



Healthy Lunch-Bot Scratch Activity Detailed Guide (LKS2)

Getting started

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


Open Scratch 3.0

You can do this online here: <https://scratch.mit.edu/> or use a local version. This project only uses resources available in Scratch, so there's no need for students to sign in.

- Open Scratch
- Click 'start creating'
- Close the tutorial

Setting up your sprites and background

Let's add in the sprites and background you will need for this activity:

- First delete 'Sprite1' (the cat) and then click 'Choose a Sprite' 
- Search for 'Robot' and select 
- Click on 'food' and select the Taco, Milk and Strawberry 
- We also need a lunchbox – choose 'Button3', but call it 'Lunchbox' 
- Now click 'Choose a Backdrop' 
- Our Robot is making a picnic so let's choose 'Forest' 



Now you are ready to begin!

Hint: the Sprites can be resized so they fit better on the screen

Note: Saving projects - if you would like to save your work as you go and are not logged in (recommended), you can save your project onto the computer: In the menu click File > Save to your computer. You can find it in Downloads saved as 'Scratch Project.sb3'

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Challenge 1 – collect the food

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For this first Challenge, can you make the Robot move around and collect food items for a healthy picnic lunch?


If you have used Scratch before you might have a few ideas how to do this!

For our solution, we are going to:

- make the Robot move using the arrow keys
- make the food items glide across to the lunchbox when the Robot touches them


We will do this using blocks from the following menus:

- Motion blocks
- Event blocks   
- Control blocks



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Challenge 1 – more details


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Coding Step 1 –

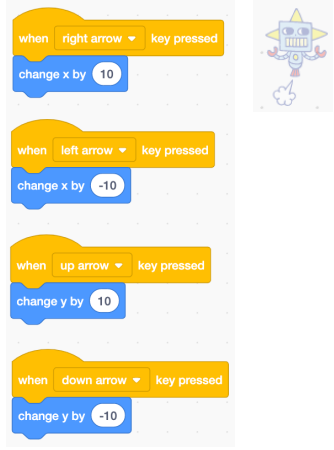
Let's make the Robot move using the arrow keys:

- Select the Robot Sprite
- Drag over a 'when space key pressed' block
- Change 'space key' to 'right arrow' - this is an example of **input** (in this case it's something happening to the computer)
- Add a 'change x by 10' block (using 'x' co-ordinates like this is another way of saying move right, 'y' is up and down)
- Do the same again, this time with 'left arrow' and changing x by -10 (using x co-ordinates like this is saying move left)
- Drag another 'when space key pressed' block over, change to 'up arrow' and add a 'change y by 10' block (move up)
- Repeat, this time with 'down arrow' and changing y by -10

Now test your **algorithm** or code by clicking the arrow keys. If it doesn't work as expected, **debug** and try again!


Hint: Clicking the red button stops anything running in the background; it is a good idea to do this at the end of each test.

Code solution:



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Challenge 1 – more details


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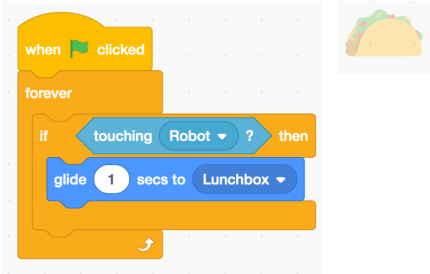
Coding Step 2

Let's add in some food and collect it!

- Click on the taco sprite icon at the bottom and add 'when green flag clicked' (our **input**)
- Add in a 'forever' loop – this is an example of **repetition** and will ensure it keeps happening while the code is running
- Within this, add in an if/then block - this is an example of **selection**. Drag 'touching mouse-pointer' from the sensing blocks and change this to 'touching robot'
- Now add in a 'glide 1 secs to random position' block, and change to 'Lunchbox' (you should have changed the name of 'Button3' to this earlier - if you haven't, do this now!)
- Now repeat for the Milk and Strawberry sprites

Now click on the green flag and move the Robot using the arrow keys to **test**. Did it work as expected? If not, click on the red button to stop, **debug** and try again!

Code solution:



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Challenge 2 – animate your sprites

For this Challenge, can you animate our robot and food (sprites) so they do something fun while moving around?


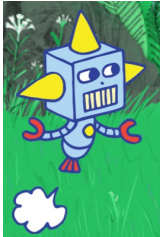


You may already have some ideas of how to do this, if you have used Scratch before!

