matatalab

Matatalab Edu Activity/Lesson Plan:

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Classroom Key Information

Content-Related:

Computer Science ☑   Math ☑   Art ☑   Music ☐

Science ☑   ELA ☐   Social Study ☑

Other: Italian, civic education, English language.

Time: Two hours   Student Age: Primary School

Complexity: ★☐   ★★☐   ★★★☑   ★★★★☐   ★★★★★☐

(★ stands for the easiest)

Activity/Lesson Key Information

Project Name: SCHOOL TRIP IN THE FOREST WITH MATATALAB: COMPARE THE SOCIAL LIFE OF TREES WITH THAT OF THE HUMAN BEING

Big Idea: Develop the idea that we can respect the environment and our companions in small everyday behaviors.

Concepts: What is a forest, the one that surrounds the country in which we live.

We reproduce the forest, built with recycled material: respect for the environment. For our very survival we save the paper that is obtained from the trees and we contribute to the non-felling of the trees.

Let's talk about:

- tangible programming language: elementary instruction, repetitions, loops, functions, bugs and debugging;

- mapping bases, conventional and unconventional length measurements;

- chlorophyll photosynthesis;

- landslides and what humans can do to avoid them;

- natural environments and anthropogenic environments;

- objects obtained from the trunk and bark of the tree.

Main Objectives:

- Use of Matatalab programming blocks to learn the concepts of ELEMENTARY EINSTRUC-TION, REPEAT, CYCLE AND FUNCTION.
- We learn to cooperate in a group and to program Matatalab to:
  create a story set in the forest, based on the personal experiences of the children and which acts as an integrator background;
  take a walk in the forest: let's help "HERRY" (Matatalab) to find the hedgehog friend and the good fairy who got lost in the forest;
  use unconventional length measurements (Matatalab step) and conventional length measurements (length measurement: meter) and calculate the size of a water source and the length of a river in the forest;
  draw square shapes for the spring and rectangular shapes for the river with Matatalab;
  manipulating paper and modeling it for the construction of paper trees: designing rectangular shapes with Matatalab programming which, once cut and rolled up, then turning one side on itself will produce "colombini"; colombini will be twisted to get forest trees.

Learning Outcomes:

- He autonomously begins to use the first basic concepts of instrumental literacy of coding: elementary instruction, repetition, cycle, function, procedure, bug, debugging.
- He knows how to program Matatalab to draw.
- Discriminates the flat geometric figures of the rectangle and square as half of the rectangle.
- Create programming procedures to trace paths, to draw flat geometric figures. employs problem solving skills.
- Consolidates the concepts of natural and anthropic environment.
- Learn to collaborate, waiting for his turn, to help his partner.
- Recognize changes in flora and fauna in a natural environment over time.
- Distinguishes a source of water, a river, a lake.
- Speaks of the water cycle and chlorophyll photosynthesis

Key Vocabulary:

- ROBOT: machine that carries out instructions given by man
- PROCEDURE: ordered and strictly structured sequence of rules or instructions.
- ELEMENTARY EDUCATION: Command as simple as possible, clear and unambiguous, so that the listener does exactly what it is expected to do.
- SEQUENCE OF INSTRUCTIONS: an orderly and sequential arrangement of instructions to follow.
- BUG: error in the sequence of instructions
- DEBUGGING: search for and remove errors from the sequence of statements
- CYCLE: iteration, also called loop, is a control structure, within an algorithm, which orders the computer to repeatedly execute a sequence of instructions,
- FUNCTION OR PROCEDURE: it is a particular syntactic construct that allows to group, within a program, a sequence of instructions in a single block.
- PATH GAMES: games that focus on the "problem solving" game strategy, to build and make our Robot retrace the simplest path.
- SQUARE: geometric figure made up of four lines of equal length that join.- TRIANGLE: geometric figure made up of three lines that do not necessarily have to be the same.
- ANTHROPIC ENVIRONMENT: environment modified by man.
- MAP: an area with 46 squares of 10cm x 10cm, on which MatataBot can move.
- CHLOROPHILLIAN SYNTHESIS: biochemical process that transforms carbon dioxide into oxygen
- WATER CYCLE

Prior Knowledge:

Know the shapes of the rectangle, the square and have a basic knowledge of the use of coding blocks (elementary instructions) and movement for programming.

