Unplugged Activity

Title: THE PHOTOSYNTHESIS PATHWAY

Educational level: 1st grade of ESO
Curricular areas: Biology and Geology
Timing: 3rd term.

Summary

The activity aims to teach 1st ESO students to recognize the **parts of the plant** and the **phases of photosynthesis** in an interactive way. For this, some cards will be used to represent the parts of the plant and other cards to represent the phases of photosynthesis. Students will place the cards on a **large template** identifying the elements of the plant and ordering the phases of photosynthesis. The activity consists of a brief **explanation** of the process, **arrangement** of the cards and a final **discussion**.

Aims

- **Understand the process of photosynthesis:** students will identify and describe the parts of a plant and the phases of photosynthesis, using cards to represent and sequence the process.
- **Promote computational thinking:** students will divide a complex process such as photosynthesis into smaller parts such as the parts of a plant and the phases of the process, placing the cards in the correct order and simplifying the process by focusing on the most important parts and creating a logical and sequential order for the phases of the process.

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- **Enhance communication and collaboration skills through teamwork** to place the cards on the final summary template and, by explaining and discussing the process of photosynthesis with their groupmates and finally, with their classmates.

Key competencies to develop: linguistic communication, mathematical competence and basic skills in science and technology, digital, learning to learn, social and entrepreneurial skills.

Steps to follow

1. **Preparation**

   Place the final summary template, without the cards, on a wall or floor where all students can easily access it..

   Distribute the cards among the students, forming groups beforehand, so that each group has at least one card..

2. **Introduction**

   Provide a brief explanation about photosynthesis and its importance for plants and life on Earth.

3. **Main activity**

   Step 1: Ask the students to place the plant part cards in the correct positions on the summary template.

   Step 2: Once the parts of the plant are in the correct positions, explain each part and its function in photosynthesis.

   Step 3: Distribute the cards representing the phases of photosynthesis. Ask the students to place them in the correct order on the template, following the photosynthesis process:

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• **Light absorption**: Sunlight is absorbed by the leaves.
• **Water and nutrients absorption**: Roots absorb water and nutrients from the soil.
• **Glucose production**: plants use light, water and carbon dioxide to produce glucose and oxygen.
• **Oxygen release**: oxygen is released into the air through the leaves.

4. **Discussion**

Once all the cards are placed, review the entire process of photosynthesis with the students.

5. **Conclusion**

Conclude the activity with a short quiz to reinforce what the students have learned.

Suggestions

The activity can be adapted to **different levels** by adjusting its complexity according to the students' understanding.

Active participation will be encouraged by checking that all students participate in the activity with specific roles or by distributing students into groups.

Encourage **students to think about** what they have learned and how they can apply that knowledge to other contexts. Provide constructive feedback to help students improve their understanding and skills.

It could be **related to Geography**, studying how plants contribute to local and global ecosystems.

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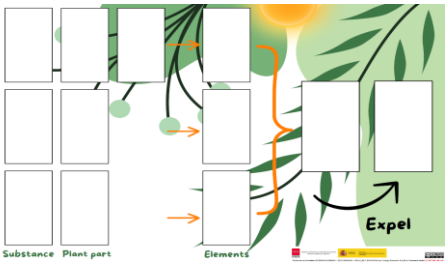
Resources

