



(ENG) Why is my strawberry ice cream less vivid than yours?

Introduction

Step 1 - Motivational Stage

Step 2 - Investigational Stage

Step 3 - Consolidation Stage

Introduction



#Online activity #In-class activity #Experiential learning
#Literature #Artwork

This activity will show pupils the connection of chemistry with everyday life, especially in the food department.

They will learn about signs written on food products and that some characteristics of products (not food per se) can be signed as pictograms. This is inspired by caricature illustrations from the 19th century. They will

learn about pictograms regarding chemistry safety and a little bit about the history of chemistry. They will be creative with storytelling inspired by some pictograms.

Learning Objectives

☐

Differentiate between safety pictograms .

☐

Recognise the meaning of individual pictogram.

☐

Write their own story inspired by selected pictograms.

ACTIVITY DETAILS

Activity Details

Connection of the activity with Art

Illustration – caricature, storytelling, pictograms



Link to local, national School Curriculum —

General & Safety/Safety in laboratory



Equipment required —



Duration of activity —

45 minutes



Sources

R.J. Cole B.Sc. F.R.I.C. A.M.I.Chem.E. (1951) Friedrich Accum (1769–1838). A biographical study, *Annals of Science*, 7:2, 128-143, Retrieved from: DOI: 10.1080/00033795100202291

Vrtačnik, M, Senta Wissiak Grm, K, Glažar S. A., Godec, A. (2019). *MOJA PRVA KEMIJA*, Izdaja 2019, učbenik za kemijo v 8. in 9. razredu osnovne šole.

Mohorič, K. (2008). Aditivi v prehrani. *ABC Zdravja*. Retrieved from: <https://www.abczdravja.si/hrana/aditivi-v-prehrani/>

Photo credit:

Photo 1:

Thomas Rowlandson (1757–1827),
Chemical Lectures, (c. 1810–1820)

Satirical print

etching, hand-colour (partially)

24.4 x 33.1 cm

Public domain

Source:

The Elisha Whittelsey Collection, The Elisha Whittelsey Fund, 1959

The Metropolitan Museum of Art, New York City

<https://www.metmuseum.org/art/collection/search/789154>

Photo 2:

Source: own

Pictograms retrieved from: GHS hazard symbols - Wikimedia Commons

Step 1 - Motivational Stage



1

Task 1

Show the illustration below to your pupils:



The Elisha Whittelsey Collection, The Elisha Whittelsey Fund, 1959


Thomas Rowlandson, Chemical Lectures, c. 1810–1820, etching, hand-colour (partially), The Metropolitan Museum of Art, New York City

Explain to your pupils:

This is an illustration, more precisely, it is a caricature. Caricature is a type of illustration that aims to be funny, cynical, critical and is trying to get an emotional reaction out of its public. The caricature found its place in daily news and if you bought a newspaper, you would probably find some caricature/s in it. Caricatures are usually mocking the world we live in and are frequently connected to politics.

On this particular caricature, we can observe a chemist doing some experiments for his adult public. The chemist depicted is Friedrich Christian Accum. He was a chemist, living in the same era as the illustrator.

Today he is known for his achievements in the industry of gas lightning. Among his other discoveries, he also denounced the food industry for changing food people eat with additives. His efforts in this field were one of the firsts that highlighted issues in the food industry.

 Today, we are well aware that food contains different additives.

Ask pupils:



“Do you know what the mark on the food label that marks an additive is?”

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Task 2

Assign pupils to go to their kitchen and find at least two different products where there are additives labelled.

Pupils should consider:



"Are all additives harmful? What kind of additives are you familiar with?"

Step 2 - Investigational Stage



STUDENTS' TASKS

1

Task 1

Ask your pupils:



“Did you ever notice that similar food from one store can have a completely different colour than those from another store? Why do you think this happens?”

Explanation

Additives are added to food for different reasons.

Additives include preservatives, antioxidants and packing gases that extend the shelf life of food or prevent it from spoiling. Additives include all dyes, sweeteners, flavour enhancers, emulsifiers, thickeners, gelling agents, acids, acidity regulators, modified starches and enzymes that affect the taste, aroma, firmness and appearance of food. Some additives are written on product declarations with the letter E and a certain three or four-digit number.

