

## Essential Questions:

How does the ability to taste PTC paper correlate with your preference of taste for different vegetables in the Brassica family?

How does your correlation compare with that of your classmates?

How does your correlation compare with that of your parents?

## Objective

Students will be able to state whether or not they can taste PTC paper. Students will be able to rate their taste preference on a scale and record their results. Students will be able to compare their results with their classmates and analyze the data looking for trends.

## Engage (5 min)

- Ask students to think about foods that they like and don't like to eat. They can turn and talk to a neighbor to compare their likes and dislikes.
- Ask students to hypothesize where their likes and dislikes come from.

## Explore (15 min)

- Provide a means for cleansing their palate. You can do one of two things:
  - Pass out paper cups to fill with water.
  - Pass out hard candies, like peppermints or butterscotch, that students can lick between tastes.

**Grade Level:** 5

**Subject Area:** Science

**Materials:**

PTC strips

Cups of water and paper towels or hard candy for cleansing palates

Various samples of vegetables from the Brassica family. Choose at least three from these options: cauliflower, broccoli, Brussels sprouts, kohlrabi, turnips, collards, daikon, rapini, napa cabbage or bok choy.

Data Recording Sheet

Class Data Recording Scales (poster size or digital version)

**Standards:**

5.L.3.2 Give examples of likenesses that are inherited and some that are not.

**Collaborators:**

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- Arrange for students to have samples of 3 different vegetables from the Brassica family (see materials list).
- Students should taste each vegetable and rate its taste on the scale provided, cleansing their palate between each vegetable tasting using water or hard candy.
- Pass out a control strip (Strip A) for each student.
- Have the students put the control strip of paper on their tongue. Instruct them to write down what it tastes like on the recording sheet and rate the taste on the scale.
- Pass out a PTC strip (Strip B) for each student.
- Have the students put the PTC strip of paper on their tongue. Instruct them to write down what it tastes like on the recording sheet and rate the taste on the scale.
- Ask students how many of them tasted a strong difference between strip A and strip B. Ask, how many students could not taste strip B? Explain that strip B contains a chemical that some people can taste but others cannot. (Note: Being able to taste PTC is a dominant trait. About  $\frac{3}{4}$  of the class should be able to taste it while  $\frac{1}{4}$  will not.) Ask the “PTC tasters” what it tasted like. They should all say bitter or “gross.”
- Pass out green stickers to the students who were tasters and red dots to the students who were non-tasters. Have students use their stickers to add their results to the class scales.
- At the end of this activity you should have a completed scale for each vegetable tested with all of the class responses. (Note: This will allow you to see the visual comparison of PTC tasters versus non-tasters in reference to their vegetable likes.)

## Explain (15 min)

- What do you notice about the data?
- Do you see any similarities or differences between the tasters versus non-tasters?

- This is an opportunity for students to analyze and draw conclusions about the collected data.

## Elaborate (Homework: Parent Interview)

- Give students a sandwich bag with a sample of each vegetable they tasted as well as a PTC strip in a separate bag.
- Students will select a parent to test the taste of the PTC strip and vegetables and rate them on the scale provided on the student handout.

## Evaluate (10 min)

Students return with their parent data.

- What do you notice about the data?
- Do you see any similarities or differences between student and parent?
- This is an opportunity for students to analyze and draw conclusions about their collected data. Ultimately, this will lead into a discussion on how taste is a trait that is inherited from parents.

## Extension/Curriculum Ideas

You can record class data on a large poster using colored dots. Or, if you want to integrate some technology, you could try using a tool such as Mentimeter that allows you to collect large amounts of data. Another digital option would be to create the class scale in Google Drawings or SmartNotebook.

## Your Notes & Ideas

# Data Recording Sheet

Student	Sample	<i>Check 1 for each sample</i>			
		Not Bitter	Slightly Bitter	Very Bitter	No Taste