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PROJECT "CONNECTING STEM WITH ART"

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INTEGRATED ART, TECHNOLOGIES, GEOGRAPGY, NON-FORMAL EDUCATION SUBJECTS SUSTAINABLE DEVELOPMENT

Interdisciplinary Integration in Primary Education

"Wind Works"

Subject	Arts and Technologies, Geography, Robotics Academy, GIS Club.		
Year	2 and 3	***Subject teachers***	Primary school teachers, methodologists Sandra Vaičiulienė, Angelė Kizienė; Geography teacher, methodologist Aušra Skrebienė
Time	4 months		
Aim	To promote the conscious development of STEAM knowledge and skills in the development of renewable energy resources for future ecological lifestyle models.		
Objectives	1. Enhance scientific understanding of renewable energy production and introduce alternative wind energy sources; 2. Develop teamwork and cross-cultural communication skills. 3. Encourage creativity and critical thinking.		
Competencies	Communication competence - developing the ability to create, transfer and understand knowledge (facts, attitudes or personal attitudes), ethically use verbal and non-verbal means and technologies;		

Cognitive competence - the ability to know oneself and the world is developed, which is acquired by understanding (adopting) the cultural experience of humanity. Subject knowledge such as critical thinking, problem solving and the ability to learn as well as will and persistence are developed;

Digital competence - developing motivation and ability to use digital technologies to perform tasks, learn, solve problems, work, communicate and collaborate, manage information and create and share digital content efficiently, properly, safely, critically, independently and ethically;

Creativity competence - developing the ability to create and generate significant creative ideas and products for oneself and others, as well as the evaluation of problem solutions, while maintaining a harmonious relationship with oneself and the environment;

Cultural competence - developing cultural self-awareness, based on knowledge, active cultural expression and cultural awareness;

Citizenship competence - civic identity and civic power are developed, based on values, attitudes, knowledge and practical abilities, which enable, together with others, to responsibly create a democratic society;

Social, emotional and healthy lifestyle competence is when a person's self-awareness and self-control, social awareness, interpersonal relationship building skills, responsible decision-making and taking care of a person's physical and mental health are developed.

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Geograpgy lesson Project "Wind works"

Years 2 and 3

3 lessons

Objectives:

1. By searching and analyzing information on the Internet and in the textbook, students will develop awareness and introduce the possibilities of the occurrence and use of wind;
2. Develop teamwork and interdisciplinary communication skills;
3. To promote creativity and critical thinking.

Parts of the lesson	Teacher's activities	Students' activities	Methods/Methodological tools
Introductory part – motivation, interest.	The teacher asks the question: "Do you know what the wind is?" Shows the video. https://www.youtube.com/watch?v=0yXC45dgmSs Summarizes the students' answers, offers to check in the textbook.	Studente answer after thinking. Answers are checked in sources by quoting or paraphrasing the ideas of the received information.	Brainstorming, work with sources.
Announcement of the aim and objectives.	The teacher announces the topic of the lesson, its aim and objectives.	Listen to the information provided.	Attentive listening.
Activities: 1. Searches for information on the Internet and in a textbook.	Presents found material about wind.	Students find information by searching and analyzing carefully and write down the information they find. Discusses the occurrence of wind and the possibilities of its use.	Careful reading, analysis, work with sources.

2. Information discussion, presentation of conclusions.	After the students have completed the work, they listen to the answers, help to agree on the answer options, based on the textbook material. Provides a conclusion.	Presents the answers, checks the correctness of the answers, discusses if necessary, draws a conclusion.	Discussion, presentation.
3. Summary of the lesson. Perspectives. Presentation of project activities.	Presents the goals, objectives, and topics of the planned project (searching for and purposeful use of information, creating a project logo on t-shirts, making windmills, determining wind directions, building wind turbines in cooperation with the Robotics Academy, the "Earth Day" event, a trip to the Botanical Garden, a trip to the wind farm, a trip to the dam, one-day camp), presents the workflow, evaluation criteria and time (4 months). Offers sources, advises, takes photos, writes articles and puts them on the school website, Facebook.	Notes the information, work in groups. Activities and responsibilities are distributed in groups, they collect material, analyze, systematize, prepare presentation according to agreements. Presents the completed work, participates in the evaluation process.	Attentive listening, presentation.

Materials: textbooks, computers, presentations.

Prepared by Primary school teachers, methodologists Sandra Vaičiulienė and Angelė Kizienė.

