

Model 7 - Goal Kicker



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Model 7 – The kicker LEGO Education WeDo



Connect - Preparation and discussion

The children could discuss these questions during circle time, or you could devise activities to address them.

- Pretend you're hitting a ball with your foot. What part of your body is moving the most. Can you describe how it moves (back a little and then forward more)
- Pretend you're hitting the ball very hard and the very gently. What do you do differently with your leg?
- Two by two, your buddy rolls a ball on the floor and you try to kick it with your foot back to your buddy.

Engaging question

Can you build a kicker that could kick a little paper ball?

* Show the children the poster of the Kicker to get them thinking about building this model.

Construct

Model 7 – The Kicker

Note: The challenges are meant to help the children eventually construct a Kicker that moves like a leg, swinging back and then forward, by breaking down the problem into component parts. If you can, rather than making the challenges an "assignment", guide the questioning so that each challenge looks at a part of the problem. Ex: "Does our leg swing around when WE kick? Which way does the motor have to turn to move it back? To move it forward? Can you move it back a little. Can you make it move forward just enough to kick? Etc. The Continue stage could come from a final challenge to make the kicker move well enough to score goals. If well guided, this idea could come from the children.

Contemplate and discuss

Tips that are given to the students on the site.



Tip to launch the programme
Use the green arrow pictogram.



Tip to stop a programme
Click on the red square.



Tip to program the duration (time)
Use the motor time pictogram and the 123 one.
Place the cursor in the 123 box. When the letter "T" appears, type the number for the time you want.

Tip for the time

If you want the robot to move for 1 second, type 1 and add a 0. If you want it to move 2 seconds, type 2 and add a 0. If you want it to move 3 seconds, you know what to type and to add.



Tip for motor power

Put together the motor power and the "123" pictograms. Place your cursor on 123. When the letter "T" appears, you can type a number. The power goes from 1 to 10: 1 is the weakest, 10 the strongest.



Tip for waiting

Use the hours glass time pictogram and the 123 one. Place the cursor in the 123 box. When the letter "T" appears, type the number for the time you want.



Tip for the sound

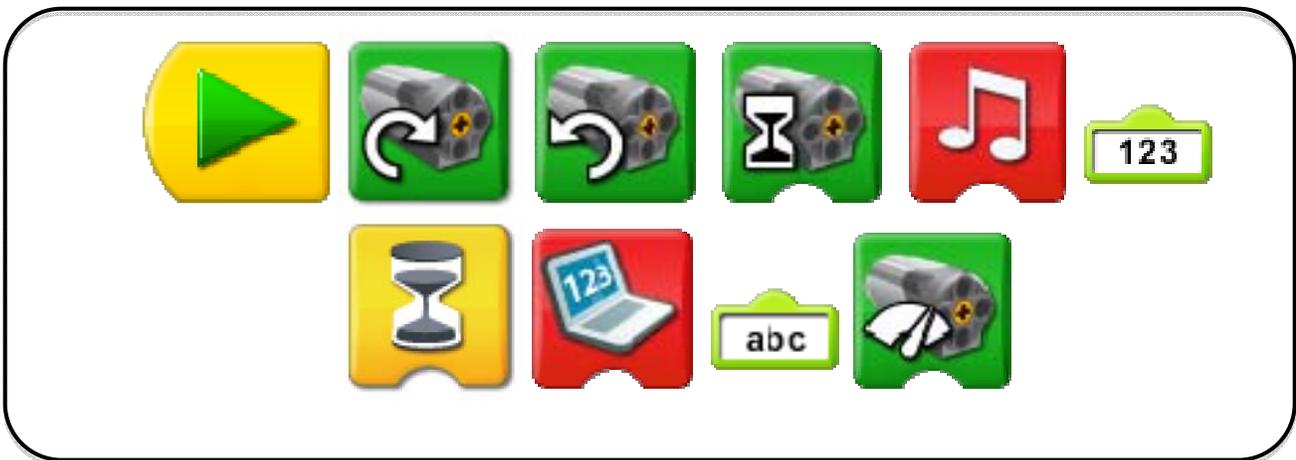
Put together the music notes and the "123" pictograms. Place your cursor on 123. When the letter "T" appears, you can type a number. You can choose among 20 sounds: numbers 1 to 20.



Tip for making the word "wow" appear on screen

Put together the Computer 123 and the "abc" pictograms. Place your cursor on abc. When the letter "T" appears, you can type the word "wow".

Pictograms to use in the challenges



Here are a few challenges the children can do in class.

Challenge 1

Find the cheering sound.

Challenge 2

Make the kicker's leg turn all the way around slowly

Note to teacher: motor power 1 may not work because the leg is too heavy.

Challenge 3

Make the leg swing just a little one way and stop.
Can you make the leg swing just a little the other way and stop?

Note to teacher: To swing “just a little” you need a very short time: one or two tenths of a second. This challenge also lets them find which motor direction moves forward and which back. Click on the Motor direction icon to make it change direction. This way they can test for the best settings for swinging one way and then the other. Play with the combinations of motor strength and time, increasing one while decreasing the other.

Challenge 4

Make the leg swing back just a little and then forward just a little, like a real kick.
Can you make it kick a ball?

Note to teacher: Simply combine the results of challenge 3 in one “sentence”, starting with going back.

