



(ENG) What is art made of?

Introduction

Step 1 - Motivational Stage

Step 2 - Investigational Stage

Step 3 - Consolidation Stage

Introduction



#Online activity #Inquiry-based learning #Teamwork #Artwork
#Paintings #Sculpture

Pupils are divided into groups and analyse works of art made of simpler chemical elements / alloys / compounds. They use the periodic table and book/internet search to learn about the artworks' basic properties and answer the accompanying questions.

Learning Objectives



Identify and discuss selected chemical elements / alloys / compounds with the help of the periodic table (lime, calcium carbonate, gold, bronze, carbon)



Interpret various art techniques from the view-point of the natural sciences



Combine knowledge of chemistry with art history.

ACTIVITY DETAILS

Activity Details

Connection of the activity with Art —

Getting to know elements and basic molecules through different art media



Link to local, national School Curriculum —

Chemistry General/Molecules



Equipment required —

- Internet connection
- access to a computer



Duration of activity —

45 minutes



Sources

Photo credit:

Pic. 1

Johannes Aquila (fl. 1377–1406)

Virgin and Child, 1383

fresco, 56,5 x 41 cm

National Gallery of Slovenia

Pic. 2

Madonna on the Throne of Solomon, (1265–1270)

limestone, 115 x 115 x 37 cm

National Gallery of Slovenia

Pic. 3

Veit Königer (1729–1792)

The Immaculate Conception, (c. 1763)

gilding, paint, wood, 165 x 85 x 58 cm

National Gallery of Slovenia

Pic. 4

Stojan Batič (1925–2015)

Harlequin in Love, (1957)

bronze, 93,5 x 30 x 26 cm

National Gallery of Slovenia

Pic. 5

Anton Karinger (1829–1870)

A Study of a Tree, (1864)

graphite, pencil, 32,5 x 25 cm

National Gallery of Slovenia

Step 1 - Motivational Stage



You ask your pupils:



"Did you ever wonder what artworks are made of?"

They can be made from the same materials as the other objects around us (wood, stone, plastic, metal, ceramics, oils), but through the centuries there have been a couple of materials that have proven themselves to be more popular than the others.

Step 2 - Investigational Stage



STUDENTS' TASKS

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Task 1

Pupils are divided into groups. Each group is given a work of art to investigate with the help of the periodic table, books and the Internet. Emphasise that they should only write down things they can understand and explain. The descriptions of additional works of art they have to prepare should not be too long – max. 5 lines each.

A description of a work of art should include a picture of the work, author (if known), title, when it was made, current location and a short description: what it represents, what it is made of, and why did they choose it.



Johannes Aquila, Virgin and Child, 1383, fresco, 56,5 x 41 cm, National Gallery of Slovenia

Fragment of a fresco from a church in Slovenia.

The Virgin Mary offers an apple to her son Jesus. Fresco, the Italian word for fresh, is a technique of mural painting in which earth pigments are painted directly on fresh and wet lime plaster. As the plaster dries, a chemical process bonds the pigment and plaster together. Is one of the most durable painting techniques.

Lime plaster is made of sand, water (H_2O) and slaked lime ($Ca(OH)_2$)

In what kind of environment will a fresco survive the longest? What are the main properties of lime? Find at least three other examples of fresco wall paintings and present them to the class.



Madonna on the Throne of Solomon, (1265–1270), limestone, 115 x 115 x 37 cm, National Gallery of Slovenia

This sculpture used to sit above an entrance into a Church. It is made of limestone, which used to be coloured. Today, we only see the carvings in raw limestone.

Limestone is mostly composed of different forms of calcium carbonate (CaCO_3)

What are other forms of calcium carbonate that were often used for artworks? What are other uses of this material beyond art? Find at least three other artworks made from calcium carbonate and present them to the class.



Veit Königer, The Immaculate Conception, gilding, paint, wood, (c. 1763), 165 x 85 x 58 cm,
National Gallery of Slovenia

The wooden sculpture was originally part of the altar in the chapel of a grand mansion. The sculpture is made of wood but painted and gilded.

The dress of Mary is gilded, that is covered with thin foils of gold (Au).

What are the main properties of gold? Can you find a couple of simple reasons why it is so valuable? Find at least four other works of art that are made of it and present them to the class.



Stojan Batič, Harlequin in Love, (1957), bronze, 93,5 x 30 x 26 cm, National Gallery of Slovenia

This is a sculpture from the Modern age – the figure was cast in bronze.

Bronze is an alloy, made of copper (Cu), tin (Sn) and other metals, like nickel (Ni) or zinc (Zn).

When was bronze first used by humans? Why did old bronze statues usually not survive to this day? Find at least three other bronze works of art and present them to the class.



Anton Karinger, A Study of a Tree, (1864), graphite (pencil), 32,5 x 25 cm, National Gallery of Slovenia

These kinds of studies were very popular with artists, who then used them in their studios to make oil paintings. They used graphite pencils which produce grey or black marks that are easily erased, but otherwise resistant to moisture, most chemicals, ultraviolet radiation and natural aging.

Graphite is a form of carbon (C).

What are some of the other states (allotropes) that carbon comes in? Find at least one example of how they are used for each of them. Find at least three other works of art done in carbon or with it and present them to the class.

Task 2

Each group presents its work to the rest of the class.

Step 3 - Consolidation Stage



Pupils vote on their favourite presented work. Together, the pupils repeat the properties of the presented work and the material it is made of.

End of the activity

EXIT