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Art and Technologies "Windmill"

Years 2 and 3

2 lessons

Objectives

1. Get acquainted with the possibilities of renewable energy, make a windmill and decorate the school environment.

Parts of the lesson	Teacher's activities	Students' activities	Methods/Methodological tools
Introductory part – motivation, interest.	The teacher shows the symbols representing the sun, water and wind and asks how they can be useful.	Name how the energy of these natural resources can be used.	Brainstorming.
Announcement of the aim and objectives.	The teacher announces the topic of the lesson, its aim and objectives.	Listen.	Attentive listening.
Activities	Introduces students to several ways of making a windmill, shows a video. https://www.youtube.com/watch?v=HN0GxOQMzME https://www.pinterest.com/pin/731553533227947745/ Offers to make a windmill in the chosen way. If necessary, helps to attach the grinders to the wooden stick.	Students choose the way they would like to make the windmill. Chooses what material will be suitable for making a windmill, combine colors. After making the parts, they assemble the windmill and attach it to a wooden stick, and check whether the windmill rotates.	Individual work, cooperation.
The result Reflection	Asks the students why they chose this particular method of making a windmill, where the finished work could be used.	Students discuss their work, comment and help other students to discuss.	Discussion, mediation.

Materials: paper, plastic sleeve, pencils, glue, pins, wooden stick, computer, presentations.

Prepared by Primary school teachers, methodologists Sandra Vaičiulienė and Angelė Kizienė.

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Integrated robotics with Art and Technologies lesson "Building wind turbines"

Years 2 and 3

2 lessons

Objectives:

1. After remembering and discussing the benefits of wind, students will analyze the information provided about wind power plants;
2. After figuring out how to construct wind turbines, students will build them, demonstrate how they work to others)

Parts of the lesson	Teacher's activities	Students' activities	Methods/Methodological tools
Introductory part - Interest	Gives questions about wind turbines from previous lessons. Students are asked to give 3 arguments each why wind farms are important for people and nature.	Answer to the questions. Discuss the importance of wind farms.	Discussion. Illustration "Wind power plants".
The lesson‘s aim and objectives	The aim and objectives of the lesson are announced.	Listen to the presented information.	Attentive listening.
Activities	Students are presented with materials prepared by the Robotics Academy about wind turbines. Explains the steps that students will need to reinforce to construct wind turbines.	Listen to the information. Work in groups. Analyse, compare and evaluate information.	Handouts, worksheets, construction kit, instructions.
Interim discussion	Questions are discussed, the teacher asks the students to comment on the answers to the questions, closer cooperation between them is suggested.	Students present their studied material and answers to the question. Help each other to answer the questions. Show the work done by each group.	Multimedia with prepared instructions, wind turbine model.

Activities	The teacher offers the students to work in work groups. The task is to construct wind turbines according to the given criteria.	The studensts work in goups. Analyze the intructions, construct.	Material: ready-made construction kits, instructions.
Presentation of work results	The teacher asks to share the results of the work: to demonstrate the created wind turbines and start the operating mechanisms.	Students present the results of their work.	Constructed wind turbines.

Materials: presentations, handouts, worksheets, construction kit, instructions, tablets, software.)

Prepared by Primary school teachers, methodologists Sandra Vaičiulienė, Angelė Kizienė and Robotics Academy teacher Inga Ponomariova

Geography

Event "Earth Day"

Years 2 and 3

2 lessons

Objectives:

1. Based on their experiences, video footage and listening to the teacher's presentation about goals of Sustainable Development, students will remember "Earth Day";
2. To find out what sustainable development is and how it is applied;
3. To encourage creativity and critical thinking about the digital maps, create the map about wind energy by using ArcGIS programe.

Parts of the lesson	Teacher's activities	Students' activities	Methods/Methodological tools
Introductory part - interest.	The teacher shows a video about ,,Earth Day". https://www.youtube.com/watch?v=8DQeFmWUyd8 Questions are asked from the provided video. Students write 3 arguments why they need to protect Earth.	Listen to the information and answer the questions. Discuss about environmental pollution.	Discussion and multimedia.
The lesson's aim and objectives	Announcement of the lesson's aim and objectives	Students listen to the given information.	

Activities	The teacher introduces the goals of Sustainable Development. The teacher presents a video about wind and gives questions, she figures out what the kids know about wind directions. https://www.youtube.com/watch?v=SqbTrbxWT1o	Students listen. Answer the questions relying on their own experiences. Students discuss the video and remember wind directions.	Presenting the goals of sustainable development. Discussion.
Activities II	The teacher talks about the GIS club's work, explains how the maps are made. Presents digital maps created by the GIS club. The teacher asks to create digital maps about wind energy.	Listen and answer questions. Create and present digital maps.	Discussion, presentation.
Presentation of work results	Submits a reflection questionnaire to be filled in and discusses it with the students.	Fill in the questionnaire and present it to each other.	Survey, presentation.

