Title:
BACK TO NATURE – WE MAKE JUICE FROM ROSE, ACACIA AND ELDERFLOWER
Lesson Structure (310-930 Minutes)/during three weeks

Objectives:
By the end of this unit, students are expected to:

- Understand natural processes of extracting aromas and beneficial compounds from flowers by soaking them in water and adding citric acid. *(Science)*
- Use smart phones to photograph and record the juice making process. *(Technology)*
- Develop engineering skills by creating a simple filtration system using gauze, strainers, or improvised filters. *(Engineering)*
- Learn about physical processes such as dissolution and sedimentation during syrup preparation. *(Physical Science)*
- Enhance artistic creativity by designing original labels for syrup bottles using drawing, digital design, or calligraphy. *(Arts)*
- Apply mathematical skills in measuring ingredients, calculating proportions, and timing the extraction process. *(Mathematics)*
- Engage in physical activities while collecting flowers in nature, promoting ecological awareness and a healthy lifestyle. *(Physical and Health Education)*

Additional Objectives:

- Develop ecological awareness through responsible plant harvesting.
- Foster teamwork by sharing tasks and collaboratively making the syrup.

Materials Needed

Physical and Health Education

- Gloves (optional – for safe handling of flowers)
- Comfortable clothing and shoes (for picking flowers in nature)
- Reusable baskets or bags (for collecting flowers)
- Water bottles (to stay hydrated during outdoor activity)

Science

- Freshly picked elderflowers, rose petals, and black locust flowers
- Water (for soaking flowers)
- Citric acid or lemon juice (for preservation and taste)
- Sugar or honey (for sweetening)

Engineering

- Strainer or cheesecloth (for filtering the syrup)
- Glass jars or bottles with lids
- Funnel (for pouring syrup into bottles)
- Stirring spoons or ladles

Mathematics

- Measuring cups and spoons (for accurate ingredient measurement)
- Scale (for weighing flowers and sugar)
- Notebook or worksheet (for calculating proportions and adjusting recipes)

Technology

- Smartphone (for documenting and researching recipes)

Arts

- Paper, markers, and colored pencils (for designing labels)
- Stickers or printable labels
- Glue or tape (to attach labels)

Activity 1: Expanding knowledge about plants (Science)
Objective: Through this topic, students will learn how to identify different types of plants, their importance, and their use in everyday life.
Duration: 20 minutes
As part of this activity, students will expand their knowledge of different types of plants and their characteristics. Through a **PowerPoint presentation**, we will discuss the following categories:

- **Edible plants** – Plants used in food, such as fruits (apple, pear, plum), vegetables (tomato, pepper, carrot), and wild edible plants (nettle, dandelion, elderflower).
- **Medicinal plants** – Plants with healing properties used in traditional and modern medicine, such as chamomile, mint, St. John's wort, and yarrow.
- **Ornamental plants** – Plants cultivated for their beauty, such as roses, lilies, tulips, orchids, and begonias.
- **Poisonous plants** – Plants that contain toxic substances and can be dangerous to humans and animals, such as deadly nightshade, yew, belladonna, and lily of the valley.
- **Woody plants** – Plants with hard stems, such as oak, ash, black locust, and linden.
- **Herbaceous plants** – Plants with soft stems, such as dandelion, grass, plantain, and parsley.
- **Cultivated plants** – Plants grown by humans for food, decoration, or medicinal purposes, such as wheat, corn, sunflower, tomato, and lavender.
- **Wild plants** – Plants that grow naturally without human intervention, such as nettle, dandelion, wild strawberries, and wild mint.
- **Coniferous trees** – Trees with needle-like leaves that produce cones, such as pine, spruce, fir, and yew.
- **Deciduous trees** – Trees with broad leaves, such as oak, beech, maple, and birch.

Activity 2: Organize students into groups and provide them with a worksheet to complete.(Science)
Objective:

- Establishing knowledge about different types of plants (woody and herbaceous plants, bushy plants, conniferous and deciduous plants, wild and cultivated plants, medicinal plants, ornamental plants);
- Encouraging the connection of plant species with the environment in which they live;
- Expanding knowledge about the importance of plants for human;
- Developing collaborative relationships during group works.

