<table>
<tr><td>Title</td><td>Exploring Herbal Teas for Health</td><td>Time</td><td>2 hours</td></tr>
<tr><td colspan="2">Subject:</td><td colspan="2">Biology, Science</td></tr>
<tr><td colspan="2">Aims</td><td colspan="2">• To learn about the benefits of herbal teas for health and well-being.
• To identify and gather herbs suitable for making a healthy tea.
• To apply computational thinking principles in the process of making herbal tea.</td></tr>
<tr><td colspan="2">Key CS elements:</td><td colspan="2">Decomposition; Pattern recognition; Abstraction; Algorithm design.</td></tr>
<tr><td colspan="2">Age group :</td><td colspan="2">12-14 year old</td></tr>
<tr><td>Learning situations:</td><td>Students will learn how to prepare herbal tea and how to use it to treat simple colds in real life.</td><td>Activity type:</td><td>extracurricular</td></tr>
<tr><td colspan="2">Resources: Reading articles on medicinal and aromatic plants from Google Scholar and other article publisher libraries.</td><td colspan="2"></td></tr>
<tr><td colspan="4">Learning development:</td></tr>
<tr><td colspan="4">Introduction
Start the lesson with some questions. "What drinks do you usually drink when you are not feeling well?" "Have you ever tried herbal teas? Which ones?" Let's reveal the students' prior knowledge about herbal teas and their uses. Explain that herbal teas are made from dried fruits, flowers, spices or herbs. Common Herbal Teas: Calming chamomile. Mint for digestion. Ginger for nausea or cold relief. Bring real dried herbs to the classroom. Distribute herbs such as mint, chamomile, ginger, thyme to the students and let them examine and smell them. Talk about some of the benefits of herbal teas. Name the types of teas that are prominent in the world for some treatments that have been used for centuries. Some teas help digestion, while others promote relaxation or strengthen the immune system.</td></tr>
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Four Principles of Computational Thinking:

Decomposition: Break down the task of making herbal tea.

Pattern Recognition: Compare various herbal teas (e.g., mint tea, chamomile tea) to find common steps and key differences.

Abstraction: Discuss the essential aspects of a good herbal tea. Focus on core ideas like aroma, taste, and health benefits.

Algorithm: Guide students to write a step-by-step process for making their own herbal tea.

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1. **Decomposition (10 minutes):**
   - Discuss the components of a healthy herbal tea, including herbs, water, and optional sweeteners.
   - Break down the process of making herbal tea into smaller steps, such as selecting herbs, preparing water, and brewing tea.
2. **Pattern Recognition (10 minutes):**
   - Identify patterns in the types of herbs used for different health benefits (e.g., mint for digestion, chamomile for relaxation).
   - Recognize common steps in the preparation of herbal tea, such as boiling water and steeping herbs.

   Pattern Recognition: Pattern recognition involves identifying similarities or recurring elements within a set of data or information. In the context of making herbal tea, pattern recognition may involve recognizing common patterns among different herbs, such as their aroma, taste, or health benefits. It also involves understanding recurring steps in the tea-making process.

   Examples:

   - **Aroma Patterns:** Students may notice that certain herbs, such as mint or lavender, have distinct aromas that are commonly associated with relaxation or freshness.
   - **Health Benefit Patterns:** Through research or observation, students may recognize patterns in the health benefits of herbs, such as chamomile being known for its calming properties or ginger for its anti-inflammatory effects.

- **Brewing Patterns:** Students may observe common patterns in the brewing process, such as boiling water, steeping herbs for a certain amount of time, and adding optional sweeteners like honey or sugar.

3. Abstraction (10 minutes):

- Abstract the concept of herbal tea preparation beyond specific herbs and health benefits.
- Focus on the general principles of selecting, preparing, and brewing herbs to make a healthy tea.

