

## IO3 – School Program for Primary Education Students

Challenge through a game based learning (GBL)  
Tutorial Basic - SIGLO22

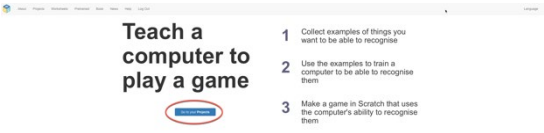


Each partner will develop two games (1 per lesson plan) for students to play at the end of the lesson, related also to the topic. Or, they can also create an activity that involves an AI tool and make the students create the game by giving them a tutorial. This template responds to the tutorial game.

### Tutorial GBL Template

Use this template to design and develop the tutorial of the game.

Name	The Wise Owl
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/edi">https://scratch.mit.edu/projects/edi</a>)</li> </ul>

	<p><a href="#">tor/?tutorial=all</a>) that can be followed by students.</p>
<p>Aim</p>	<p>The aim of this activity is to create a chatbot that will tell students the characteristics and classifications of the mammals they write.</p> <p>Students will be able to teach the computer to recognize different texts 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 an owl that will tell students the characteristics and classification of different mammals once they write their names.</p> <p>This chatbot should be created by the teacher before the class begin, in order to play with the students asking questions to the owl.</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 “Try without</p>

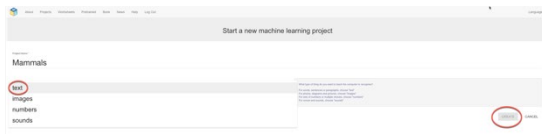
registering”. This way, you will be able to access the Machine Learning Projects panel.

To create a new Project, you have to press “+Add a new Project”



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 kind 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”.

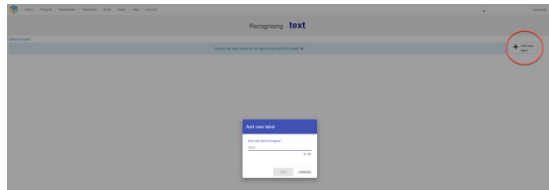


Once inside your Project, the tool will offer 3 different options: Train, Learn & Test and Make.

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

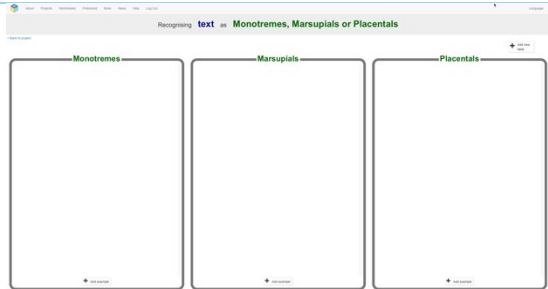


Then, we will have to create different labels. These labels will be essential to categorize all the words or sentences that we include in each of them. These labels will allow us to categorize the different mammals that we want the owl to identify.



Our aim is that the owl tells us the characteristics of a specific mammal once we insert its name. Therefore, the first thing that we have to do, is defining the different groups and create one label for each of them. In order to that, we have used the following video as an example:

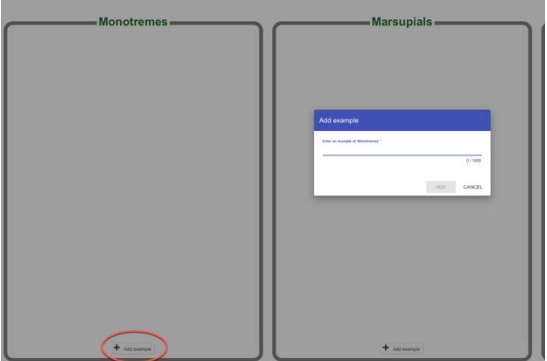
<https://www.youtube.com/watch?v=DZN7L0X5fuM>



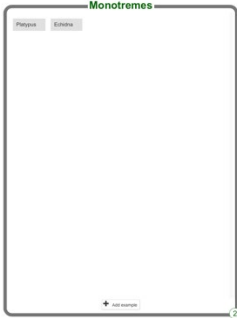
In our case, the labels we will create are the following:

1. Monotremes
2. Marsupials
3. Placentals-Rodents
4. Placentals-Bats
5. Placentals-Carnivores
6. Placentals-Primates
7. Placentals-EvenToedHoofed
8. Placentals-OddToedHoofed
9. Placentals-SealGroup
10. Placentals-Manatee
11. Placentals-Whales

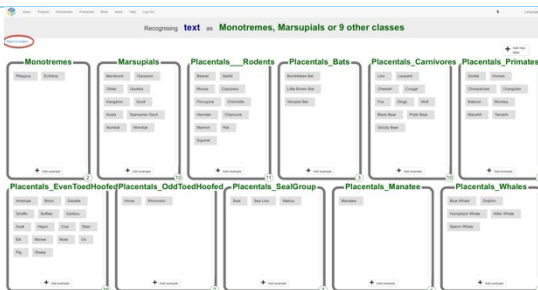
Once all the groups are created, we have to include all the different mammals' names for each of these groups. This way, the owl will be able to recognize the animal's name when it is written in our Scratch game.



