

# Generation AI


## IO3 – School Program for Primary Education Students

### GBL Challenge Tutorial - CARDET



## Tutorial GBL Template

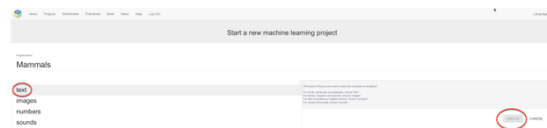
Name	Penny and Nino to the rescue!
Tool	<p>For this activity, we will use two different platforms:</p> <ul style="list-style-type: none"> <li>- Machine Learning for Kids (<a href="https://machinelearningforkids.co.uk/">https://machinelearningforkids.co.uk/</a>): it is an educational tool about machine learning that teaches children how to train a computer to recognize different elements such as texts, pictures or numbers. It offers different worksheets (<a href="https://machinelearningforkids.co.uk/#!/worksheets">https://machinelearningforkids.co.uk/#!/worksheets</a>) that both students and teachers could follow. The worksheet “Chatbots” was the one selected as an example to create this tutorial.</li> <li>- Scratch (<a href="https://scratch.mit.edu/">https://scratch.mit.edu/</a>): it is a programming language educational tool that allows children to create a wide variety of projects, such as games, stories and animations. Scratch also offers different tutorials (<a href="https://scratch.mit.edu/projects/editor/?tutorial=all">https://scratch.mit.edu/projects/editor/?tutorial=all</a>) that can be followed by students.</li> </ul>
Aim	The aim of this activity is to create two digital characters (penguins) that will distinguish natural aquatic elements such as fish and weeds from waste.

	<p>Students will be able to teach the computer to recognize different objects and create a chatbot using the previously mentioned platforms.</p>
<p>Description</p>	<p>The final outcome will consist on a chatbot created with Scratch with the form of two penguins, that will separate the objects into waste and natural elements.</p>
<p>Step-by-step</p>	<p>In order to start the game, you should first go to the website Machine Learning for Kids: <a href="https://machinelearningforkids.co.uk/?lang=en#/welcome">https://machinelearningforkids.co.uk/?lang=en#/welcome</a> and press on the “Get started” button.</p>  <p>If you want to create the game without logging in, you should press on “<i>Try without registering</i>”. This way, you will be able to access the Machine Learning Projects panel.</p> <p>To create a new Project, you have to press “+Add a new Project”</p>



Once the Project is created, you should give it a name and establish the way the machine will learn how to make the different connections.

There are different ways to develop the training and you can select different kinds of inputs, such as texts, images, numbers or sounds. Finally, you have to select the language that you will use to create your project. Once you have chosen all these features, press the button “Create”.



Once inside your Project, the tool will offer 3 different options: Train, Learn & Test and Make.

We should start by selecting the option “Train” that will allow us to create the conditions that will help our penguin to provide the corresponding information.



Then, we will have to create different labels. These labels will allow us to categorize the

different objects that we want the penguin to identify.



Our aim is that the penguins recognizes the images they meet. Therefore, the first thing that we have to do is define the different groups and create one label for each of them.

In our case, the labels we will create are the following:

1. Fish
2. Ocean plants
3. Sea animals
4. Mammals
5. Plastic waste

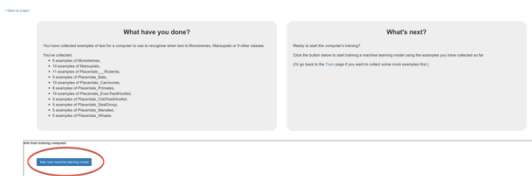
Once all the groups are created, we have to include different images of objects, plants and animals for each of these groups. This way, the penguins will be able to recognize the objects in our Scratch game.

Once you have included all the animals, you should press *“Back to project”* on the left top corner.

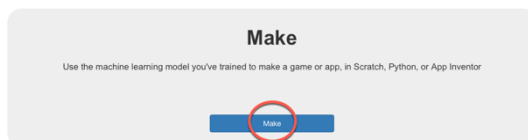


Now, you have to select the second option “Learn & Test”.


Once you have approximately 10-15 examples in each label, you can go back to the option “Learn & Test” and press on “Train new machine learning model” so that the machine can start developing the training that will associate each image with its corresponding label.



When the training process is finished go back to the Project and select the option “Make”.



This option of the platform offers 3 different tools. We will use Scratch 3.0. to create our game using this previously created training.



Make something with your machine learning model

Scratch 3  
Use your machine learning model in Scratch

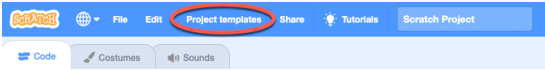
Python  
Write Python code to use your machine learning model

App Inventor  
Make a mobile app for your phone or tablet

< Back to project

Open in Scratch 3

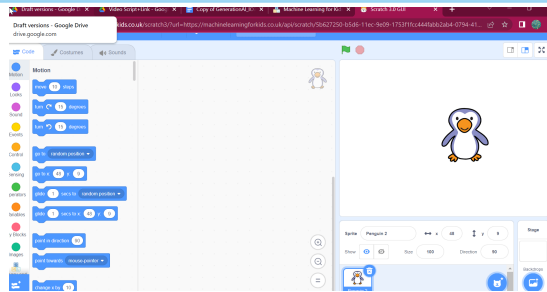
Once on Scratch, we must select the option “Project templates” that can be found on the top menu.



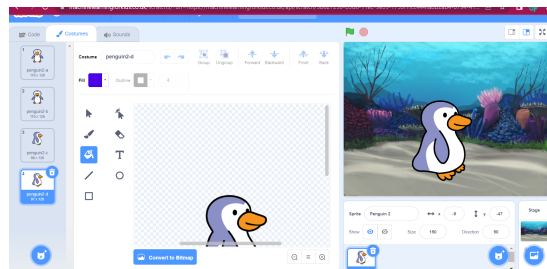
Scratch 3  
File Edit **Project templates** Share Tutorials Scratch Project

Code Costumes Sounds

Several already programmed games will appear. In order to create our nature-loving penguin, choose the game “Chameleon” . Click the option ‘Choose a sprite’ and select ‘penguin’. There are two different options, take the one you like the most.



Don't forget to choose your stage as well. There are two options for underwater scenes, take your pick.



Now we must multiply the whole block as many times as groups we have created in our Machine Learning project. In our case, we must duplicate it 5 times.

When they are all copied, we must put them all together in the same block. After that, we must select on the left menu, the Machine Learning package with the name of our project. When we press on it, the different labels created will appear. They will contain all the information of the images that we have previously included in the Machine Learning for Kids platform.



As it can be seen in the picture below, we must include all the different labels that we have previously created.

