possess neither quality. Early humans divided chemicals up into "sour" and "bitter" (acids and bases) primarily by taste, but clearly taste is a highly dangerous way to test chemicals. You should never put any chemicals into your mouth. To help identify acids and bases a lot more safely, chemists discovered that some compounds known as indicators change color when in the presence of an acid or a base. One such compound is found in red cabbage and once extracted can be used to test for acids and bases around the home.

#### **What to do:**

To extract the indicator cut  $\frac{1}{2}$  the cabbage into small wedges. Place in the blender until half full. Add one cup of water and pulse blender until you have made a cabbage smoothie or until the cabbage is shredded and the water has turned purple. Pour  $\frac{3}{4}$  of the liquid through the strainer and into your empty water bottle. Chug the remainder for a vitamin boost!!

The liquid you have collected is an acid base indicator if kept sealed in the fridge it will remain fresh for up to two weeks.

#### **Cabbage juice indicator will turn:**

Red = Acid

Blue-Green = Base (the stronger the base the greener the color)

Stay Purple = Neutral



Using portion cups you can spoon the indicator into liquids and powders mixed with water from around the home. White vinegar will turn the cabbage juice red because it is an acid. A solution of baking soda will turn the cabbage juice blue because it is a base.

Things to try:

Clear Windex

Sprite

Laundry detergent

Water from the tap (indicator should stay purple)

Ammonia (with adult supervision)

Lemon juice

All liquids should be washed down the drain and flushed with plenty of water.

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*About Andy the Science Wiz*

Andy Allan, scientist and educator with Science Adventures™, is passionate about inspiring a world of learners through hands-on science fun. Through the Science Adventures programs, and experiments like these, Andy offers children hands-on interactions with science that keeping children on the cutting edge of discovery.

*About Science Adventures*

Science Adventures children's Camps take science education out of the classroom to spark an interest in the world of science and discovery. The 2009 summer camps, now open for enrollment, incorporate hands-on, interactive lessons designed to offer children new ways to learn through exploration, teamwork and engaging projects. Science Adventures programs are offered to students ages 5 to 12 years. For more information visit [www.scienceadventures.com](http://www.scienceadventures.com).