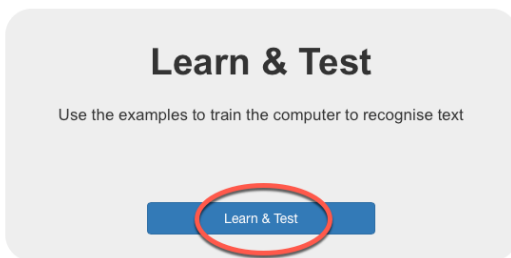
It is important to write the animals' names correctly since only the inserted names will be the ones recognized by the owl.



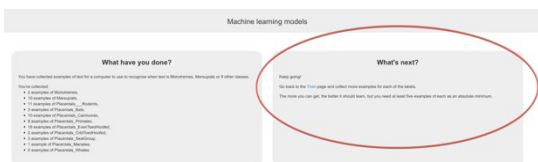
Once we have included all the animals, you should press *“Back to project”* on the left top corner.



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



Sometimes, it could be the case that the tool does not allow you to finish the training. There is a minimum number of words that should be included in each label to proceed.



In our case, there are some animal labels that do not contain 5 examples. However, we cannot include more animals since there are no more animals that belong to that group. Example: we could not include a different name, such as dog, in the monotremes label

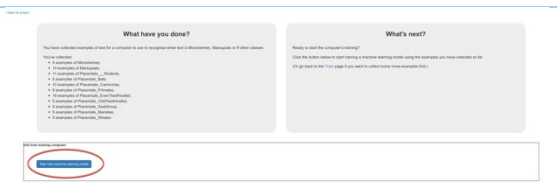


to have 5 names, cause this animal does not belong to that group. If we did it, once we write “dog” in our final scratch game, the owl will give us the monotremes characteristics.

Therefore, when it is not possible to include more examples, we propose a small trick. Use one of the words from this label and add some random letters after it. Do not include a random word, because the machine might associate this word with a similar word in a different label and therefore, give us the wrong characteristics.



Once we have 5 examples in each label, we can go back to the option “Learn & Test” and press on “Train new machine learning model” so that the machine can start to develop the training that will associate each name with its corresponding label.



**What have you done?**

You have collected examples of data for a computer to use to recognize when text is Moroccan, Moroccan, or if other issues.

- Training dataset
- Evaluation of Moroccan
- Evaluation of Moroccan
- Evaluation of Moroccan
- Evaluation of Moroccan
- Evaluation of Moroccan
- Evaluation of Moroccan
- Evaluation of Moroccan
- Evaluation of Moroccan
- Evaluation of Moroccan
- Evaluation of Moroccan
- Evaluation of Moroccan

**What's next?**

Ready to start the classifier's training?

Click the blue button below and waiting a few minutes training model using the examples you have collected so far. (To go back to the "List" page if you want to collect more data examples click.)

Click the blue button below

**Make**

Use the machine learning model you've trained to make a game or app, in Scratch, Python, or App Inventor

Make

**Make something with your machine learning model**

Make a game

**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

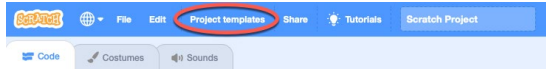
< Back to project

Open in Scratch 3

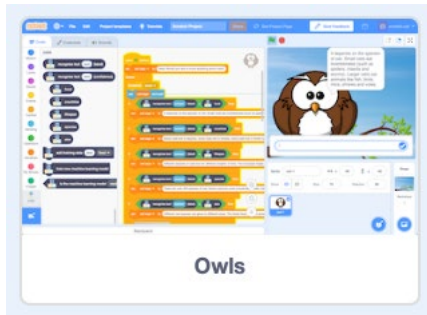
When the training process is finished go back to the Project and select the option la opción "Make".

