

Robot Dance

Task Description

The goal for this introductory programming is to get the robot to dance. By making their robot dance, students will learn some basic programming skills such as moving forwards and backwards, turning, and using loops.

Materials needed

- *EV 3 Mindstorm Robot* in base configuration
- *Lego Mindstorms Education EV3™* software on an iPad or PC
(Note: The PC application uses the same programming blocks, but they look slightly different sometimes)
- Music



Dancing Robots

Watch a video of a group of dancing robots here: <https://vimeo.com/291510578>



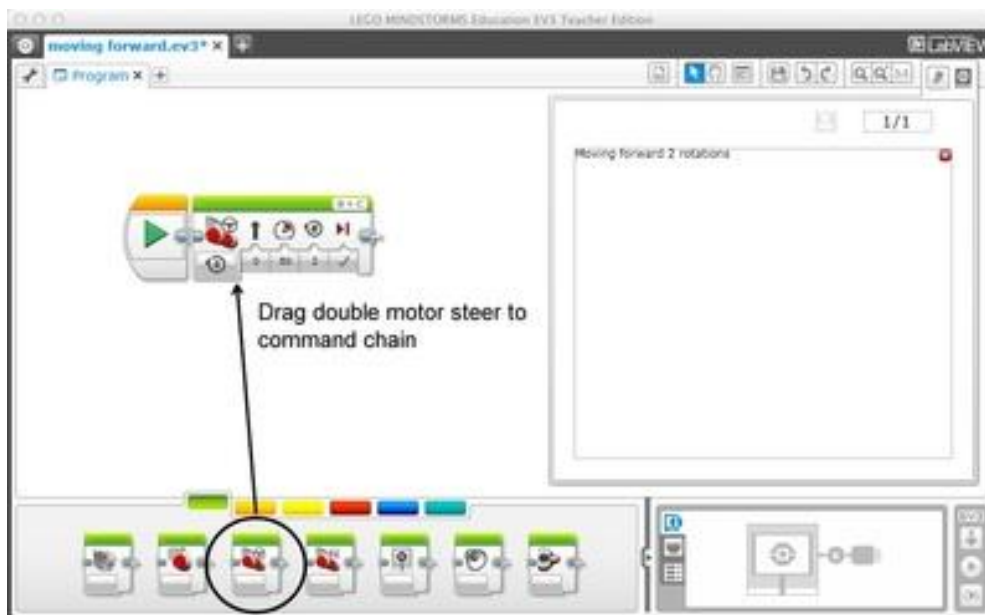
Programming to Dance

Please find a step-by-step tutorial on programming the robot to dance on the next pages, or see these video tutorials:

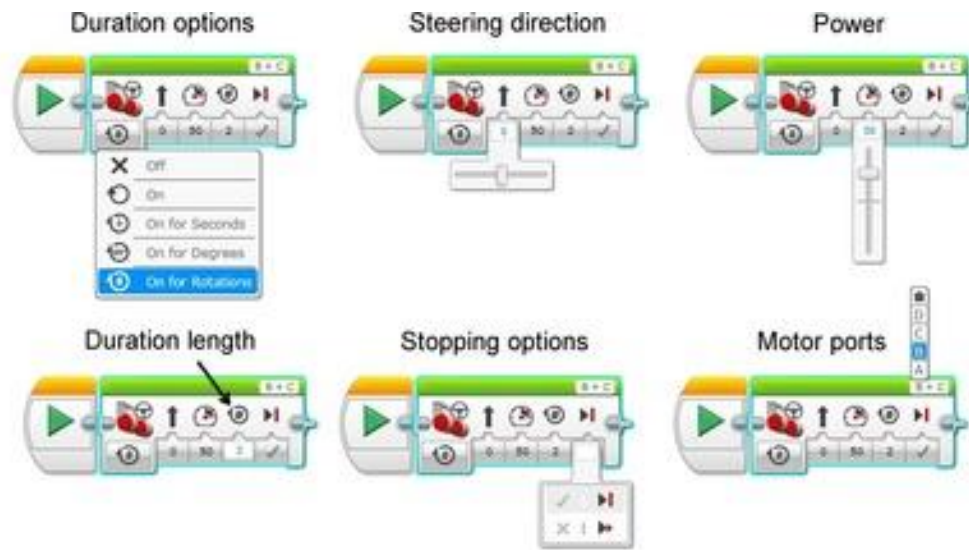
- Video 1: <https://vimeo.com/148521107>
- Video 2: <https://vimeo.com/148521658>

1) Moving Forward and Turning



















- Drag a <Move Steering Block> to the command chain and connect it to the <Play> button.



