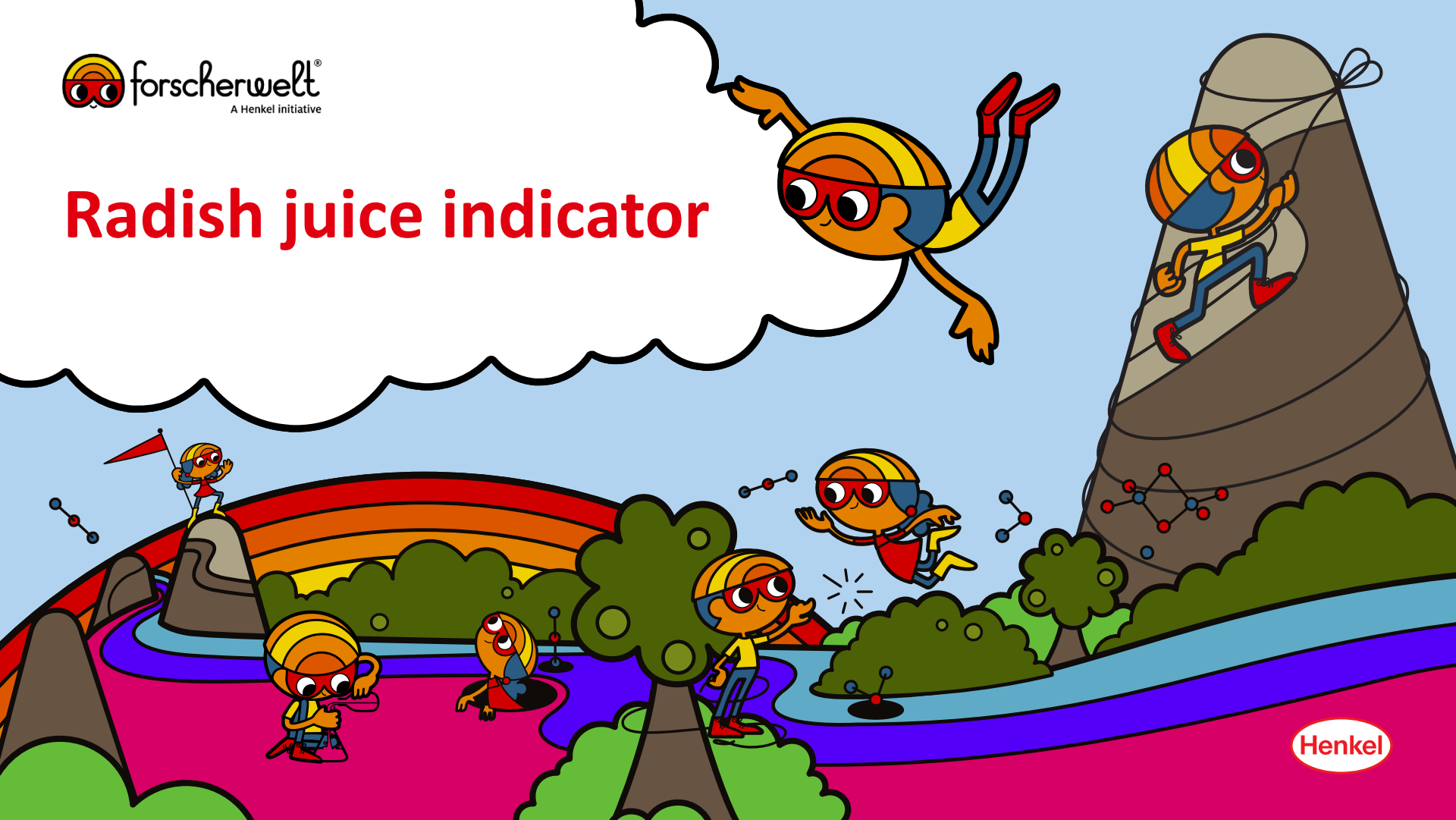


# Radish juice indicator



# Make an indicator yourself

## Test for acids with radish juice

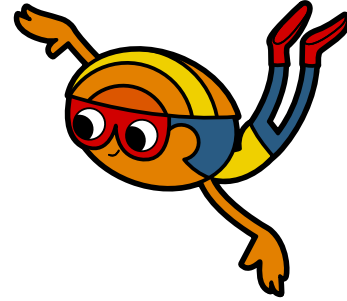
### Research question

In the laboratory, chemists use ready-made test sticks (pH indicators) that can change color to determine whether a liquid is acidic. Unfortunately, we don't have anything like that at home. But we can make our own "test tool": with radish juice. **How does redish juice change its color when it comes into contact with liquids of different acidities?**

### You will need:

- Approx. 140 g radish
- Kettle
- Glass bowl
- Sieve
- Scales
- Measuring cup
- Cutting board and knife
- Empty jam jars
- Tap water
- "Test liquids": detergent, citric acid solution\*, aqueous solution of baking soda\*, distilled water\*)

\*from the supermarket



# How to do it part 1: Prepare the indicator

Step by step



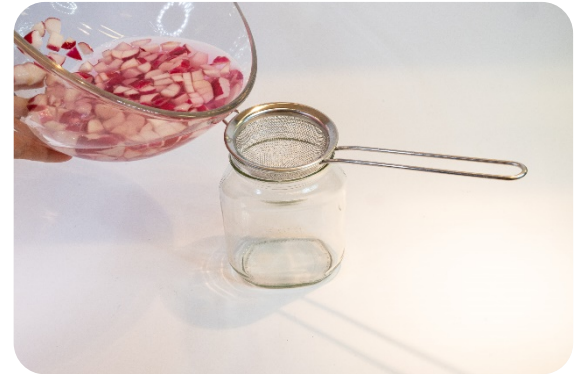
## Cut the radishes

Weigh 140 g of radishes and carefully chop them with a kitchen knife.



## Infuse in water

Pour as much hot water (200 ml) from the faucet as possible over the radishes and let everything steep for about 15 minutes.



## Bottle the radish juice

Pour the radish juice through a sieve into a glass vessel (e.g., empty jam jar).

# How to do it part 2: Test some liquids

## Step by step

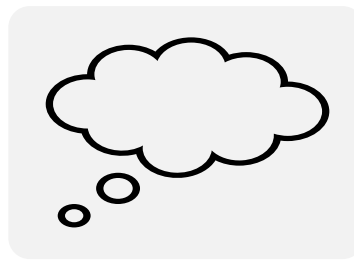


