Unplugged Activity

Title: COOPERATIVE ANIMALS

Educational level: **Second Cycle of Primary Education.**
Curricular areas: **Natural Science.**
Timing: **Two 45-minute sessions (any term).**

Summary

In this activity, students will review the characteristics of vertebrate animals in pairs through different commands to create a program. Computational thinking, programming and unplugged activities will serve as a means to achieve this objective.

The teacher will act as a guide throughout the sessions within a cooperative work proposal in pairs and in cooperative teams of four members.

Aims

- Identify the characteristics of vertebrate animals based on the types of systems involved in reproduction, nutrition, and interaction.
- Create a simple unplugged programming activity focusing on the fundamentals of programming: debugging.
- Develop teamwork and problem solving skills.

Key competencies to develop: multilingual, mathematical and scientific competence, technological and engineering skills and personal, social and learning to learn.

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How do we do it?

1. Presentation. As a review of what you have learned, introduce the following activity to your students. Tell them that it will be important to practice teamwork and conflict management strategies. First, they will work in pairs, and then they will share their work with another pair from their cooperative team.

2. Vocabulary and Guided Activity. Do a brainstorming session by writing on the board all the characteristics of vertebrate animals that the students remember. Next, each pair will complete the activity outlined in Worksheet 1. Mention the importance of having a good classification as a robot in order to function correctly.

3. Main Activity in Pairs.

- **Session 1.** Once the first activity has been reviewed, give each pair Worksheet 2. In it, they will place the previously mentioned characteristics on a board in a random order, and they can repeat some (see the model worksheet). Then, they will think of a type of vertebrate animal and write the programming needed for their robot to pass through all the characteristics of the chosen animal using the cards from Worksheet 2.1. Explain that they must include a command for the robot to jump as soon as it lands on the squares that contain the characteristics of their animal type. You have an example of programming that you can show to the students.
- **Session 2.** In the next session, they will review their programming, and we will move on to cooperative group work. Each pair will exchange their programming and execute it while fulfilling the roles proposed in Worksheet 3. Will the received program have errors, or will they figure out the type of vertebrate their classmates thought of?

4. Conclusion. Once the activity is finished, the teacher will reflect with the class on the importance of one of the fundamentals of programming (debugging) and the review of programs for the correct execution by the robots.

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Suggestions

Prepare the material in A3 size so that students have enough space to write.

Laminate the cards with the commands and have one set ready for each pair.

Although the activity is designed to be carried out using a cooperative work methodology, it can be adapted as needed.

Additionally, once the class group has completed the activity, a large-scale board could be created for use during recess with other students in the school.

Resources

- **Human:** teachers and students.
- **Material:** worksheets.

Space: classroom and cooperative groups.

Type of activity: cooperative work in pairs and in teams of four members.

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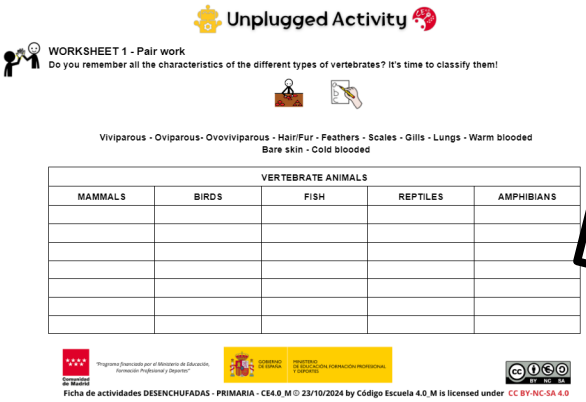
Printable worksheets

