

**Topic: Introduction to robotics. The first model and the first program.**

Duration: 60 minutes

***Lesson objective***

- To form an idea of what a robot and robotics are.
- Introduce students to the VEX GO set.
- Learn basic mechanical and electronic components.
- Teach how to use the Pin Tool.
- Assemble the first base model (chassis).
- Create the first robot motion program.

***Lesson structure***

*1. Organizational moment (5 min)*

- Greeting.
- A brief introduction to the topic.
- Questions for children:

What is a robot? Where can we see robots?

## 2. *What is a robot and robotics? (5 min)*

Explanation in simple words:

- A robot is a machine that can perform actions according to a program.
- Robotics is a science that combines mechanics, electronics, and programming to create robots.

Short examples from life.

## 3. *Introduction to the VEX GO set (10 min)*

### 3.1. Kit components

- What's included in the set.
- Division into:
  - Mechanical components (beams, plates, axles, wheels, etc.).
  - Electronic components (Brain, motor, battery, sensors).

### 3.2. Purpose of components

- What are mechanical parts needed for?
- What are electronic components needed for?
- A brief description of the purpose of each electronic element.

### 3.3. Learning the names of parts

- Working with a poster.
- Correct pronunciation of names.
- Emphasis on the importance of correct terminology.

#### 4. Rules of operation (5 min)

- Rules for working with the set.
- Rules for working with the assembled model.
- Neatness, order, responsibility.

#### 5. *Introduction to the Pin Tool (5 min)*

##### 5.1. Three main functions:

- Pushing out pins.
- Grabbing and pulling.
- Weighing parts.

##### 5.2. Practical task

- Prepared task sheets.
- Children train:
  - pull out,
  - to push out,
  - weigh the details.

## 6. Assembling the first model (15 min)

- Assembly of the basic chassis according to the instructions.
- A model without sensors is just a moving platform.
- Control of correct assembly.

## 7. Introduction to programming (10 min)

### 7.1. Connection

- Connecting the Brain-block to a computer or tablet.
- Familiarization with the programming environment.

### 7.2. First blocks

- Start block (when the robot begins execution).
- Speed adjustment unit.
- Movement block (forward/backward).
- Setting the duration or distance of movement.

### 7.3. Practice

- Model testing.
- Task:
  - movement at different speeds,

- movement over different distances.

### *Lesson summary (5 min)*

- What new things did you learn today?
- What was the most interesting?
- A brief review of key concepts.

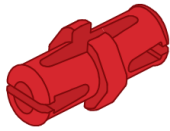
### ***Expected result***

After the lesson, students:

- They understand what a robot and robotics are.
- Know the basic components of the VEX GO set.
- Know how to use the Pin Tool.
- The first model was assembled.
- Created and tested the first robot movement program.

# Worksheet

1. Connect the parts and their names with lines.



**Gear**



**Large Beam**



**Brain**

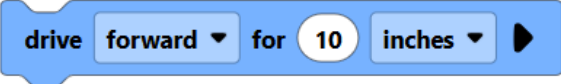
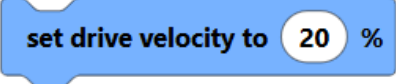



**Pin**



**Wheel**

2. Consider the program blocks and write their functions using auxiliary words and brackets (Start program, Move forward 10 inches, Set speed 20%)

Program block	What does the block do?
	
	
	

3. Write in the circles with the letters A, B, C what actions the Pin Tool can perform.

- A - Puller
- B - Pusher
- C - Lever