Duration: 10 minutes

TABLE 1

HERBACEOUS PLANTS	**WOODY PLANTS**

TABLE 2

BUSHY PLANTS

TABLE 3

CONNIFEROUS TREE	DECIDUOUS TREE

TABLE 4

WILD PLANTS	CULTIVATED PLANTS

TABLE 5

MEDICINAL PLANTS

TABLE 6

ORNAMENTAL PLANTS

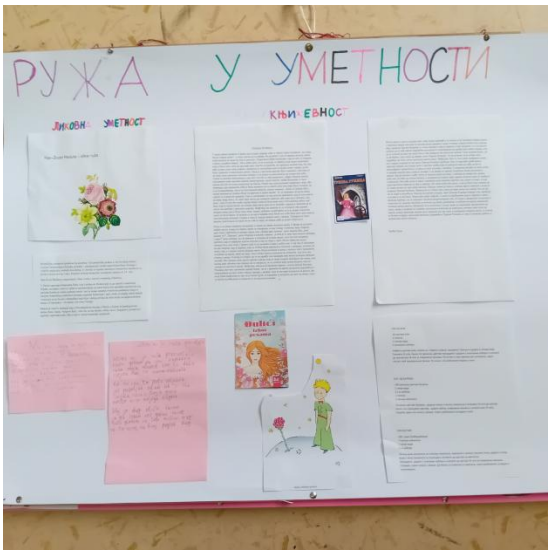
TABLE 7

THE NAME OF THE PLANT	PARTS OF THE PLANT USED IN HUMAN NUTRITION

Activity 3: Production of billboards (Art, Reading)

- Students previously had homework (in groups) to collect data and pictures on the subjects of roses in food and cooking, fashion, jewelry, cosmetics, interior, exterior, fine arts, literature (to read or collect fairy tales, stories, poems about roses).

Duration: 20 minutes



Activity 4: Making a questionnarie (Reading, Mathematics)

Duration: 15 minutes

A conversation on the topic of juice and creation of a questionnarie that the students will distribute at school, which we will analiza next day.

-Have you ever drunk homemade juice?

-Which one is your favourite?

-Which plants from nature can we use to make juice?

SURVEY: WHICH JUICE DO YOU DRINK

Juices			
Domestic (homemade)		**Shopping juice(juice from the store)**	
Squeezed juice	**Syrup**	**Carbonated juice**	**Still juice**

NEXT DAY

Activity 5: The analysis of the questionnaries (Reading)

Objective: Health aspect-discussion about the advantages of natural ones, the importance of hydration and healt preservation.

Duration: 15 minutes

Homework: Recipe search

NEXT DAY

Activity 6: Recipe search (Science, Reading, Technology)

Students previously had homework assigment to look for a recipe for making rose juice from their mothers, grandmothers or on the internet.

Analysis of recipes:

-Type of rose (rosa damascena), necessary ingredients for making rose juice, additional kitchen accessories and dishes, stages of making juice.

Objective: Students will research and find a recipe for making rose juice, analyze its ingredients and preparation process. They will explore the role of different ingredients, discuss the benefits of natural juices, and reflect on the cultural and traditional significance of using roses in food and beverages.

Duration: 30 minutes

Activity 7: Being in nature while picking flowers-walk to the nearby yard (Physical and health education)

Objective: Connecting physical activity and a healthy lifestyle.

- Walking in different ways
- Stretching exercises when picking flowers
- Discussion about the importance of hydration and consumption of natural beverages

Activity 8: Back to school and juice making process (Science, Mathematics)

Objective: juice making process

Duration: The juice making process takes 48 hours, but 30 minutes of effective work.

Juice making process

-separation of the flower of the plant from the stem

-washing flowers (flowers are placed in a bowl of water, where they are rinsed by immersion)

-adding lemon and limuntus

-mashing flowers together with lemon and limuntus

-adding water

-squeezing the crushed flowers and water

-adding sugar or honey

-mixing

-bottling

-consumption







Activity 9:
Within these activities, the following activities took place in parallel
Duration: 60 minutes

Objectives:

Science:

• Understanding chemical and physical changes during flower soaking and ingredient dissolution.

• Studying the role of lemon as a natural preservative.

Technology:

• Using digital tools to document the process (photos and recording).

Engineering:

• Testing different ingredients for optimal taste and consistency.

Activity 10: Math in the recipe (Mathematics)

Objectives:

• Calculating ingredient proportions (how many grams of sugar per liter of water).

• Measuring liquid volume and determining the required amount of ingredients.

Math in the recipe:

- Students measure the amount of watr, sugar and lemon using measuring units.
- They compare the ratios of ingredients (1:2, 1:3,…)and practice fractions.

