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PROSOCIAL ROBOTICS

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Usak - First teachers' training

ProSocial Values

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LEARNING OUTCOMES

- Enhancing the use of innovative tools in the class activities
- Implement cooperative activities to improve the prosocial behaviours
- Foster the reflection about the prosocial values and the historical development of this concept
- Prevent the development of antisocial attitudes or bullying inside and outside the classroom
- Help the teachers to involve the learners in the development of their own learning process
- Use the new technologies to communicate, read, understand and produce texts, improve the code-learning, the computational thinking, the use of small robots

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TRAINING CONTENTS

New technological tools can be used as meaningful way to involve students in their learning process. Innovate the teaching strategies introducing code learning or simple robots improve the students' interest because the topics are taught with the active participation of the learners. Work with this tools in groups allow the learners to practice relational skills because they have to cooperate in order to solve problems or find a common solution. The educational robotics is an adaptable methodology to teach the prosocial values while working on different topics. This workshop will present a specific teaching activity based on the meeting of the Men and the technology, understanding the culture and its changes along the history.

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TRAINING CONTENTS

The reflection on these topics allows the learners to understand different points of view and cultures, to develop personal ideas about the respect of the others and to enhance their ability to work in groups. The founding concepts of this activity and workshop are the social competencies, the cooperative work, the concrete application of the knowledges in the real word, the empathy and the responsibility. The teaching activity is based on the group work so that the learners can work directly on their improvement of the prosocial skills while they are reflecting on some prosocial theme.The teachers will be active part of the workshop while discussing and developing in groups new learning activities based on the use if the educational robotics and the prosocial values teaching.

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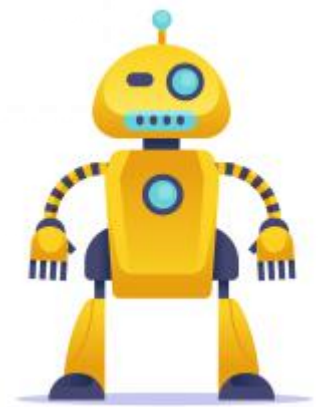
EDUCATIONAL ROBOTICS

- Simple and practical approach
  - Uses robots to stimulate curiosity and logic
- Encourage students in guided discovery and in problem solving



- The students get used to **work in group** to:
  - solve problems
  - find solutions
  - verify the results

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EDUCATIONAL ROBOTICS

Plays an important role to:

- increase motivation and involvement
- develop problem-solving skills, creativity, and curiosity

- support a learner-centered teaching
- improve teamwork

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In classroom, according to the confidence the students have with robotics, we use two robots: Celentoni DOC and Clementoni MIND.

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Clementoni DOC helps develop logical and problem-solving skills; teaches letters, numbers, colors, animals.
It can be programmed to run free paths or reproduce the trajectories required by the game cards, to develop logical sense and solve the first problems

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HOW TO USE IT

- 2 modes: EDU or FREE

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Clementoni Mind Designer combine the coding with the drawing. It can be programmed through buttons, app and voice
It develops logical and problem solving skills, with a specific focus on shapes

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HOW TO USE IT

- 3 modes: EDU, FREE or app

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TIPS FOR THE PRACTICAL ORGANIZATION OF THE CLASS

a. The classroom organization is a message to the students: space should help to focus the attention, as it can affect feelings

b. The roles should be assigned to give everyone the opportunity to join the group and become aware of his own abilities.

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c. Robotics at school is a group commitment. Groups usually consist of 3/4 students working together

d. While selecting the students in the groups, the teacher has to keep attention to pair those who have more difficulties with the ones with more confidence, or to create balanced groups where all can participate actively.

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e. From one exercise to the other, difficulty and commitment must gradually increase.

f. The rules must be clearly stated in advance: who starts, what are the task of each one, how to talk to each other and to the teacher, etc. During the activity the teacher observe the behaviour and gives rewards or penalties.

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g. The equipment must be adapted to the number of groups/ students and robots used can be of different types depending on the age and level of the target group.

h. It is better to involve the headmaster and the other teachers in the big projects in order to have the institutional and the peer support.

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IT'S YOUR TURN

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A robot, lacks typically human characteristics, fundamental for educational activities, such as emotional intelligence...