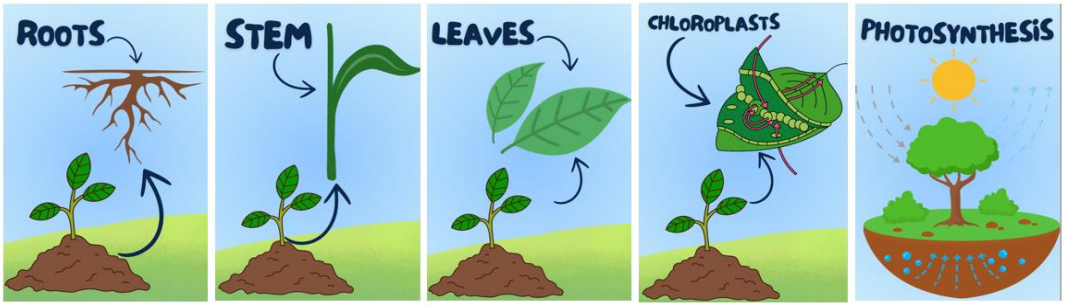
- **Human:** teacher and students
- **Material:** Materials: cards representing the parts of plants, cards representing the phases of photosynthesis, a template for placing the cards in the correct order, adhesive tape, and felt-tip pens..

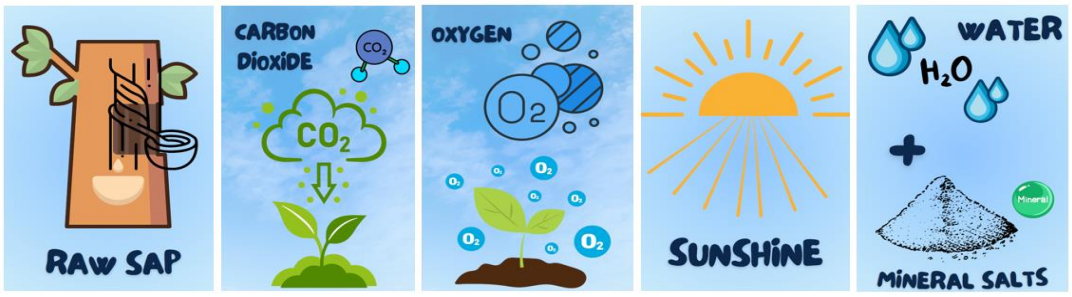
Space: classroom

Type of activity: small groups

Printable cards







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Assessment

Assessment Criteria	4 Excellent	3 Very good	2 Satisfactory	1 Needs improvement
Comprehension of the process of photosynthesis	Demonstrates a complete and detailed understanding of the photosynthesis process, including all phases and parts of the plant.	Demonstrates an adequate understanding of the process of photosynthesis, with some minor omissions.	Demonstrates a partial understanding of the process of photosynthesis, with several omissions or errors.	Demonstrates a limited or incorrect understanding of the process of photosynthesis.
Implementation of computational thinking	Excellent use of decomposition, pattern recognition, abstraction, and algorithm skills to complete the activity.	Adequately uses some computational thinking skills, but with areas for improvement.	Limited use of computational thinking skills, with several errors.	Does not use or misuses computational thinking skills.
Collaboration and Teamwork	Actively participates and collaborates effectively with classmates, contributing significantly to the success of the group	Participates and collaborates appropriately with classmates, with some areas of improvement in communication or cooperation.	Participates to a limited extent in collaboration and teamwork, with several areas for improvement.	Does not participate or participates inappropriately in teamwork tasks.
Explanation and communication	Explains the process of photosynthesis in a simple, coherent and detailed way, using appropriate scientific language.	Explains the process of photosynthesis adequately, but with lack of detail in some areas.	Explains the process of photosynthesis in a limited way, with several errors.	It does not explain or incorrectly explains the process of photosynthesis.

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Computational Thinking

Decomposition: students divide photosynthesis into smaller parts, identifying the parts of the plant and the phases of the process.

Patterns. Sequence Identification: students order the cards, recognizing patterns and relationships between the phases of the process.

Abstraction. Process Simplification: students focus on the essential elements of photosynthesis, using cards as abstract representations.

Algorithms. Logical and Sequential Order: students create a sequential order for the phases, similar to designing algorithms in programming.

Logical Thinking: students place the cards in logical order, understanding the relationship between phases.

More information

Additional unplugged programming **resources**:

https://code.intef.es/categorias_prop_didacticas/pensamiento-computacional-desconectado/

QR codes linked to the activity resources:

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