2

Task 2

Ask your pupils:



"Can you name a food additive?"

Are additives chemicals?

How about products, which are not edible?

Can they contain any chemicals?

Name a few of those products.

Are there products in our houses that could be harmful?

If you think so, name a few.

Where can you check if the product is in any way harmful?

*Do you remember any particular sign which is warning you of a
product being harmful?*

If so, what is on that sign?

"

Show your pupils the following.

PHYSICAL HAZARDS PICTOGRAMS



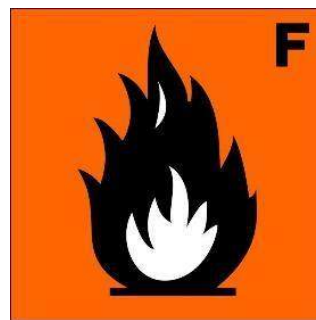
EXPLOSIVE



EXPLOSIVE



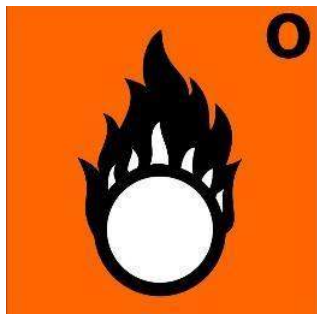
FLAMMABLE



FLAMMABLE



OXIDISING



OXIDISING



**CORROSIVE (to
metal)**



**CORROSIVE (to
metal)**



COMPRESSED GAS

HEALTH HAZARDS PICTOGRAMS



TOXIC



TOXIC



HARMFUL



HARMFUL



HEALTH HAZARD



CORROSIVE (skin corrosion)

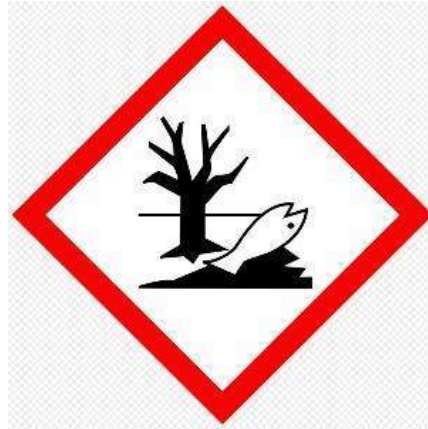


CORROSIVE (skin corrosion)

ENVIRONMENTAL HAZARDS PICTOGRAMS



**ENVIRONMENTAL
HAZARDS**



**ENVIRONMENTAL
HAZARDS**

4

Task 4

Ask pupils to describe one by one what they see on a symbol and read what the symbol stands for. Every pupil should make at least one description, and every symbol should be described at least twice.

Ask your pupils:



“Why do you think there are two types of symbols?”

You additionally explain:

The signs with an orange background are the old signs. We can still find them in some containers but mainly there are symbols with red borders. The reason is that from 2009 the system the entire European Union uses for labelling the containers is called GHS (Globally Harmonised System). Beside these symbols, there are also so-called H and P sentences.

i H stands for HAZARD

P stands for PRECAUTIONARY

So – every product that contains hazardous chemicals has to be marked with a proper symbol and it contains a sentence, H or P, depending on what type of hazard the specific chemical represents.

Those signs are very helpful because they tell us what we shouldn't or should do with certain products. If we obtain the rules and consider these signs, we are assured that we safely use these kinds of products.

Task 5

Symbols for hazardous chemicals are presented as pictograms. Pictogram is a simple picture with concrete meaning, which is clear and very understandable.

Ask your pupils:



"Name some pictograms that you see in your everyday life.

Why are pictograms very similar across the whole world?

Why do we usually understand their meaning?

"

Step 3 - Consolidation Stage



Ask pupils to remember the beginning of the lesson. Ask a question:



"Can you answer the question: Why is my strawberry ice cream less vivid than yours?"

Form small groups of 3 pupils. Each pupil is assigned one of the hazard symbols. As a group they have to make a story using their pictogram. The meaning of the symbol does not have to be the same as it is in the world of chemistry, important for this exercise is what they observe and understand to be in the picture. A story must have at least two sentences per group member, and all of the assigned pictograms have to be included logically.

After 7 minutes, pupils should return to a large group and read each other their stories.

End of the activity

EXIT