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

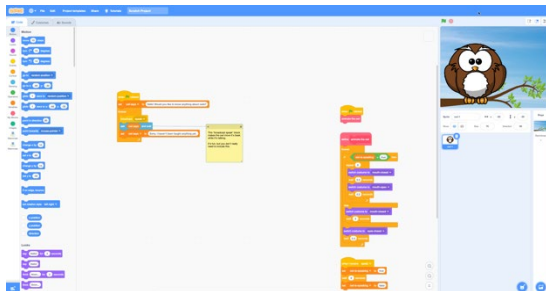
Once on Scratch, we must select the option “Project templates” that can be found on the top menu.



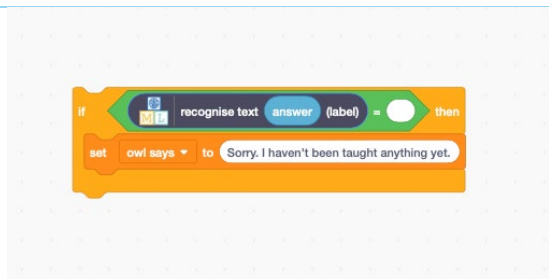
Several already programmed games will appear. In order to create our wise owl, select the game “Owls”.



When we open the game, we will see different commands on screen:



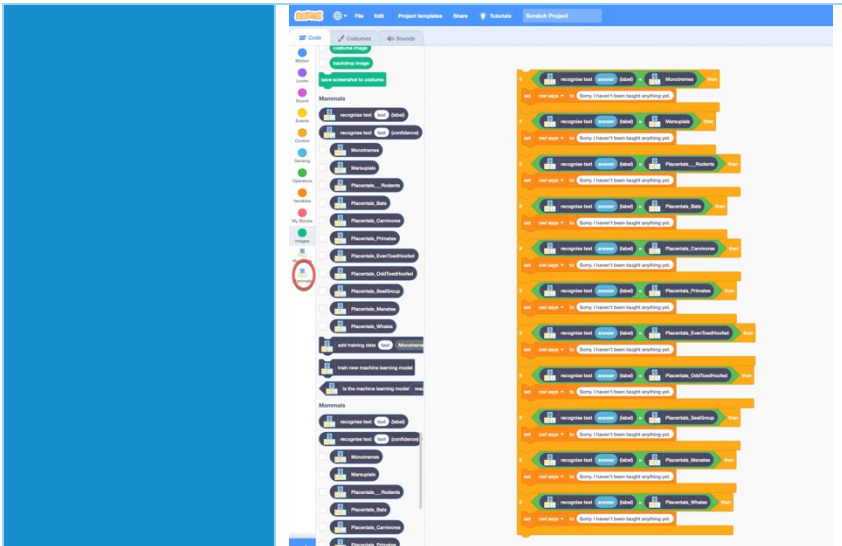
We should not modify them yet. However we must insert the following commands that will help us program our owl:



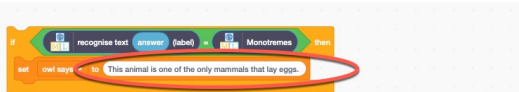
Once all the previous commands have been created, we must duplicate the whole block as many times as groups we have created in our Machine Learning project. In our case, we must duplicate it 11 times.

When they are all duplicated, 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 animals 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.



Once we have created all the commands, we have to include the text that we want the owl to answer.



In order to do that, we must have defined all the characteristics of each of the groups that we want the owl to explain. In our case, with the help of the previously mentioned vide, we have selected the following characteristics:

- Monotremes: *This animal is one of the only mammals that lay eggs.*
- Marsupials: *This animal is born in a very undeveloped stage and that is why it has to*

*complete its development inside its mother's pouch.*

*-Placentals-Rodents: This animal has a sharp front teeth to gnaw its food and to cut through obstacles.*

*-Placentals-Bats: This flying mammal is small and it can eat insects or fruits.*

*-Placentals-Carnivores: This animal belongs to the group of fearsome meat-eaters.*

*-Placentals-Primates: This animal belongs to the primates group which have a mixed diet and often live in trees.*

