Lesson 12 – Management of Sprites on Stage

Note for Faculty

1. Positioning of a sprite on the stage is an important activity.

2. While it is easy, it throws up a lot of small possibilities that are very important & useful to convert an idea or a story to a code.

3. Spend time on these.

Lesson Learning

In this lesson we shall learn about management of a Sprite on Stage.

This involves:

- **Fixing its position on the stage.**
- **Setting its size.**
- **Setting its direction.**
- **Initial appearance, Hiding, Re-appearing, Re-hiding & Cloning.**

While we have touched on some of these earlier, we shall now look into what our planning process should be?

Positioning actions need to be taken by us at two stages:

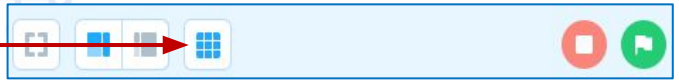
- **Actions During planning.**
  - ✔ This is done manually by the four tools that you will see in the next four paragraphs.
  - ✔ This helps us fix the initial & subsequent parameters for the sprites.

- **Actions during Coding & Running**. Once you have done the planning, and fixed the parameters, they will be added to the blocks now, or passed on to them while running of the code.

- It is thus important to learn all the options & procedures for positioning.

Grid Positioning Tool

To highlight the grid positioning matrix use icon

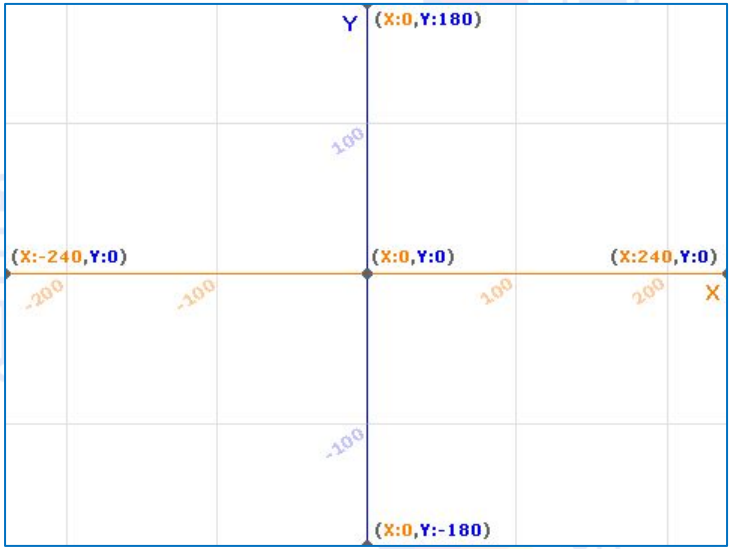


On selecting, the grid appears on the stage.

Stage is rectangular with a surface of 480 pixels wide & 360 high.

Matrix created by this tool has:

- A centre having co-ordinates x=0 & y=0.
- Edges along the X & Y axis covering 360 degrees in directional terms.



Project 26. Stage 1 - Management of sprite During Planning

This project is designed to explain the use of the tools.

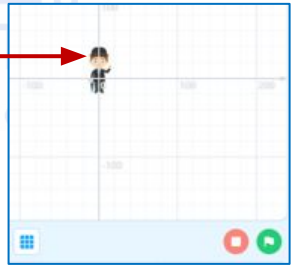
Sprite Sizing Tool.

- This tool exists in Sprite interaction area.
- Name of selected sprite appears on top.
- It is used to set size & direction.
- Default size is 100.

To set size

Enter percentage of increase or decrease (say 50 %).

Press enter.
The size has reduced by 50 %.



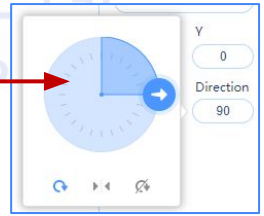
Enter 300.
It increases accordingly.

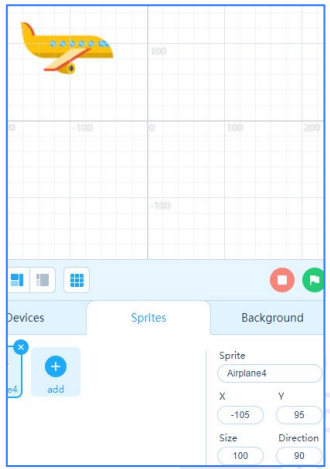
Directional Positioning Tool

This tool helps position a sprite in a set detection.
To understand take an airplane.
Its default direction is level or 90 degree.