Duration: 20 minutes

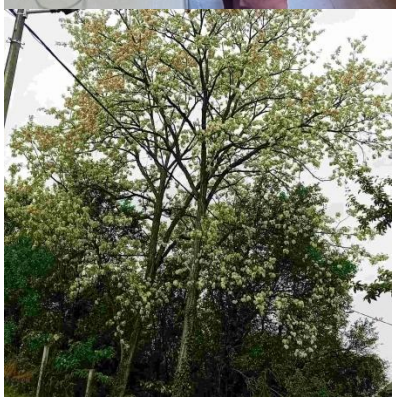
Activity 11: Designing (Arts)

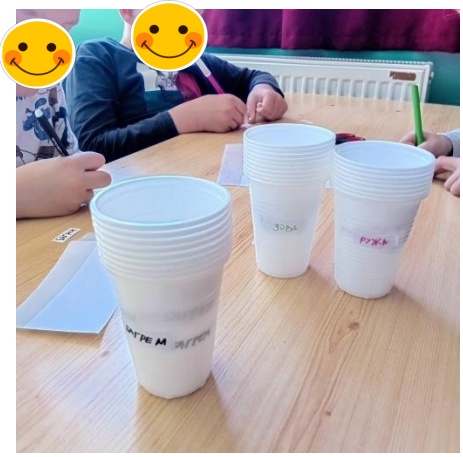
Objectives:

- Designing labels for juice bottles.
- Creating a brand and product slogan.

Duration: 30 minutes

All activities were repeated during the production of elderflower juice and acacia juice.






Activity 12: Selling juice at the Easter event (Art, Mathematics)
Objectives:

- Determining prices, calculating costs and profits, giving change (**Mathematics)**.
- Designing the stand, advertisements, posters, and bottle labels (**Arts)**.
- Organizing the sales space, efficient packaging, and serving (**Engineering)**.
- Using digital tools for promotion (**Technology**).
- Preserving juice freshness during sales, hygiene and food safety **(Science).**

Duration: 60 minutes




All collected money was given to charity (for the treatment of sick children in Kosovo I Metohija)

Activity 13: Donating Collected Money for Humanitarian Purposes (Area of Social Responsibility and Entrepreneurship)

Objectives: entrepreneurial competences and social responsibili

- Calculating total revenue and distributing money for donation **(Mathematics)** .
- Using digital platforms for transparent tracking of donations (**Technology)**.
- Understanding the social impact of humanitarian actions and developing students' empathy (**Science (Social Sciences)**.

Duration: 30 minute

Teacher Name	Subject/Course Title Grade Level-II	Date
Mirjana Mihok	Assessment Criterion 0: 1. Topic is connected to STEAM topics and skills	10.3.2025.

Materials Needed:	Lesson Outcomes: (what the student will be able to do)
Physical and Health Education • Gloves (optional – for safe handling of flowers) • Comfortable clothing and shoes (for picking flowers in nature) • Reusable baskets or bags (for collecting flowers) • Water bottles (to stay hydrated during outdoor activity) *Science* • Freshly picked elderflowers, rose petals, and black locust flowers • Water (for soaking flowers) • Citric acid or lemon juice (for preservation and taste) • Sugar or honey (for sweetening) *Engineering* • Strainer or cheesecloth (for filtering the syrup) • Glass jars or bottles with lids • Funnel (for pouring syrup into bottles) • Stirring spoons or ladles *Mathematics* • Measuring cups and spoons (for accurate ingredient measurement) • Scale (for weighing flowers and sugar) • Notebook or worksheet (for calculating proportions and adjusting recipes)	-Understand natural processes of extracting aromas and beneficial compounds from flowers by soaking them in water and adding citric acid. *(Science)* -Use smart phones to photograph and record the juice making process. *(Technology)* -Develop engineering skills by creating a simple filtration system using gauze, strainers, or improvised filters. *(Engineering)* - Learn about physical processes such as dissolution and sedimentation during syrup preparation. *(Physical Science)* -Enhance artistic creativity by designing original labels for syrup bottles using drawing, digital design, or calligraphy. *(Arts)* -Apply mathematical skills in measuring ingredients, calculating proportions, and timing the extraction process. *(Mathematics)* -Engage in physical activities while collecting flowers in nature, promoting ecological

