

Welcome to Mission Mars

Positioning Module



MODULE 4



Need for Positioning

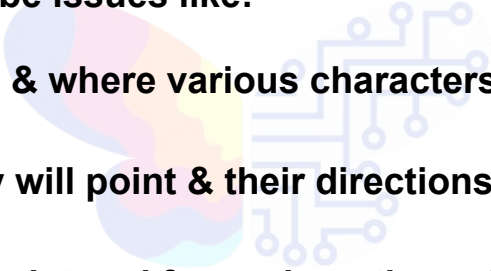


To understand this let us take the example of Showing Ramayana.

When it is shown as a TV serial, people see & enjoy it with a sense of real world continuity.





However, if it has to be show on a stage, a lot of positioning issues get involved. These could be issues like:

- **From when & where various characters will appear.**
 - **Where they will point & their directions of move.**
 - **At which point and from where they will disappear.**
 - **What will be their size etc.**
- 
- 
- 



This module is devoted to **Positioning of Sprites on Stage.**

In particular, it will cover:

- Fixing their position on the stage.
- Setting their size.
- Setting their directions of move.
- Initial appearance & hiding.
- Re-appearing & re-hiding.
- Cloning.

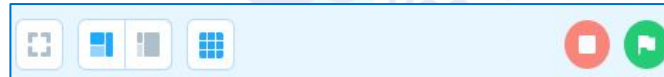




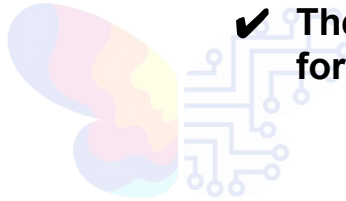
Positioning requires Planning.

To do this, we need to go over the story & plan for:

- **Actions to be taken during planning.**
 - ✓ These are done manually by the **Four Tools** at the bottom of the stage.



- ✓ These help us fix the initial & subsequent parameters for the sprites.





Once the parameters have been fixed, they need to be added to the blocks:

- ✓ **Now.**
- ✓ **passed on to them while running of the code.**

This will ensure that the code runs in the desired sequence.





Manual Positioning Tools

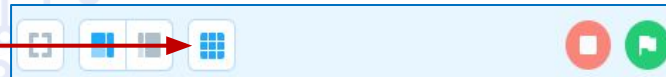




Tool Number 1 - Grid Positioning Tool

It exists on the bar at the bottom of the stage

It highlight the grid positioning matrix:



On selecting, grid lines appears on the stage.



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

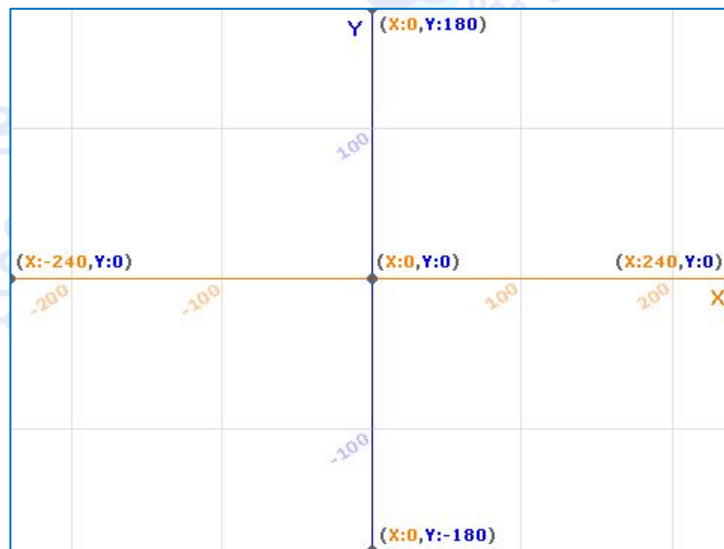
Matrix created by this tool has:

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

It is used to fix **go to** & **glide** position on these two blocks:

go to x: 0 y: 0

glide 1 secs to x: 0 y: 0

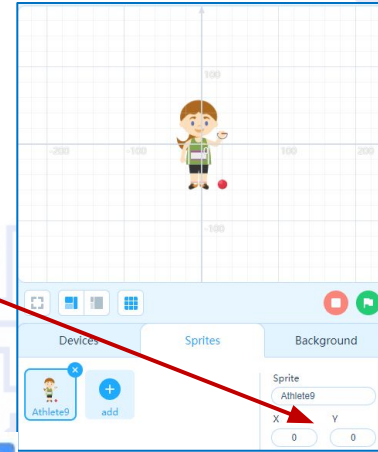




Say this is the default position
of the sprite. →

It corresponds to $x=0$
& $y=0$ shown here.