- The <Move Steering Block> has multiple functions:



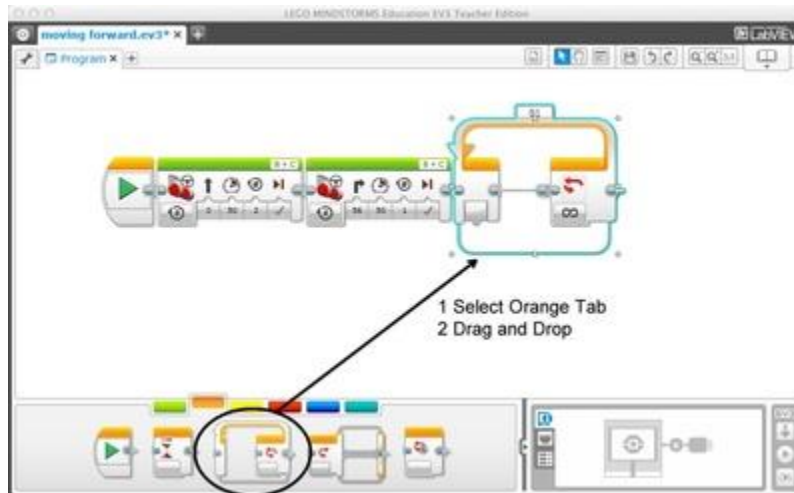
- **<On> / <Off>:** <Off> turns the motor off / <On> turns the motor on indefinitely
- **Steering direction:** Makes robot go straight or turn depending on the number, i.e.,

Forward (Pos. Power)									
Steering numeric input (-100 to +100)	-100 to -95	-94 To -63	-62 to -37	-36 to -6	-5 to +5	6 to 36	37 to 62	63 to 94	95 to 100
Backward (Neg. Power)									
- **Power:** How much power is delivered to the wheels
- **Duration length:** How many times do the wheels rotate
- **Stopping options:** Break or coast at the end of block
- **Motor ports:** Which motor ports are used (ports are labelled A-D at the robot's front)

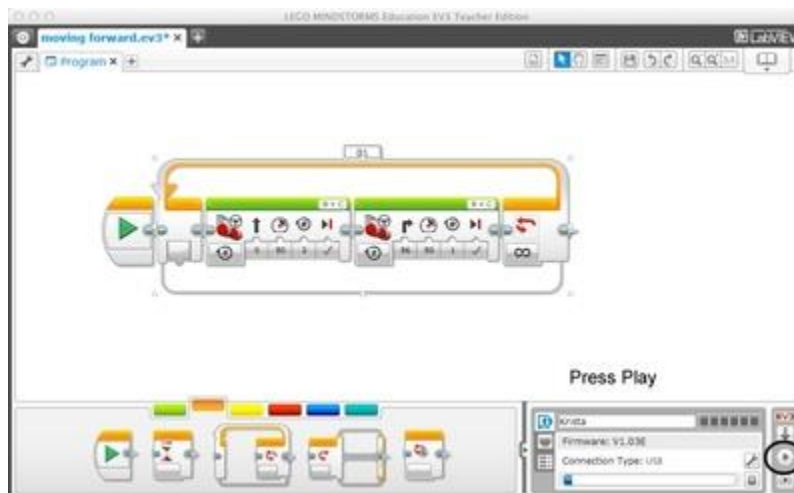
Note: Use the <Move Steering Block> to make the robot go backwards (i.e., use a negative number in the *power* setting).

2) Loops

- Loops are useful for repeating a sequence of steps, such as dance moves. To create a loop, select the orange tab on the lower menu bar. Then drag the <Loop Block> to the command programming chain.



- Then drag your sequence of blocks into the loop. Make sure they are attached to the chain and in the correct order.



- There are many options for how long the loop repeats, which can be found by clicking the infinity symbol.