Challenge 5

Make the leg swing to kick a ball and then we hear clapping.

Challenge 6

Make the leg kick to hit the ball and then show the word “Bravo” on the screen.

Continue

Each team creates its own challenge using the pictograms in the exercises above. Rather than story telling, this robot lends itself to problem solving in the form of fine-tuning a movement that swings back and forth with a wait time in between, as well as testing different balls and building goal posts to score in. They could use the repeat block to make the swinging continuous. Plan a time during which each team can explain and show their challenge to the class.

Model 7 – The kicker Correction Key

Contemplate and share

Challenge 1

Find the clapping sound.



Challenge 2

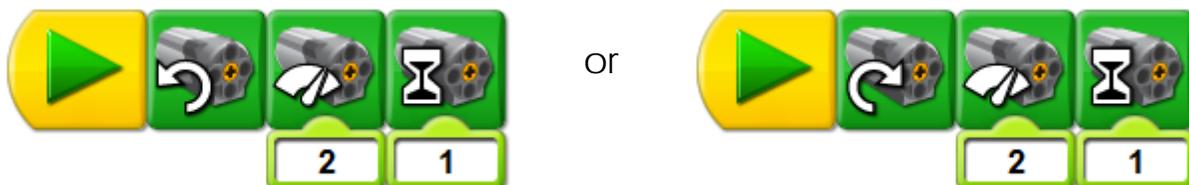
Make the kicker's leg turn all the way around slowly



(or a number from 2 to 5)

Challenge 3

Make the leg swing just a little one way and stop.
Can you make the leg swing just a little the other way and stop?



Note to teacher: swinging "Just a little" means making it swing a very short time. Use a number below 10 to be in tenths of a second.

Challenge 4

Make the leg swing back just a little and then forward just a little, like a real kick.

Can you make it kick a ball?



Challenge 5

Make the leg swing to kick a ball and then we hear cheering.



Challenge 6

Make the leg swing to kick a ball and then show the word "hurray" on the screen.



Note to teacher: the results of challenge 2 (leg turns all the way around) could also be used to solve these last two challenges by adding the last pictogram.

Continue

Each team creates its own challenge using the pictograms in the exercises above and others. Rather than story telling, this robot lends itself to problem solving in the form of fine-tuning a movement that swings back and forth with a wait time in between, as well as testing different balls and building goal posts to score in. Plan a time during which each team can explain and show their challenge to the class.

The answers are personal for each team



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HURRAY

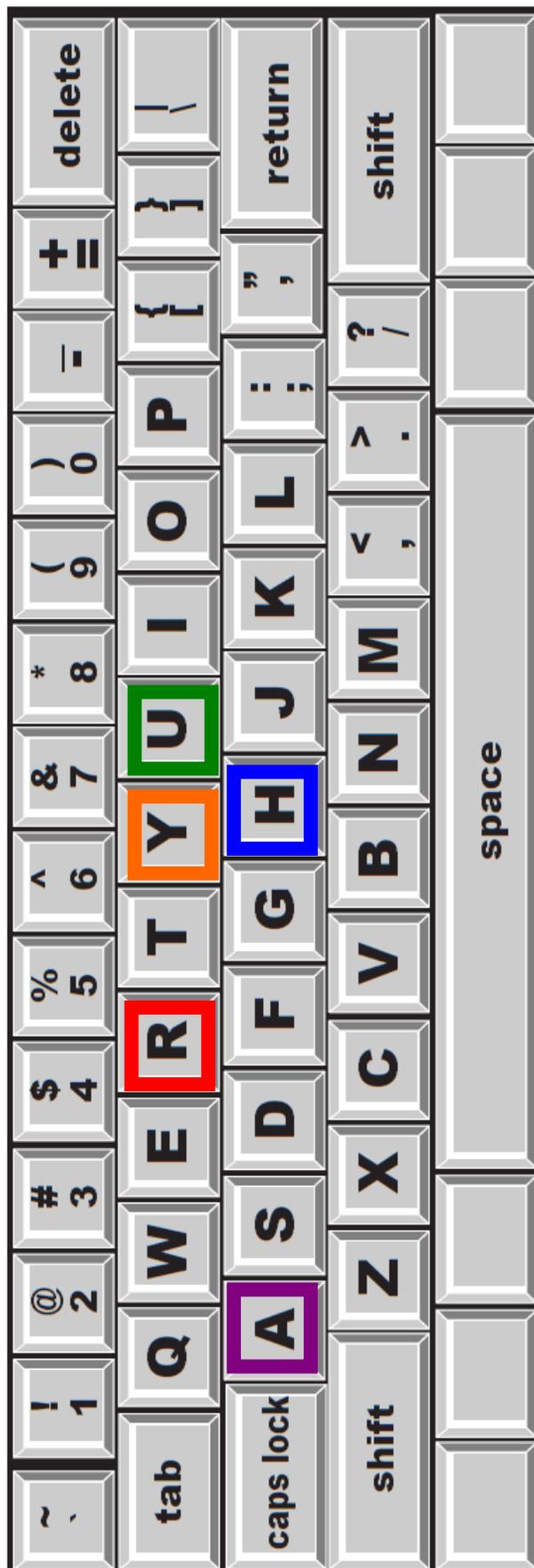


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