**Multidisciplinary lessons**

****

**Multidisciplinary lesson “Reflextion of science and history in visual arts" in Hungary**

**Objective:**

-develop creativity.

- show how stimulation affects our memory.

**Outcomes:**

-learned to create art in response to a stimulus.

- knows that the signal received by the eyes is later processed and interpreted in the brain.

|  |  |  |  |
| --- | --- | --- | --- |
| Lesson Parts | Time | Contents | Methodological - organizational instructions |
| 1.Prelimiry preparation. | 1 h | Exploring knowledge of science ,art, history | -research, data analysing and summarizing .- work with teachers: art, history and science. |
| Introduction-The first part of the cycle "Memory". | 2 min5 min | -told how the French writer Marcel Proust intuitively discovered and explained the influence of taste and smell on people's memories. He noticed how paradoxically our memory is unstable: we often remember things inaccurately or even things that did not exist. Later, scientists found that taste and smell actually produce this effect. | Ice BreakerShort films are shown, which tell how the insights and intuition of artists help to better understand the world, the processes taking place in the human brain. It turns out that artists' intuitive discoveries are often later confirmed by scientific research. |
| Practical tasks with descriptions. | 10 min | Practical tasks of taste and smell for students |  |
| The second part of the cycle, entitled "Look" | 5 min | -explores the experience of the French painter Paul Cezanne. While observing nature and painting pictures, he realized that our impressions require interpretation. The works of this painter are the first attempt to say that the signal received by the eyes is later processed and interpreted in the brain. | Short film are shown. |
| Practical tasks with drawing | 15 min | the teacher shows pictures with images of nature, students depict them by color naming the emotion. | memory stimulation game using drawing |
| Reflection | 8 min |  | using the ,,traffic light“ method |

**Multidisciplinary lesson in natural environment"Catch the colours of autumn**" in Bulgaria (mobility lesson took place in autumn not spring due to Covid restrictions. Education took place outside the school, in historical-cultural objects. **)**

**Objectives :**

The aim of the lesson was to find out how the world of colors in art and science are similar and different.

 **Outcomes:**

-describe the nature of colors.

-compare color patterns.

-to reveal the interrelationship of natural sciences, examining the same phenomenon from different points of view.

|  |  |  |  |
| --- | --- | --- | --- |
| Lesson Parts | Time | Contents | Methodological - organizational instructions |
| 1.Prelimiry preparation. | October10-13h | Exploring nature-flora and fauna(biology) | Analysing and summarizingWork with historical and geografical souces |
| 2.Going to the area of Roupite . | October | Area of “ Roupite“origin of Kouzhuh- a died out volcano,miniral springs,climate,economical use-(geography). | Talks, discussion,observation and description of flora and fauna. |
| Getting to know Heraklea Syntica. | October | A study of the Roman period of Heraklea Syntica-getting to know the artfacts found and the new histirical discoveries. | Instrucions for making an exhibition,preparing videofilms. |
| Getting to know the nature of the area“Roupite | October | Hiking- trekking from Roupite to Heraklea Syntica.Taking photos and making of videofilms.Paintings(sports,arts). | Preparation and a guide for hiking-trekking-discussion,first aid,analysis.Summary of data |

**Multidisciplinary lesson-,,Mind Games“**  **integrated mathematics, history, ethnoculture and music in Lithuania** (The lesson of 2 academic hours takes place outside the school in the city park by the river) The lesson is called "No step in nature without knowledge of mathematics, history, ethnoculture".

Cognition of the Midsummer Feast in a social and cultural context.

**Objectives:**

-To introduce the UNESCO heritage at the Rasų -Midsummer celebration

-Summarize the knowledge already gained about The Earth's natural climate cycle and the influence of year-over-year changes on people's jobs and celebrations.

-To reveal the connections between nature and music .

-apply knowledge of mathematics in practice.

**Outcomes:**

The beginning of the astronomical summer - the shortest night, the longest day - was commemorated.

- application of mathematical knowledge in nature.

- Presentation of culture and customs of the Baltic States, project partners' introduction to Baltic culture in order to preserve UNESCO heritage

- Knowledge of vegetation. Observation of Nature.

|  |  |  |  |
| --- | --- | --- | --- |
| Lesson Parts | Time | Contents | Methodological - organizational instructions |
| Introduction | 10 min. | Greetings, presentation of the topic, preparation for the lesson (grouping, division of measures, etc.) | Game ,,People are not lonely islands“( each player is separate. Hesits on the "ice floor" and looks at others. Players cannot talk to each other.But they can try to understand each other's facial expressions or gestures. After 2 players7with the help of facial expressions or gestures, they find contact, they can move theirs if they want"gender" closer to each other. They are no longer alone if their ice genders (newspapers,rugs, pillows) border each other. They can also encourage other playersjoin them. If a large group is formed, they get a ball of yarn, which they can use as they see fit (but without talking to each other!). Groupcan "cobweb" or make contact with a ball of threadother groups.Variants: During the game, everyone can change their group. Groups canto disperse In groups that already have self-experience, this game is possibleuse to explain the problems of proximity and distance. |
| Theoretical- part | 10min |  ,,Mind Games“ activities involving artistic and musical tasks in mathematics lessons. Across the river is a bridge that can only be crossed by solving a mathematical riddle.The teacher taught the students to understand that in life, approximate values are usually taken, therefore, when completing the tasks, they had to perform rounding. |  |
| Educational part with practical part  | 30 min | Singing, dancing, weaving flower wreaths and floating their . | Experiment - Working with different people who have a mix of personalities helps compensate for individual strengths and weaknesses. |
| Reflection. | 5 min. | Kahoot learning game platform, | Kahoot 10 questions test. |

**Multidisciplinary lesson ,, Magic of nature colours" - art, physics and chemistry in Madeira**

 **Objectives**

**-** develop creativity.

- demonstrate the integration and interconnectedness of the sciences.