Technology • Smartphone (for documenting and researching recipes) *Arts* • Paper, markers, and colored pencils (for designing labels) • Stickers or printable labels • Glue or tape (to attach labels)	awareness and a healthy lifestyle. *(Physical and Health Education)* **Additional Objectives:** -Develop ecological awareness through responsible plant harvesting. -Foster teamwork by sharing tasks and collaboratively making the syrup.
	Assessment Criterion 1: **1. Lesson outcomes clearly link with STEAM activities and assessment.** *Science* • Students will explore the properties of flowers used in syrup making (elderflower, rose, and acacia). • They will understand the chemical reactions involved (preservation and solubility of sugar). *Technology* • They will document their process using digital tools (camera, notes). *Engineering* • Students will construct a simple filtration system using a strainer, gauze, and funnel. • They will design an efficient workflow for syrup production. *Arts* • Students will design creative labels for their syrup bottles. • They will connect the beauty of nature with visual storytelling in their designs. *Mathematics* • Students will measure and calculate ingredient proportions. • They will adjust quantities based on the number of servings required. *Physical & Health Education* • Students will practice safe and responsible foraging. • They will engage in outdoor activities to collect flowers.
	2. Teacher uses active verbs to define lesson outcomes. Verbs such as investigate, explain, observe,

	describe, measure, document, construct, optimize, design, connect, calculate, adjust, practice and compare are clear and measurable. **3. Lesson outcomes and observable and measurable.** -**Through practical work**: students successfully make juice and use filtration techniques. -**Through discussion**: students defend the health benefits of natural drinks with arguments. -**Through creative work**: students design labels and connect art with science. -**Through mathematical calculations**: students correctly compute proportions and measurements for juice. By the end of the lesson, all students will have a tangible result: bottled homemade juice with a custom-designed label and an analyzed nutritional profile.
Engage 15 min	The teacher works to gain an understanding of the students' prior knowledge and identify any knowledge gaps and to foster an interest in the upcoming concepts so students will be ready to learn. **ACTIVITIES:** -Conversation with students (Have you ever tried homemade juice? Which one is your favorite? Which plants from nature can we use to make juice?...) -Power point presentation: Display of plants: elderflower, rose, and acacia.
	Assessment Criterion 2: 1. Activites allow students to make connections to prior knowledge 2. Activities allow teacher(s) to assess students' background knowledge and misconceptions. -Connection to prior knowledge based on discussion (What ingredients do you think are needed to make juice from rose, elderflower, or acacia? Have you seen these plants before? Where do they grow? Why do we need to pick flowers at a certain time of the year? What do you think happens when we mix flowers,

	water, sugar, and lemon juice? Why is it important to follow a specific process when making juice?) -Observing and documenting students' responses during discussions helps the teacher gaps and misconceptions.
Explore 20 min	Students actively explore the new concept through concrete learning experiences. They might be asked to go through the scientific method and communicate with their peers to make observations. ACTIVITIES: 1. Demonstration 2. Investigation 3. Observation 4. Reading 5. Video
	Assessment Criterion 3: 1. Activites allow students to build on existing prior knowledge. 2. Teacher(s) provides activities that are experiential in nature.
Explain 15 min	A teacher-led phase that helps students synthesize new knowledge and ask questions if they need further clarification. For the Explain phase to be effective, teachers should ask students to share what they learned during the Explore phase. ACTIVITIES: 2. Vocabulary activities word searches, 3. Graphic organisers
Elaborate 15 min	Giving students space to apply what they've learned. This helps them to develop a deeper understanding. Teachers may ask students to create presentations (for example: Rose in fine art, literature, fashion, home interior and exterior, culinary art, …) conduct additional investigations to reinforce new skills. This phase allows students to cement their knowledge before evaluation. ACTIVITIES: 1. Problem solving 2. Experimental design 3. Compare 4. Cross-curricular activities 5. STEAM activities

	Assessment Criterion 5: 1. Students stretch their knowledge trough problem solvning, research, STEAM activities, designing experiments, etc. 2. Teacher holds students accountable for using formal labels, definitions, etc., and acts as a facilitator of their independent learning. -Activities recuire students to apply their learning creativelyand practically. -Students use correct terminology in their posters and presentation.
Evaluate 10 min	The 5E Model allows for both formal and informal assessment. Teachers can observe their students and see whether they have a complete grasp of the core concepts. It is also helpful to note whether students approach problems in a different way based on what they learned. Other helpful elements include self-assessment, peer-assessment, writing assignments, and exams. ACTIVITIES: 1. 3-2-1- responses 2. Student reflection 3. Graphic organisers 4. Choice boards 5. Tests 6. Projects
	Assessment Criterion 6: 1. Teacher integrates assessment into all components of 5E Model. 2. Teacher relies heavily on formative assessment. -Science notebook reflections and class discussions provide ongoing, formative assessment. -Teacher observationsand student outputs during activities ensure real-time feedback and adjustment.