Same exists on the **Go to**
Glide & **set** blocks.



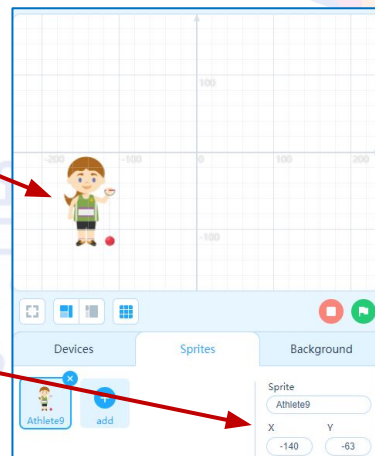


Say as per story, we want the sprite at this location.

If now we manually bring the sprite to this location, the x & y values corresponding to this location appear here

& also on these four blocks:

These are now ready for use with coordinates mentioned on them.





Tool number 2 - Sprite Sizing Tool.

This tool exists in Sprite interaction area

In this tool:

- Name of selected sprite appears on top.
- It is used to set size & direction.
 - ✓ Default size is 100.
 - ✓ Default direction is 90.

| | |
|--------|-----------|
| Sprite | |
| Boy10 | |
| X | Y |
| 1 | 11 |
| Size | Direction |
| 50 | 90 |



To set size

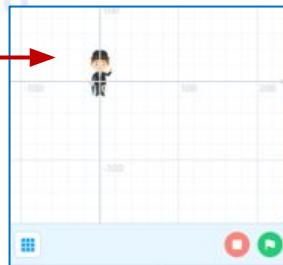
**Enter percentage of increase or decrease (say 50 %).
Press enter.**

Sprite
Boy10

X: 1 Y: 11

Size: 50 Direction: 90

The size has reduced by 50 %.



**Enter 300.
It increases accordingly.**





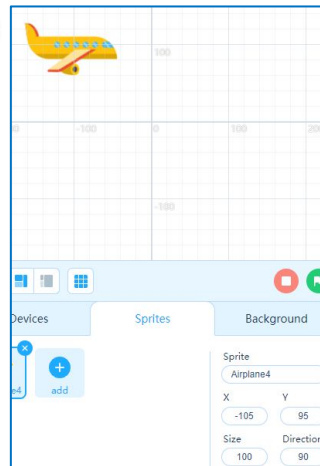
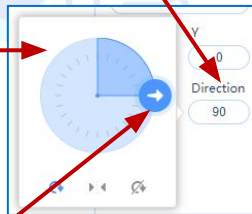
Tool no 3 - Direction Positioning Tool

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 below direction & it is done.
- The arrow will point in that direction.

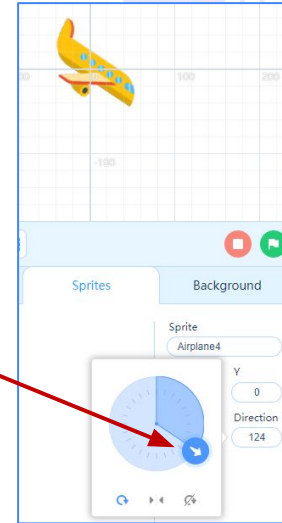




Alternately:

**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.**



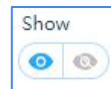


Tool number 4 - Appearing & Hiding Tool

In a stage 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.





Tool number 5 - Cloning Tool

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

create clone of myself ▼

Clones will appear one over the other.

Move them left or right manually to separate.





Projects to Apply the Positioning Tools



Project 01.

“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 co-ordinates.





