**ACTIVITY: Colour and taste**

**Activity idea**

In this activity, students investigate the belief held by scientists that colour has an influence on the taste of food. The sense of sight or vision is thought to interact with the senses of taste and smell or odour.

By the end of this activity, students should be able to:

* appreciate that the sense of sight is linked to our perception of flavour
* realise that colour gives us (and many other members of the animal kingdom) clues as to what we can expect a food to taste like
* have an awareness that our brain links the colour intensity of food to the intensity of its flavour.

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**Introduction/background**

The use of eyesight to sense food is more than just colour perception. Research shows that we associate specific colour perception of food with certain flavours. The stronger the flavour/colour link, the greater the impact of food colour.

We have difficulty correctly identifying foods that are either miscoloured or uncoloured. The reason for this is the impact of the colour of food and drink on taste, flavour and smell perception.

The influence of colour on taste is hard to determine because tastes like bitter and sweet are not associated with a particular colour. As colour levels increase, taste and intensity of flavour do also.

The aim of this activity is to see if there is any connection between the colour of a foodstuff and its taste, and the depth of colour and intensity of taste. Decide whether each student or only 1 student per group takes part.

***Safety rules***

* Be aware of students with food allergies (especially when using food colourings).
* Remind students to taste only substances they are asked to taste.
* Don’t share cups, food or drinks.

**What you need**

* Colourless, fruit-flavoured drink powder made up using manufacturer’s instructions – it’s important students don’t know that the same, colourless, flavoured drink base is used in all of the coloured samples they taste, as this would influence their perception of the flavour and its intensity
* Food colourings (red, blue, orange, green, black, brown) – if some of these are unavailable, you could experiment by mixing your own using a selection of basic food colourings
* A number of small containers (‘shot’ glass size)
* A supply of water
* A measuring cylinder or measuring cup
* Copies of [taste results](#tasting)

**What to do**

***Relationship between colour and flavour***

1. Before the activity, have the drinks ready made using the uncoloured, flavoured drink mix with 5 drops of each of the different food colourings added to separate samples.
2. Ask participants take a sip of each drink in turn and decide its flavour and fill in the first chart on the [taste results](#tasting). (It is important students rinse their mouths out with plain water between each different drink sample.)
3. Discuss the results.

***Relationship between intensity of colour and intensity of flavour***

1. Before the activity, using the same flavoured, colourless drink, make up a series of 4 containers (each holding 250ml which should be enough for a small sample for each student) of coloured drink using only one type of food colouring (for example, red). Label the 4 containers A, B, C and D. Into the first container, add 1 drop of food colouring, add 2 drops to the next container, then 4 drops to the next and 10 drops to the last container. Make surethere is an easily distinguishable range of colours of drinks (ranging from very pale to a very dark/high intensity colour), which may require some tweaking. Do this on a random basis so that container A does not have the least number of drops of colouring and container D the most. (Make sure you keep a note of which letter container has which number of drops of colouring in it.)

1. Ask participants take a sip of each drink in turn and rate the drinks in order from least flavour to most flavour and fill in the second chart. (It is important students rinse their mouths out with plain water between each different drink sample.)
2. Discuss the results.

**Discussion questions**

* What do you notice about the results?
* Can you think of real life situations where food manufacturers could use the information you have discovered as a result of taking part in this activity?

**Taste results**

**Name:**

**1.**

|  |  |
| --- | --- |
| **Liquid colour** | **Flavour** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

**2.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Most flavour** | **Next most flavour** | **Moderate flavour** | **Least flavour** |
|  |  |  |  |