

ODYSSEY ALL TOPICS



S23
T1-4
D1-12
L3-4
P1

Goals of the lesson:

- self-regulated learning
- problem solving
- creativity
- fine motor skills

Activity

Start: plan how to create the output, and which is the order in which create the several parts.

Then, decide how to build them dividing the work among the group.

All students fill in their Robotic task card
 Planning the robots

Method/Interaction

The working groups have to be helped in coordination, task distribution (paying attention to developmental aims)

Individual and group work, teacher's orientation for fulfilling the developmental aims

Output

Roles in the group – what part of the scene will be built by whom

Concrete plans of robots and environment of all scenes

1. Planning the robots

Time needed: 20 minutes

Needed materials:

- the text segment
- Group task sheet
- Character cards, Storyline
- Robotic task card
- Template for planning the robot
- Paper, pencils for taking notes, drawings

Activity

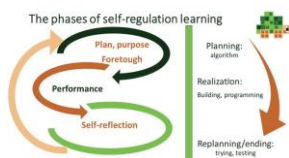
Building and programming characters (animated figures: Stefan, Ioan, the Traveler, the Judge and vizualisation of the decision) – actions, interactions according the text

Building environment (static objects): Landscape, a road, the court room,...

Method/Interaction

Group work using the text, Character task cards, Robotic cards and Technical Corner
 Show sample robots from the Idea Bazar if needed (the aim is NOT to copy the samples!)

Help the problem solving and the self-regulated learning



Communication among the groups

Output

Built and programmed robots

Photos and videos taken about the making

2. Building and programming the robots

Time needed: 55 minutes

Needed materials

- Group task sheet,
- Character task cards,
- Robotic task cards,
- Storyline sheet
- Technical Corner
- Pencils
- Ideas if needed

- ArTeC robots
- ArTeC Blocks
- computer

Activity

Representation

Evaluation

Method/Interaction

Each groups present their robots and environment

Discussion, teacher's feedback

Evaluation

Evaluate the process (the flow, being autonomous, coopeation among group members), the originality (variety of ideas) inclusion,

3. Evaluation

Time needed: 15 minutes

Output

Ideas for the final representation

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P2

Goals of the lesson:

- self-regulated learning
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Flexible usage of the learning materials

Teacher can customize the learning process and the development of each student with the combination of the variations of learning materials and the appropriate level of programming skills.

Problem solution, self-regulated learning

The most important task of the teacher is helping the problem solution and the self regulation learning rather like a mentor than an instructor
The development of these skills is essential for the improvement of learning success and life skills

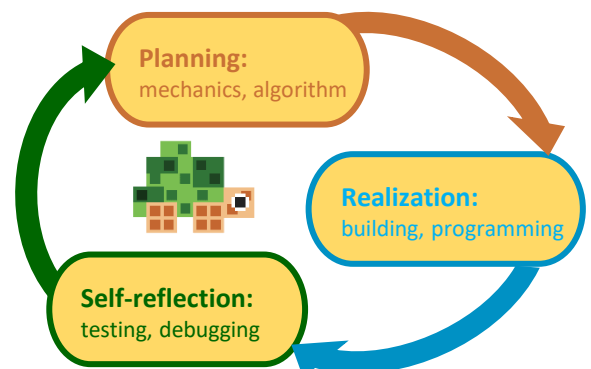
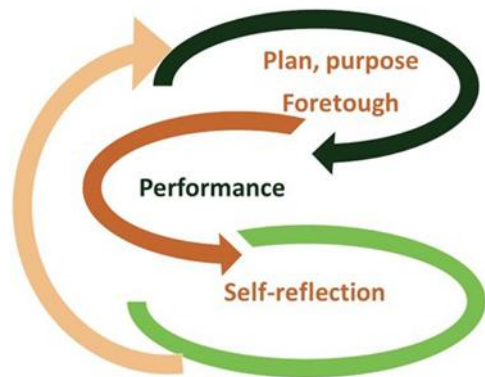
How can you help your students in self-regulation learning?

- Don't give them concrete instructions in the matter of the structure and the program of the robot!
- Teach them to build their program step by step and continue writing the program only if the current part works correctly.
- Encourage them to test their robot after each steps of programming!
- In case of any error in the program help them to identify the logical problem, but don't tell them or show them the concrete bug! Make them verbalize the difference between the planned and the real performance of the robot.
- Let them look for the bug in the program, help them with questions, not with instructions!
- Ensure them that having error in the structure of the robot or in the logic of the program is not a fail, but natural part of learning as well as of product development!
- Don't tell them if the correction was good or not, but make them to test again their robot and have self-reflection!

Supporting creativity

- Support individual creative initiatives but ensure that the right balance is maintained between them and didactic goals
- Allow the access to the helping materials, task cards and the text as resources
- Make the students to fill in additional Character cards or Robotic task cards to concretize new, additional ideas
- Use the robot samples only in „emergency case“, when students don't have own idea or if development needs a specific solution!

The model of self-regulated learning and it's application in teaching robotics



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Programming levels

These levels can be combined in one scene, one group.

This is also the tool for differentiating and for individual treatment. Choosing the appropriate programming level helps to focus and strengthen the developmental aim.

Teacher can combine all programming levels with all developmental fields according to the students' skills and needs.

Bravely differentiate within the group! Don't aim to make all the students to work on the same complexity level when programming! It's not necessary to use robots of the same programming level within one scene!

If they complete the task too quickly they can be given another task card. If the task is too difficult the other students should be asked to help or they can be given more helping materials!

1. Level (**PROG1**): building, especially mechanical solutions, motorized structures, basic automatic algorithms
2. Level (**PROG2**): programming, simple robots, a few lines of basic/combined programme codes
3. Level (**PROG3**): complex problem solution, interactive algorithms, sensors
4. Level (**PROG4**): talent development: complex robots, structured coding and solution optimisation

Development according students' needs

The 8 developmental fields can be integrated in any level of the robotics according to the developmental aim

At the same time these are the tools for differentiating and for individual treatment
Teacher can help the development by choosing the appropriate tasks, by questions, choosing helping materials, samples, etc.

Suggested procedure for every group:

Hints:

Do first a plan, a project about what to do, and who have to be responsible for the part.

Start by planning the body (which should contain the studuino base), then the other parts of the body, according to the size.

Integrate features when needed, in order to improve interaction among characters.

More robots can be integrated to the same Studuino board – make their program separately and when everything works correctly, copy them into a unified program

Consultate with other groups and harmonize the work, the size of the robots.

If students are worried about the lack of time, take care of them: they have got 2 lessons for completing their work.

Remember students to collect pictures/videos of the "make of" for the final documentation!

Suggested output:

Robots

- Built robot characters (animated figures) visualising the essence of the text portions
- Built environment (static objects): according to the text
- Unifying the scenes we get the whole story

A set of pictures, videos, task cards documenting the „make of“