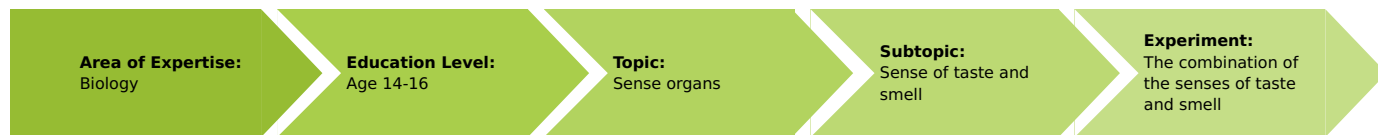


The combination of the senses of taste and smell

(Item No.: P8013500)

Curricular Relevance



Difficulty



Easy

Preparation Time



10 Minutes

Execution Time



10 Minutes

Recommended Group Size



2 Students

Additional Requirements:

- Apple
- Pear
- Cucumber
- Boiled potato

Experiment Variations:

Keywords:

Sensation of taste, Sensation

Task and equipment

Information for teachers

Additional Information

The sense of taste is a complex sensation, caused by a combination of smell, taste as well as tactile sense, temperature and pain.

The sensation, which is perceived as taste, is in most cases caused by flavours. These pass our mouth while chewing the food, pass our throat and get to the nasal cavity, where the flavour is perceived by the olfactory sense. While one has a cold, the nasal mucosa is swollen and smells are less noticeable. One can only taste salty, sweet, sour, bitter and umami.

What we call hot is actually a pain, which is triggered by substances such as capsaicinoids which are contained - among other - in Chillis. Other substances, such as menthol or eucalyptus, initiate a stimuli from the cold receptors in the tongue, these substances are often perceived as cooling.

Hints on Set-up and Action

- It is important to ensure that the used Petri dishes, knife and spoon spatula are completely clean. If necessary, the material has to be cleaned again or it has to be replaced.
- As an alternative to freshly prepared pulp one can use pureed baby food.

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Task and equipment

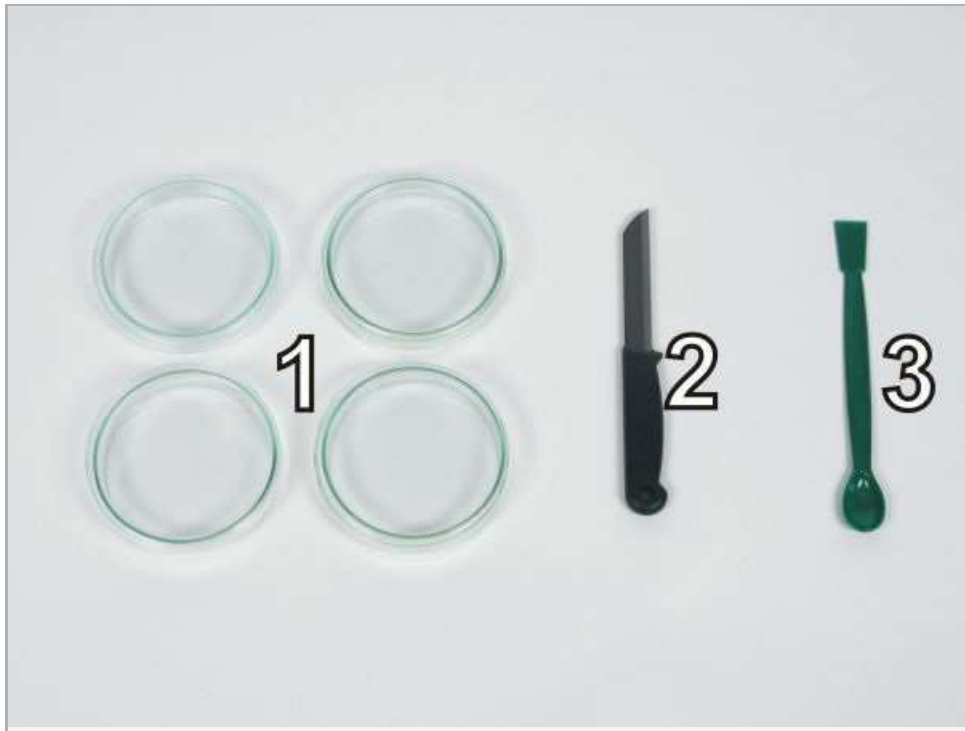
Task

Why do nearly all foods taste exactly the same and without flavour, when we have a cold?

Find out, how the experiences of taste come about.



Equipment



Position No.	Material	Order No.	Quantity
1	Petri dish, d 100 mm	64705-00	4
2	Knife, stainless	33476-00	1
3	Spoon,w.spatula end,18 cm,plastic	38833-00	1
Additional material			
	Apple		
	Pear		
	Cucumber		
	Boiled potato		

Set-up and procedure

Peel an apple, remove the core and dice finely. Crush the dices with a spoon and collect the pulp in a Petri dish of 100 mm diameter (Fig. 1-2).

Do the same with a pear, a boiled potato and a cucumber (Fig. 3).



Fig. 1



Fig. 2

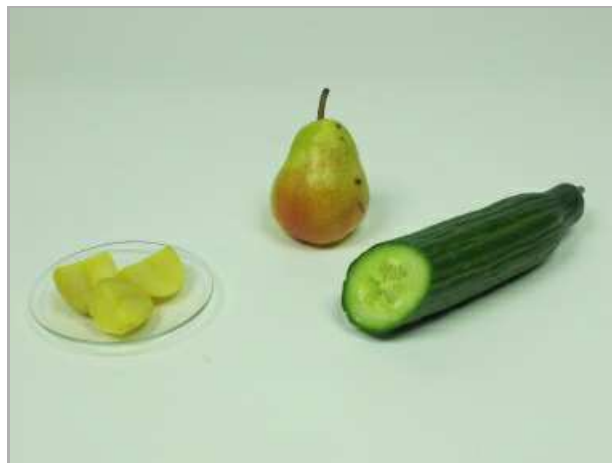


Fig. 3

Get a school friend to blindfold you and ask him to put some of the fruit and vegetable pulp – not always in the same sequence – in your mouth. Say what the taste is each time he puts some pulp in your mouth.



Fig. 4

Repeat the experiment, but this time firmly holding your nose and breathing only through the mouth. Write down your observations in the report.

Repeat the experiment again, but this time with your nose open once more. Write down your observations in the report.

Report: The combination of the senses of taste and smell

Result - Observations

Write down your observations. Can you distinguish between the different fruit and vegetable pulps with open nose and your nose held tight in the same way? What else do you notice?

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Evaluation - Question 1

If your nose is held tight no air can move through the nasal space. If there is no movement of air, it is not possible for you to smell anything. What is it that you cannot perceive while you hold your nose?

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Evaluation - Question 2

How does the "sense of taste" come about?

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Evaluation - Question 3

When you have a cold your nose is more or less stopped up owing to the swelling of the mucous linings. How can the question in the heading be answered?

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