**1. Place a piece of paper in front of each glass and number** the pieces of paper with the numbers 1-5. Put together liquids that you can examine:

1. 50 mL tap water + 50 mL citric acid
2. 90 mL tap water + 10 mL washing-up liquid
3. 100 mL distilled water
4. 100 mL tap water
5. 100 mL tap water + 1 teaspoon baking soda
6. Fill the liquids into the five glasses one after the other.



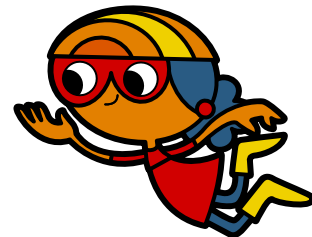
**2. Add a tablespoon full of** indicator to the five liquids. Note the order: the most acidic liquid is citric acid (red). Then the acidity decreases from left to right. Note which liquid leads to which color.



**4. Examine any other fluids** you have at home. For example, you can examine your favorite drinks. What color does the red cabbage indicator get with it?

# Additional information

For parents and teachers



## Context

Chemists often use pH indicator paper in the laboratory as an aid to determine the pH value of liquids. This paper is impregnated with chemicals that change color depending on the pH value. This aid is not available at home. However, natural pH-indicators can be used, which also change their color depending on the pH-value. One such indicator is redish juice.

## Redish juice indicator

Redish contains a natural dye. This dye reacts to changes in pH value and changes its color in the process. In an acidic environment it is orange-red in color, in neutral liquids a pale violet and in alkaline yellowish. These gradations can be shown with the test liquids mentioned in the experiment.