Prepared by Primary school teachers, methodologists Sandra Vaičiulienė, Angelė Kizienė and geography teacher, methodologist Aušra Skrebienė.

Art and Technology "Project logo"

Years 2 and 3

2 lessons

Objectives:

1. After remembering and discussing what the wind looks like, students will create a logo for the "Wind works" project on a T-shirt;
2. Students will find out what a logo is and what it is used for;
3. Students will familiarize themselves with textile colors and technical painting possibilities when drawing on a T-shirt, as well as prepare sketches that will have to be transferred onto the white T-shirt.

Parts of the lesson	Teacher's activities	Students' activities	Methods/Methodological tools
Introduction - Interest	The question is presented from the knowledge acquired in previous years about wind power plants. https://en.wikipedia.org/wiki/Wind_farm The teacher announces the subject and objectives of the lesson. Students are then told about the technique of drawing on textiles and its possibilities. https://www.youtube.com/watch?v=1gDJyEeSOJU	Answer to the questions, discuss, and remember their favorite T-shirts.	Discussion, conversation.
The aim and objectives of the lesson	The aim and objectives of the lesson are announced	Listen to the information provided.	Attentive listening.
Activities	The teacher explains what will be needed to create a logo on a T-shirt, reminds the advantages of the technique, and the variety of its applications.	Students draw several sketches on the theme of wind.	Individual work.

	Discusses their sketches with students, specifies the progress of work. Helps to prepare works for exhibition and a photo session.	Wind or wind turbine is drawn. Enlarge the selected sketches and transfer their created logo onto the T-shirt. Demonstrate and present works. Participates in a photo session	
Presentation of the results of the work	The teacher asks to share the results of the work, show T-shirts with logos, takes photos.	Students show the T-shirts with logos, participate in a photo session.	Demonstration, discussion.

Materials: presentations, drawing supplies, T-shirts, a camera.

Prepared by Primary school teachers, methodologists Sandra Vaičiulienė, Angelė Kizienė.

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Educational trip to the wind power park the dam

Years 2 and 3

A day trip

Uždaviniai:

1. Students will be able to collect and compare structured information about wind farms and alternative energy sources;
2. Students will get to know the wind power plants and dams located in their district;
3. Learn more about renewable energy production;
4. Develop teamwork and communication skills.

Parts of the lesson	Teacher's activities	Students' activities	Methods/Methodological tools
Introductory part – motivation, interest.	The teacher announces the topic of the trip and the objectives. Students are told about the information collected on wind power plants, they are reminded of the work that has already been done. A map of renewable resource power plants operating in Lithuania is shown (Google search). Information about hydropower plants is shown (Google search).	Present the collected information. Listen to the information provided.	Working in groups, presentation.
Veiklos Activities	After visiting the wind farm and the dam, the obtained information is discussed.	Students participate in the trip, compare the collected information with the knowledge gained before.	Conversation, discussion, brainstorming.
Reflection of the trip	Asks the students what they learned during the trip. Gives a reflection questionnaire to be filled and discusses it with the students.	Students answer to the teachers' questions, fills out the questionnaire and present it to each other.	Conversation, discussion, individual work, presentation.

One-day camp "FUN AND CREATIVE"

Years 2 and 3

One-day camp

Objectives:

1. Students will summarize the information about the "Wind Works" project;
2. Students will get to know the Botanical Garden, participate in the education "Wind in the Botanical Garden";
3. Students will make camp "Fun and creative" flags and decorate the campsite.

Parts of the lesson	Teacher's activities	Students' activities	Methods/Methodological tools
Introductory part – motivation, interest.	The teacher announces the camp topic and objectives. Students are told about the activities and reminded of the work they have already done.	Listen to the information provided.	Conversation, discussion, brainstorming.
Trip activities	Organizes an educational trip to the Botanical Garden Presents the prepared questionnaire "Wind in the Botanical Garden".	Students participate in in the trip, compare the collected information with the knowledge gained before.	Conversation, discussion, brainstorming, survey.
Camp activities	The teacher explains the purpose of the flag. Discusses what will be needed to create camp flags, reminds of the advantages of the textile painting technique, the variety of its applications, specifies the work progress.	Students make flags. Organize an exhibition, a presentation.	Individual work, conversation, discussion, exhibition.
Camp reflection	Asks students what they learned and experienced while participating in project trips, events and creative activities.	Students answer the teacher’s questions, participate in the awards.	Conversation, discussion, awards.

	Prepares diplomas and souvenirs of the "Fun and creative" camp. Publishes information about the camp on the school's website.		

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