For our solution we are going to:

- make the Robot switch costumes when the green flag is clicked, to make it look like it is spinning
- make the food items change when collected by the Robot
- add in some code to change the food back again

We will do this using blocks from the 'Looks' menu. We will also use 'Events' and 'Control' blocks.

Looks
 Events
 Control

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Challenge 2 – more details

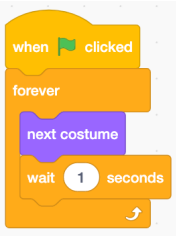
Coding Step 1


Let's make it look as though the Robot is spinning around as it moves!

- Click on the Robot sprite at the bottom to show the code
- Select the **input** – here we're going for 'when green flag clicked' so it starts at the same time as everything else
- Add in a forever loop (an example of **repetition**) to ensure it repeats as long as the code is running
- Add in 'next costume'
- Add in a 'wait 1 second' control block (you can adjust the speed by changing the number)

Test by clicking the green flag and moving the Robot using the arrow keys to see if it works!

Code solution:





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Challenge 2 – more details



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Coding Step 2

Now, lets make something happen to our food items when the Robot touches them:

- Click on the taco sprite at the bottom to show the code
- In our existing code block, add in a 'switch costume to Taco-wizard' block under 'if touching robot then'

To **test**, stop the code with the red button, use the green flag to start it all again, and then move the Robot to the taco.

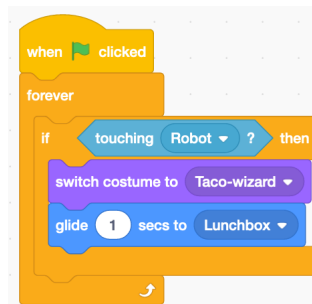
If it worked, let's make it turn it back to an ordinary taco again!

- Create a new code block with an **input** – let's choose 'when this sprite clicked'
- Add 'switch costume to Taco-wizard' and change to 'Taco' using the drop down arrow

To **test**, as before, stop the code, click the green flag and then click the sprite in the main screen –does it change it back?

- Repeat for the Milk and Strawberry sprites

Code solution:



Hint: some sprites have several costumes – which one will you pick?

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Challenge 3 – add in a score



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Finally, let's add in a score so we can keep track of how many lunch items our Robot has collected!

For this we will use something called a **variable**. An example of this was used in our Show to count the number of lunches in our delivery box.

We will:



- make it so that the lunch item counter goes up by one, when the Robot sends an item to the lunchbox
- make it so that you can reset the counter back to 0

To do this we will use blocks from the 'Variables' menu.

We will also be using 'Event' blocks.



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Challenge 3 – more details

Coding Step 1

Let's add in a score!

- The first thing we need to do is go to the variables and menu and click on 'make a Variable'. Let's call it something like 'score' or 'lunch items collected'
- Now click on your Taco sprite again and add the 'change my variable by 1' to the existing forever/if/then loop, underneath 'glide 1 sec to Lunchbox'. Change 'my variable' to 'lunch items collected'

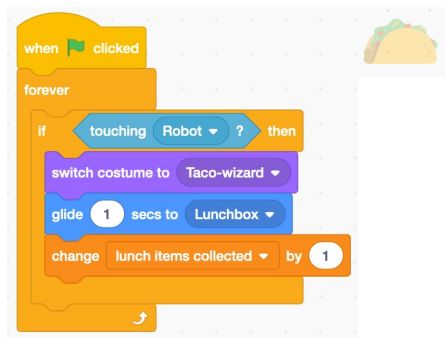
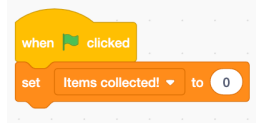
Adding it into the existing 'loop' and 'if' ensures that it continues to repeat as long as the code is running (**repetition**), and that it only happens when something else triggers it (**selection**).



Finally, let's add in some code to reset the score when we start again.

- Click on the Robot sprite and add in a 'when green flag clicked' block and 'set my variable to 0'. Change 'my variable' to 'lunch items collected'.

Can you add in more food items (sprites) to be collected? What happens if you move the items out of the lunchbox and collect them again?

Code solution:

Challenge 3 - details

Now have a play! Click the red button to make sure everything stops and then click the green flag to reset everything in the **initialisation** code, and to start everything off again.

Now you can **test** by moving the arrow buttons and clicking on the sprites in the main screen to see if it all works together!

If you have time, what else could you add to the game?

- Perhaps you could add more food items to collect?
- Maybe you could make the items move around?
- Can you change the look of the lunchbox?

Have fun!