Worksheet 1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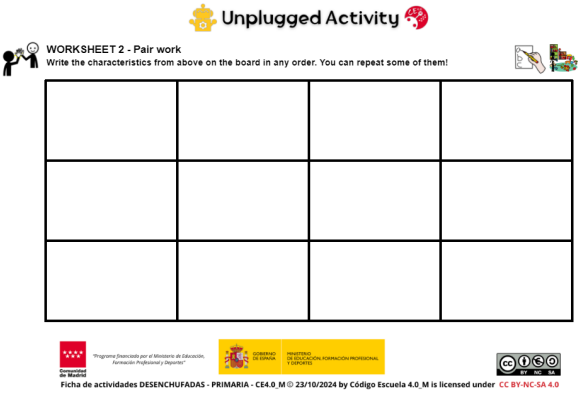
WORKSHEET 1 - Pair work
Do you remember all the characteristics of the different types of vertebrates? It's time to classify them!

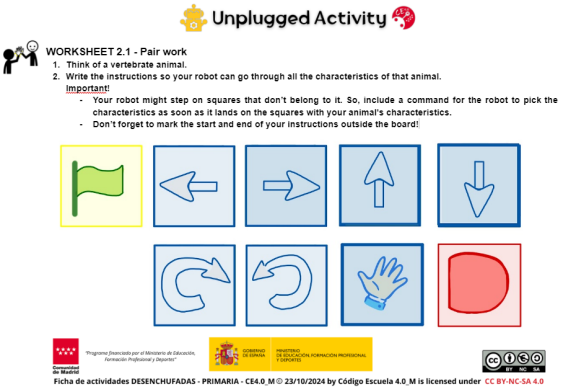
Viviparous - Oviparous- Ovoviviparous - Hair/Fur - Feathers - Scales - Gills - Lungs - Warm blooded
Bare skin - Cold blooded

VERTEBRATE ANIMALS				
MAMMALS	BIRDS	FISH	REPTILES	AMPHIBIANS

Worksheets 2 & 2.1


Unplugged Activity

WORKSHEET 2 - Pair work
Write the characteristics from above on the board in any order. You can repeat some of them!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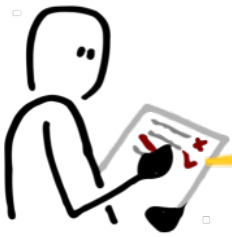
WORKSHEET 2.1 - Pair work
1. Think of a vertebrate animal.
2. Write the instructions so your robot can go through all the characteristics of that animal.
Important!
- Your robot might step on squares that don't belong to it. So, include a command for the robot to pick the characteristics as soon as it lands on the squares with your animal's characteristics.
- Don't forget to mark the start and end of your instructions outside the board!

Worksheet 3



What have we learned?

Assessment Criteria	4 Excellent	3 Satisfactory	2 Needs improvement	1 Insufficient
Tell the difference between the characteristics of the types of vertebrates.	Clearly describes the characteristics of all the different types of vertebrates.	Describes the characteristics of most types of vertebrates.	Mentions some characteristics, but is not very specific.	Does not identify any characteristic.
Work together to create a program using different commands.	The programming is complete and uses a variety of commands correctly..	The programming is good and uses some commands.	The programming is incomplete and uses few commands.	There is no clear programming presented.
Understand the process of debugging as an important part of programming.	Clearly explains the debugging process and uses effective strategies.	Shows basic understanding of the debugging process.	Mentions the debugging process but does not apply it clearly.	Does not understand the debugging process.
Work together and do your part in your pair and team.	Works actively and takes the lead in the team.	Works well and plays the assigned role.	Participates but does not play the role well.	Does not collaborate or take on a role.

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Computational Thinking

Areas of computational thinking being addressed:

Algorithms (steps and rules): is a step-by-step process that solves a problem or completes a task.

Decomposition (breaking down into smaller parts): breaking down problems into smaller and more manageable parts, which are easier to understand and solve.

Patterns (recognise and use similarities): recognising similarities or patterns in problems or data, which means come up with solutions quickly and effectively.

Abstraction (delete unnecessary details): simplifying things in a problem hiding unnecessary details or aspects to focus on those which are relevant and essential.

More information

QR code to the activity resources:

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