

EV3

CODING

ACTIVITIES



KEY

LEARNING

VALUES

- Develop Computational Thinking skills through coding and solving real-world problems
- Create algorithms (a series of ordered steps) to solve a problem
- Optimize performance of programs by prioritizing criteria, testing, and revising



Engage students in computer programming using real-world problems with LEGO® MINDSTORMS® Education EV3 Coding Activities

LEGO® MINDSTORMS® Education EV3 Coding Activities were developed to fit within your class time and bring real-world scenarios to life. Students learn key programming concepts through the exploration of real-life problems linked to the theme of autonomous cars.

DEVELOP THE

SKILLS

TO

CODE



To use the Coding Activities you will need to have the LEGO MINDSTORMS Education EV3 Core Set (45544)

9 ACTIVITIES

60-135 MIN. EACH

LEGO® MINDSTORMS® Education EV3 Coding Activities challenge students to solve problems using their creativity and technology tools. Over the course of these activities, students develop design skills and go through the five steps of Computational Thinking including:

Decomposing the Problem

Students are presented with a situation that guides them to a problem or something which needs improvement. Students break down the problem into smaller parts to make it easier to understand. Evaluate your students' Decomposition skills by asking:

- Are students able to explain the problem and divide it into parts that are more manageable?

Generalization

Students consider different solutions to the problem, including thinking of ways that similar problems have been solved. Students investigate different functionalities of the sensors, programs, and robot design to see what known solutions might work for the new problem. Evaluate your students' Generalization skills by asking:

- Are students able to identify parts of an existing program that they could reuse?

Algorithmic Thinking

Students create a step-by-step process to follow. Students make a detailed plan and outline the steps needed to reach the solution using graphical programming language. The program activates their LEGO® models. Evaluate your students' Algorithmic Thinking skills by asking:

- Are they able to code the model using sequence, loops, conditional statements, etc.?

Evaluation

Students test their program to evaluate if their automated car reacts the way they planned. If it did not, they make modifications to their program until their program solves the problem. Understand your students' abilities to use Evaluation skills by asking:

- Are they able to judge if their program provides an effective solution to the problem?

Abstraction

Students reflect on their solution to see if a generalizable rule can be abstracted, which will support solving future problems. Evaluate your students' abilities to generalize rules by asking:

- Are they able to anticipate future use of this solution or program?



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Curriculum material, software, eLearning and assessment tools are freely available at: LEGOeducation.com/start

Coding Activities are available for the EV3 Lab (desktop) and the EV3 Programming (app). Please check system requirements at LEGOeducation.com



LEGOeducation.com

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