Abstraction: Abstraction involves simplifying complex ideas or concepts by focusing on the most important elements and ignoring irrelevant details. In the context of making herbal tea, abstraction may involve generalizing the process of tea preparation beyond specific herbs or health benefits. It focuses on understanding the fundamental principles and steps involved in making tea.

Examples:

1. **Herbal Tea Preparation:** Instead of focusing on the specific properties of individual herbs, abstraction involves understanding the general steps involved in preparing herbal tea, such as selecting herbs, boiling water, and steeping.
2. **Health Benefit Generalization:** Abstraction may involve generalizing the health benefits of herbal teas as promoting overall well-being, relaxation, or digestion, rather than focusing on specific ailments or conditions.
3. **Ingredient Substitution:** Abstraction allows students to understand that different herbs can be substituted or combined to create new tea blends, emphasizing the flexibility and creativity involved in making herbal tea.

In summary, pattern recognition helps students identify commonalities or recurring elements, while abstraction allows them to simplify complex concepts and focus on the fundamental principles of making herbal tea. These cognitive processes are essential in computational thinking and can enhance students' understanding and problem-solving skills in various contexts.

4. Algorithm Design (10 minutes) for preaparing herbal tea with Infusion:

Step 1: Weight each herb

Step 2: Mix the herbs.

Step 3: Boil the water.

Step 4: Put them into the hot water for 5-10 minutes.

Step 5: Filter the herbs and drink the tea.

Ingredients (herbs) for

Sore throat:

- Chamomile 2 gr
- Thyme 2 gr
- Sage 1 gr

Cough:

- Marshmallow flower 3 gr
- Anise 2 gr

Cold:

- Linden 1.5 gr

- Elder Berry 3 gr
- Chamomile 3.5 gr

5. Activity (15 minutes):

- Distribute a variety of herbs for students to smell and examine.
- Instruct students to choose herbs they would like to use for making their tea.
- Demonstrate how to prepare and brew herbal tea using selected herbs.

6. Tasting and Reflection (10 minutes):

- Allow students to taste their herbal teas.
- Encourage them to reflect on the flavors and potential health benefits of their tea choices.
- Discuss the experience and share insights about the process of making herbal tea.

7. Conclusion (5 minutes):

- Review key concepts learned during the lesson, including the benefits of herbal teas and the process of making them.
- Emphasize the importance of experimentation and exploration in discovering new herbal tea combinations.
- Encourage students to continue exploring herbal teas for health and well-being.

Homework:

- Invite students to research additional herbs and their health benefits.
- Explore the cultural significance of herbal teas in different regions of the world.

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<tr><td colspan="2">• Encourage students to create their own herbal tea blends and share them with classmates.</td></tr>
<tr><td>Assessment:</td><td>• Evaluate students' understanding of the benefits of herbal teas and their ability to select appropriate herbs.
• Assess students' participation in the tea-making process and their ability to follow the steps outlined in the algorithm design.
• Monitor students' engagement and willingness to experiment with different herbs and flavors.</td></tr>
<tr><td>Expected results:</td><td>• Understanding of herbal teas: Students will develop knowledge of various herbs used for making tea and their medicinal properties.
• Practical skills: Students will learn how to properly prepare herbal tea for colds, including the right proportions of herbs, boiling methods, and steeping times.
• Awareness of health benefits: Students will gain insight into how herbal tea can support the immune system and help alleviate cold symptoms.
• Application in real life: Students will be able to apply their knowledge to treat minor colds naturally using herbal tea and understand how to choose the appropriate herbs for different symptoms.
• Critical thinking: Students will practice decision-making when selecting herbs and evaluating the effectiveness of herbal tea in different situations.</td></tr>
<tr><td colspan="2">Notes:</td></tr>
<tr><td colspan="2">Materials Needed:
• Various herbs (e.g., mint, chamomile, lemon balm)
• Tea infuser or strainer
• Boiling water
• Cups or mugs
• Optional: Sweeteners such as honey or sugar</td></tr>
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