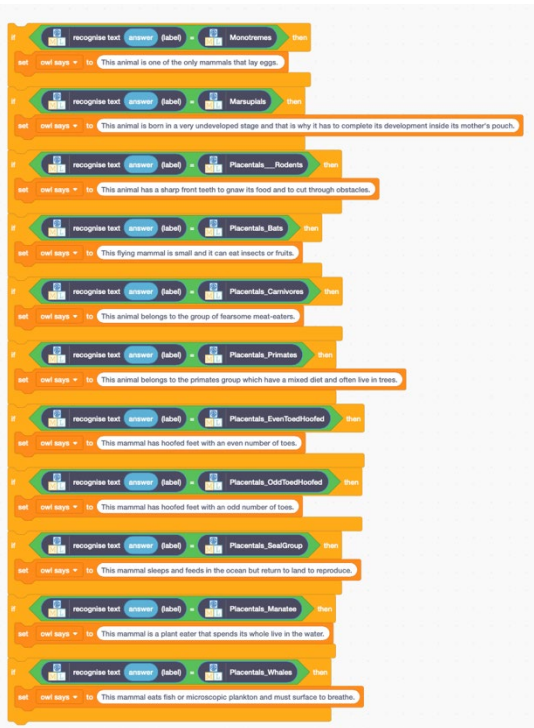
*-Placentals-EvenToedHoofed: This mammal has hoofed feet with an even number of toes.*

*-Placentals-OddToedHoofed: This mammal has hoofed feet with an odd number of toes.*

*-Placentals-SealGroup: This mammal sleeps and feeds in the ocean but return to land to reproduce.*

*-Placentals-Manatee: This mammal is a plant eater that spends its whole live in the water.*

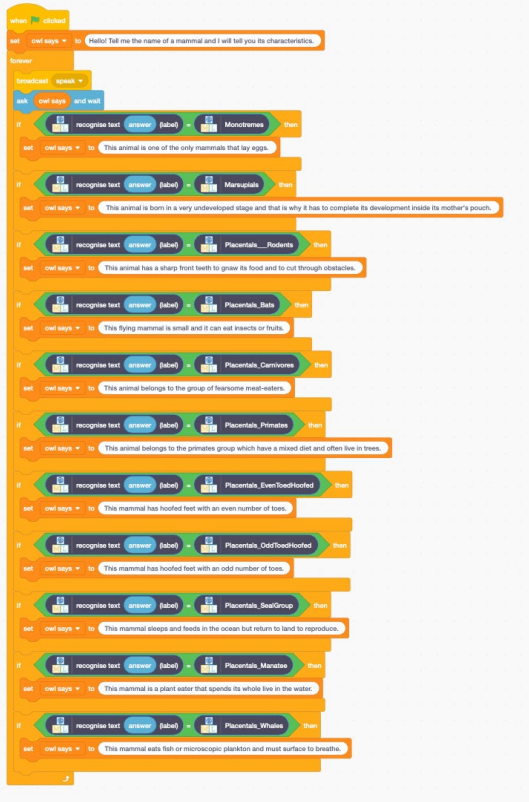
*-Placentals-Whales: This mammal eats fish or microscopic plankton and must surface to breathe.*



Finally, we must change the text that the owl says once we start the game so that the user playing the game knows exactly what they have to type in the box.

In order to do that, we must change the text below the first command that says “set owl says to”, just below the flag, and write the following text:

*“Hello! Tell me the name of a mammal and I will tell you its characteristics.”*



when clicked

say Hello! Tell me the name of a mammal and I will tell you its characteristics.

broadcast speak

ask owl says and say

if recognize text answer (fab0) Monotremes then  
 owl says This animal is one of the only mammals that lay eggs.

if recognize text answer (fab0) Marsupials then  
 owl says This animal is born in a very undeveloped stage and that is why it has to complete its development inside its mother's pouch.

if recognize text answer (fab0) Placentalia\_Rodents then  
 owl says This animal has a sharp front teeth to gnaw its food and to cut through obstacles.

if recognize text answer (fab0) Placentalia\_Bats then  
 owl says This flying mammal is small and it can eat insects or fruits.

if recognize text answer (fab0) Placentalia\_Carnivores then  
 owl says This animal belongs to the group of fearsome meat-eaters.

if recognize text answer (fab0) Placentalia\_Primates then  
 owl says This animal belongs to the primates group which have a mixed diet and often live in trees.

if recognize text answer (fab0) Placentalia\_EvenToedHoofed then  
 owl says This mammal has hoofed feet with an even number of toes.

if recognize text answer (fab0) Placentalia\_OddToedHoofed then  
 owl says This mammal has hoofed feet with an odd number of toes.

if recognize text answer (fab0) Placentalia\_SeaGroup then  
 owl says This mammal sleeps and feeds in the ocean but return to land to reproduce.

if recognize text answer (fab0) Placentalia\_Marshes then  
 owl says This mammal is a plant eater that spends its whole live in the water.

if recognize text answer (fab0) Placentalia\_Whales then  
 owl says This mammal eats fish or microscopic plankton and must surface to breathe.

Now, our game would be set.

Type the name of the animal in the text box and wait for the owl's answer.