To access this tool click on Direction.
This blue circle appears.

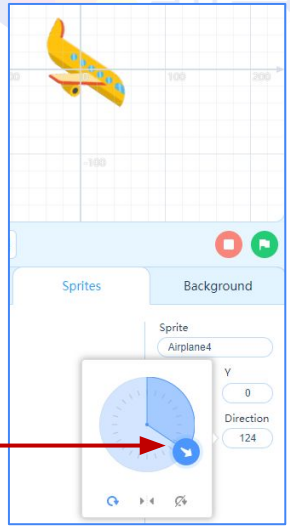
- **Enter degrees & it is done.**





Alternately:

Drag the arrow to desired direction.
Note, the airplane also starts pointing in same direction.

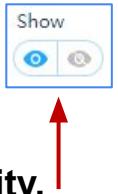


To understand more, move the tool in different directions using different sprites. Observe the result.

Appearing & Hiding Tool

In any play we may want the sprite to:

- Appear on the stage at a given location.
- Appear at a given point of its story.
- Hide at a given location.
- Hide at a given point of the story.
- Re-appear or re-hide at yet another location or point of the story.



All this is done by this simple & self explanatory utility.

Cloning Tool

To make a clone of a sprite, use the control block:

Clones will appear one over the other.

Move them left or right manually to separate.

Stage 2 – Management of sprite During Coding.

To understand this let us take five Projects.

Project 27

“Code a sprite to move & declare its new position in x & y axis”.

In this, the sprite is at its original location.

On clicking the green flag it moves to a new location & announces its new coordinates.

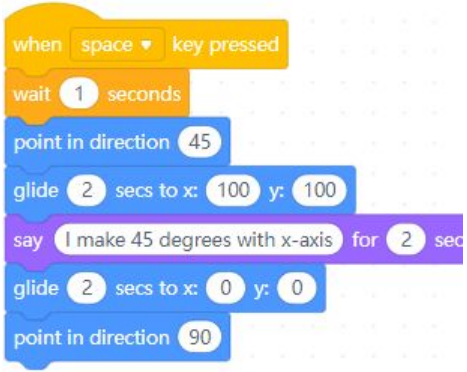
Project 28

“The sprite has been coded to move slowly or glide to a new location & declare its orientation with respect to horizontal or X axis ”.

In this ex sprite is at (0,0) lines 6 & 7. On pressing space key it:

- **Changes its orientation (line 3).**
- **Moves slowly to new location (line 4).**
- **Announces its new orientation (line 5.**

Then reverts to its start position to repeat if required.



Being a 2 D representation, it looks distorted & funny.
We shall learn more of this in lesson 18.

Project 29

“This is to demonstrate management of size of the sprite, its hiding & its reappearing, as per the story line”.

In this ex on:

- **Pressing right arrow key the parent sprite moves 200 steps & its size increases to 150 %.**
- **Thereafter it returns to its original location & size.**
- **On pressing up arrow, it hides.**
- **On pressing down arrow it reappears.**

Time & sequence of hiding & reappearing, must be decided at the time in the story. Based on this they have their own trigger.

Project 30

“This is to depict a sprite increasing or decreasing its size, by a specified amount, in steps”

Basic code for this is the same as the above project.

This code is then repeated for the desired number of times.

Project 31

“This is to demonstrate the creation & deletion of clones”.

In this ex:

- **On pressing left arrow key, it creates a clone & moves hundred steps.**
- **To make another clone press left arrow again.**
- **On pressing small (d) key the parent sprite moves to its original position & deletes all its clones.**

Take Aways…

- Positioning, sizing, hiding, appearance & cloning of sprite on stage are important to coding in Scratch.
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- They play an important role in animation, story writing & games.

- They boost a child's creativity.

Time to Do.

All this is done by this simple & self explanatory utility.

- Create separate short stories for each of the five activities (positioning, direction, sizing, appearance & cloning on stage) mentioned above & convert them into codes.

- Combine then to make one project using all five.

- Practice till you achieve perfection in these five.

End of Lesson 12

Code Karega India Badhega