 **Outcomes**

- learned to recognize textures both in nature and in pictures.

- able to indicate the relationship between texture, nature, art and science.

|  |  |  |  |
| --- | --- | --- | --- |
| Lesson Parts | Time | Contents | Methodological - organizational instructions |
| 1.Prelimiry preparing for the lesson. |  1h | Exploring knowledge of science ,art, physics, chemistry. | -research, data analysing and summarizing - work with teachers: art, physics, chemistry and science. |
| Introduction | 5 min | Presentation of information about plants with dyeable properties.(chemistry,physics teachers). | Raising and discussing learning tasks; motivation, interest, actualization of existing knowledge and experience. |
| Theoretical-educational part | 5 min | The art teacher practically showed what colors can be obtained with various plants, how those colors change | The classroom exercise approach is to bring teaching knowledge into real life, exploring the environment. |
| Practical part | 30min | After listening to the theoretical part, the students began to do the practical part. He drew sketches on large sheets and colored them with available natural materials. The result was bright, colorful pictures reflecting natural scenes | The classroom exercise approach is to bring teaching knowledge into real life, exploring the environment. |
| Reflection | 5 min | Discussion of activities and reflection.( science teacher) | Emotion tasks on the Smart interactive whiteboard |

**Laboratory of ideas"- knowledge of science and history in 5 senses in Croatia (education took place outside the school, in historical-cultural objects)**

 **Objectives**

- conducted 5 experiments that proved that the eyes and brain work together to make pictures of what is in front of us.

- getting to know Croatian culture, language, song, dance, customs and folk costumes.

-use ICT technology through various activities.

-promote mental health and less stress in students and teachers.

 **Outcomes**

**-**students will understand that each object stimulates a different sense.

-Students will also be able to use their creativity.

-Getting to know Croatia, the Croatian language, customs, traditional culture, food, song, dance and folk costumes

 - Getting to know Ogulin, Klek, Plitvice Lakes, Zadar and their cultural and historical heritage

 - videos about different activities: Anti stress activities, Cultural awareness, Dance festival, Hiking and autdoor activity, History lesson - Labaratory of ideas, How students can contribute to democratic inclusion at schools, How to increase multilingualism, ICT workshop

|  |  |  |  |
| --- | --- | --- | --- |
| Lesson Parts | Time | Contents | Methodological - organizational instructions |
| Prelimiry preparation | 13.-14.03.2022. | Exploring knowledge of science and history | - research, data analysing and summarizing - work with VET teacher, historical and science sourses  |
| Going to the area of historical part of Ogulin | 16.03.2022. | Learning about Ogulin and Croatia, Croatian language, anti stres activities. History lesson in Museum – Laboratory of ideas.  | Talks, Lecture on the history of the city, expert guidance around the city, introduction to traditional culture through song and dance. |
| Getting to know about history of Klek | 15.03.2022. | Learning about Ogulin and mountain Klek. Croatian mountain rescue service prepare lesson for students and teachers.  | Conversation, professional guidance to Klek Mountain, expert lecture on first aid, introduction to the history and present of activities on Klek |
| Learning about language of Croatia on the way to Plitcice Lakes | 17.03.2022. | Learning about Plitvice Lakes and Croatia, Croatian language, ICT. Students participate in ICT workshop (photos and videos). Students prepare video about hiking and autdoor activities.  | Expert lecture, conversation, singing, getting to know the Plitvice Lakes, use of technology |
| Learning about ICT technology for science on the way to Zadar | 18.03.2022. | Learning about Zadar and Croatia, Croatian language, democratic inclusion. Teachers preapare lesson How students can contribute to democratic inclusion in schools. Students use ICT technology in work.  | Expert lecture, conversation, singing, introduction to Zadar, use of technology. |

**Multidisciplinary lesson -"Healthy Foods Versus Unhealthy Foods" in Spain.(** **The healthy food class was held for 2 days:1st. day - lesson the next day- healthy food production and tastings).**

**Objectives :**

- introduce the rules of healthy eating, the principles of combining food and the benefits of healthy eating for humans.

**-** with the help of various practical activities, students can form the right attitude towards healthy food.

-Get to know the basics of healthy nutrition,

-food pairing rules,

-will assess your eating mistakes and calculate your BMI

 **Outcomes:**

**-** students demonstrate that they understand what healthy and unhealthy foods are, and are able to indicate the effects of food on health.

|  |  |  |  |
| --- | --- | --- | --- |
| Lesson Parts | Time | Contents | Methodological - organizational instructions |
| Introduction | 5 min | discussion topic, What does human health depend on? | -brainstorming discussion |
| Theoretical-educational part | 10min | distinguish between healthy and unhealthy foods by reading food labels | group work |
| Practical part | 20min | calculates body mass and determines the BMI index | individual work applying mathematical knowledge |
| Reflection | 10min | there were incomplete sentences and questions that the students had to answer | Incomplete sentences and reflection questions. |