VOCABULARY

**Scratch**: The language we are using to program

**Green Flag**: A control block that runs a script when you click the green flag above the stage

ACTIVITY GOAL

In this project, you will write your first computer program.

BACKGROUND

By itself, a computer cannot do anything and they can only understand some words. Someone has to write instructions that they can understand. These instructions are called **programs**. For our projects, we will use Scratch in the Octopi program.

Octopi projects contain **sprites**. These are pictures of animals, people, or objects. Each sprite can have programs or scripts associated with it.

To make a sprite do something, you have to write a **script**. A script has two jobs – to tell the sprite **when to do something** and **what to do**.

EXPLORE

1. **Open the project**. You should see an area with a picture of some animals on a hill. This area of the screen is called the **stage**. Each of these animals is a **sprite**. You should also see a net. This net is also a **sprite**. You will be writing a **script** for the net.

2. Some of the **script** for the net is already written (below). **Predict** what you think this **script** will make the net do. **Think** about what the words in each **block** might mean to the computer. **Write** your prediction in the box below.

```
when Net clicked
    point in direction [right]
    glide 50 steps
    point in direction [down]
    glide 50 steps
    glide 50 steps
    glide 50 steps
```

![Box for prediction](image)
3. Find the **Green Flag** above the stage. It looks like this.

4. Click on the **Green Flag**. (Nothing should happen)

5. Now, **click** on the **net sprite** on the **stage**. **Write** what happens below?

6. Did you predict what would happen correctly? **Describe** what was similar and different about what happened when you clicked on the net.

7. Now let’s make this **script** a little bit shorter. There are three glide **blocks** in a row, and each of them says to go 50 steps. How could you use only one glide **block** to make the net go the same amount of steps? **Write** the number of steps you would need in the **block** below.

Quick Tip: Anytime you see a **block** that has a **white box with a black number** in it, you can change that number. Look at the **block** on the left that says, “point in direction 90.”

The “90” is in a white box which means you can change it. If you click on 90, a new menu will appear. Now you can click on any of the **options** that come up (left, right, up, or down).
PROGRAMMING CHALLENGE: Mammals

Your goal is to create a script that moves the net along a path to each of the animals. To pick up an animal the net needs to land on top of it before moving on to the next one that needs to be picked up.

PLAN

Step 1: Plan how you want to move the net. Draw a path on the picture of the stage to the right.

<table>
<thead>
<tr>
<th>when Net clicked</th>
</tr>
</thead>
<tbody>
<tr>
<td>point in direction right</td>
</tr>
<tr>
<td>glide 60 steps</td>
</tr>
<tr>
<td>point in direction down</td>
</tr>
<tr>
<td>glide 60 steps</td>
</tr>
<tr>
<td>glide 60 steps</td>
</tr>
<tr>
<td>glide 60 steps</td>
</tr>
</tbody>
</table>

Step 2: Write out your ideas for how you would move the net. Write in the blocks you might use to pick up the rest of the animals to the bottom of this script:
CREATE

Now it is time to write your first program!
1. Go to the left side of the screen where all the blocks are.
2. Click on the block you want to use (try looking at the scripts you created in the plan section above) and drag it right under the script. Hint: You can use the same block as many times as you want.

Try It Out. Once you have put in some blocks, try out your script.
1. Click on the net and see what happens. If you didn’t get all the animals on the first try, don’t worry. Just click the green flag to reset the net and try something else.

Putting it all together.
1. Which path did you take to pick up all of the animals? Draw the path of your final script below on the picture of the stage.

IMPROVE

After you have finished the task, try the following challenges:
1) Try to make the path shorter (write in the blocks you might use below)

______________________________________________________  ______________________________________
______________________________________________________  ______________________________________
______________________________________________________  ______________________________________

2) Try to pick up the animals without using the “point toward ____”, or the “glide to _____” blocks. Write which blocks you used below.

______________________________________________________  ______________________________________
______________________________________________________  ______________________________________
______________________________________________________  ______________________________________