So it has to be used in a social (and socializing) context

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- DOC has a nice shape and physiognomy, which stimulate Luca's care for it

- DOC has colored catchy lights and Luca has fun

- DOC says simple and clear things. The sounds he emits are clearly distinguished, give immediate feedback to Luca

- DOC moves with Luca, goes where he wants, this communicates to Luca that he can control external events

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Luca, with DOC, has:

- refined his motor skills, learning to press the button delicately
- programed the movements according to what he wants the robot to perform
- understood the concept of forward, backward, rotate right/left
- started to identify strategies for creating paths to reach the goal

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"Regoliamo"

Teaching prosociali values with robotics

- Goal: To develop prosociali values (respect others and the envirorment, having a critical thought, sense of social responsaqbility).
- Age: 10 (5° grade)
- Methodology: cooperative learning, co-constructivism
- Period: 5 weeks (3 hours per week)

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Step 1: Analisys in the school Regulation

- Reading and discussing school Regulation (teachers, students, janitors).
- Dividing students into groups (6 groups of 4 children).
- Each group chooses the 3 most important rules about students that should be respected to feel good togheter in school.

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STEP 2: Building our own school Regultion

- Each group presents its work to che class and the teacher points the rules it chose on the blackboard.
- All together, students choose 12 rules o build their own school Regulation.

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Step 3: how to present the rules to the new pupils

- Discussing the moste efficient way to present the sules to the new children (game, song, drama...)
- Presentation of the game: **Right or Wrong?**

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Step 3: how to present the rules to the new pupils

- On the board the pupils put the drawing representing for each shool rule a situation in which a child is respecting it and one in which he/she is not respecting it. To complete the game there are some red and green frames
- The children have to guide DOC through the board reaching all the images
- Once they arrive in the square with a picture they have to discuss if the action respect of break one of the school rules, put the picture on DOC, coding it to reach the the correct frame (red if is worng, green if it is right) and put the picture there.
- The game continues till there are no pictures left

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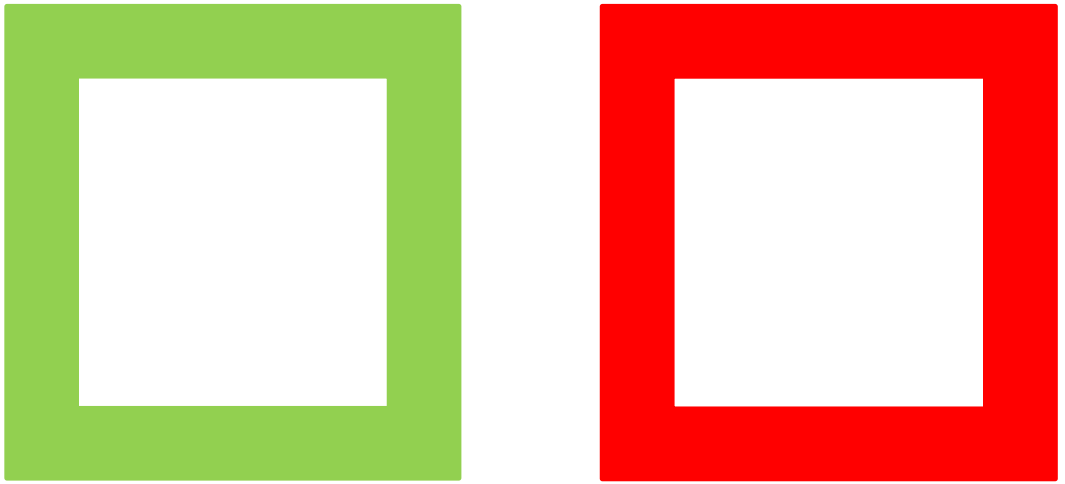
Step 4: Creating the robotics game

- Each group draw 2 “rules cards”: for each rule students draw a situation illustrating a right behavior (the picture is surrender by a mobile green frame) and also a situation illustrating a wrong behavior (the picture is surrounded by a red frame).



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- Students are divided into 3 groups :

1. Preparing a poster with rules (pictures and writings).
2. Preparing the rule book of the game.
3. Creating warm up activities to use DOC.

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Step 5: Presenting the game to new students

- Some students present the class and the goal of the game
- Some other student present Doc and show how to use it.
- Warming up activities in groups (older and younger students together).
- **Let's play!** Younger students are divided into 4 groups and they are introduced to the game and helped to play by some older student.

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Rules of robotics and rules of the society

Backward design (Wiggins and McTighe): starting from our learning objectives to recreate the learning path till the practical activities that the students have to perform

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LAWS OF SOCIETY LAWS OF ROBOTICS

1. A robot may not injure a human being or, through inaction, allow a human being to come to harm.

2. A robot must obey orders given it by human beings except where such orders would conflict with the First Law.

3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Law

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