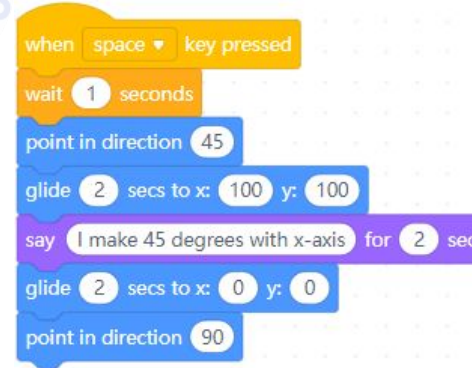
Project 02.

“The sprite has been coded to glide to a new location, & declare its orientation with respect to horizontal or X axis. Thereafter, glide back to its start position”.

In this, 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.
Do not worry about that.*



Project 03

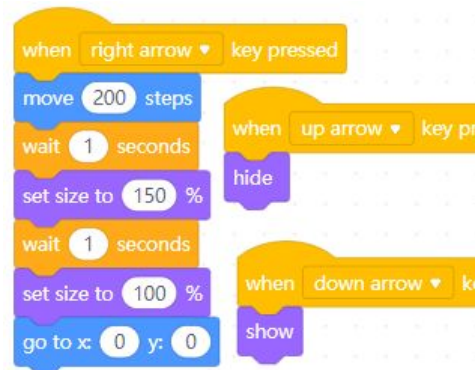
“This is to consolidate management of size of the sprite its hiding & its reappearing, as per the story line”.

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.

Note, hide & show have their own trigger.





Take video
from Pankaj

Project 04.

“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.

This has been done using the Repeat loop. We shall learn more about loops in the Looping Module.



Project 05

“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.



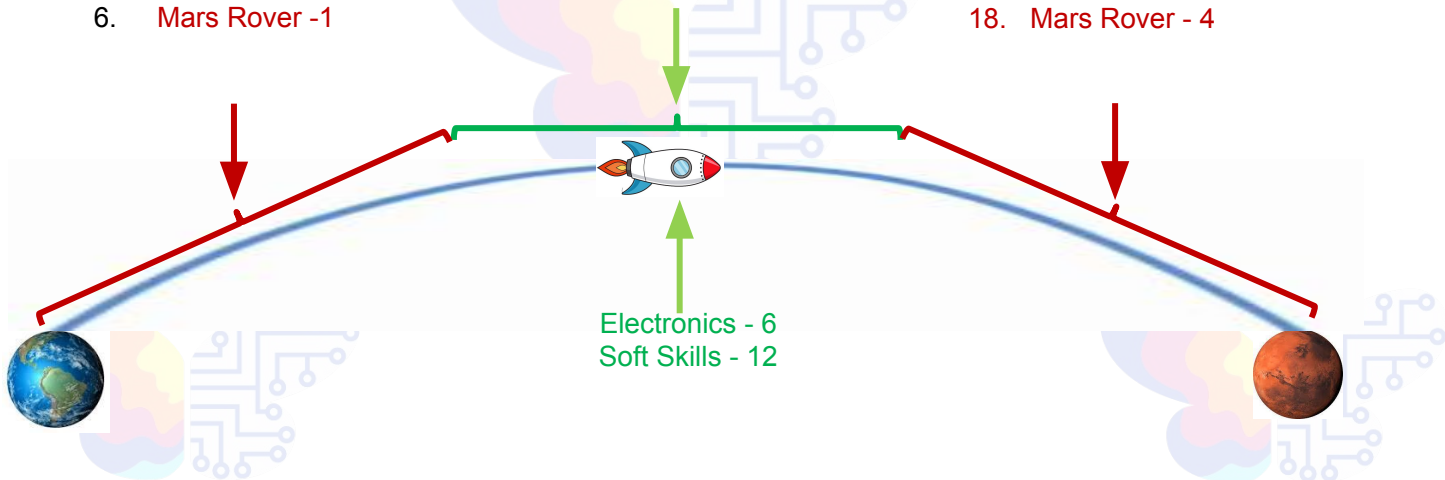


Mission Mars Learning Status - Modules Crossed

1. Foundation
2. Text
3. Movement
4. Positioning
5. Sound
6. Mars Rover -1

7. Sequencing
8. Looping
9. Decision Making
10. Mathematics
11. Logical Comparison
12. Mars Rover - 2

13. Sensing & Broadcast
14. Animation
15. Gaming
16. AI & IoT
17. Mars Rover - 3
18. Mars Rover - 4



End of Part 1 Module 4



Code Karega India Badhega