Standards(ISTE, CSTA, CCSS, NGSS, etc.):

ISTE: 1a, 1c, 3c, 3d, 4b,4c, 6b

NCAS: VA:Cr1.1, VA:Cr1.2, VA:Cr2.1 VA:Cr2.3, VA:Cr3.1, VA:Cr10. 1

Matatalab Products & Supplementary Materials

Coding Set ☑   Music Add-On☐   Artist Add-On☐   Pro Set☐
Animation Add-On☐   Sensor Add-On☐   Lite☐   MATATA Map☐

Supplementary Materials

Large colored cardboard sheet, gouache, newspaper sheets, old notebook sheets, scissors, glue stick, brown crepe paper, green paper napkins, pencil, paints, eraser, sharpener.

Detailed Activity/Lesson Plans

Matatalab Edu classic lesson

	Instructions step by step	Time
Lead in & Guided Activity	Brainstorming: we talk and observe trees after reading the book "Like a tree" We talk and observe trees after reading the book "Like a tree". What is the structure of a tree? How does a tree live? What material is it made of? What do we get from wood? How do they feed? Why do roots have a social life? Why does the social life of trees resemble the social life of the human being? Where do we see more trees? How can we rebuild our forest? What can we use to avoid wasting paper? How can we use Matatalab to draw shapes? Let's start with the shape we know: the square.	30 minutes
Independent Activity	We prepare large colored cardboard sheet, that is, we begin to build our map: we grid the Bristol sheet obtaining squares with sides as long as the Matatalab step (10 cm). We build the trunk and branches of the trees with old, rolled up newspaper sheets. We use gouache to color the trees brown and brown crepe paper to recreate the tree bark. We draw the leaves on the green paper napkins and cut them out.	15 minutes
	We glue the trees to the Bristol sheet, being careful to leave a path for Matatalab. We cover the roots of the trees with pieces of green paper napkins to protect them. Let's build an enchanted bridge in the middle of the forest with empty snack boxes.	15 minutes
	We program Matatalab to draw the shapes of the square and rectangle, for the source and to measure the length of the river, on old notebook sheets, pieces of cardboard, white sheets Use the blue chalk of the blackboard to color the river, crayons to color the spring and the forest meadow.	20 minutes
	Assemble everything to build our forest: the forest map is ready and Matatalab is ready to help the protagonists of our story: the hedgehog and the good fairy.	20 minutes
	We program Matatalab to find and save the protagonists of our story (games that the children have brought from home), such as the hedgehog and the good fairy. As we program Matatalab, we create our story.	20 minutes

Detailed Activity/Lesson Plans
Matatalab Edu classic lesson

	Instructions step by step	Time
Feedback & Extension	We talk about our forest and the changes and transformations it has undergone over time.	
	Let's tell the life of the tree together. Let's retrace the steps to create a tree, the leaves, the spring and	
	the river with our words and memories, all rigorously made of recycled paper.	
	While we are programming Matatalab, to take it around in our forest, we create our story "HERRY, the	
	friend of the forest".	
	Playing with Matatalab, we talk about the importance of not wasting the paper of elementary	
	instructions, repetitions, cycles, functions; we also find out what bug and debugging are and how	
	important they are to understand our mistakes.	

Essential Questions:
- The sheets we used to build the trees, what shape do they have?
- Was it easy to draw and cut out the leaves?
- Remember children what a square is?
- How did our friend Matatalab help us?
- Do we want to draw the source of the river? What shape could we give it?
- Was it easy or difficult to get rectangles and squares?
- What "procedure" did we use to make Matatalab draw a rectangle and a square?
- To draw the river, is it easier to use the number blocks for the repetitions or the dark green blocks of the loop?
- How many instructions did we use to draw the four sides of the square?
- How is number 4 pronounced in Italian and in English?
- How do you pronounce the square and the rectangle in English?
- "Go ahead", "Turn right", "Turn left", how are they pronounced in English?
- How many squares did it take to rebuild the river?
- Was it more fun to program Matatalab to draw or to help our characters (toys) who were lost in the forest?
- Have we wasted a lot of paper?
- How did we help each other save paper?

Supporting Multimedia Files:
https://drive.google.com/drive/folders/1-K6RbuIg8EOkKLqwiNtdZidy7hbOcaG5?usp=sharing