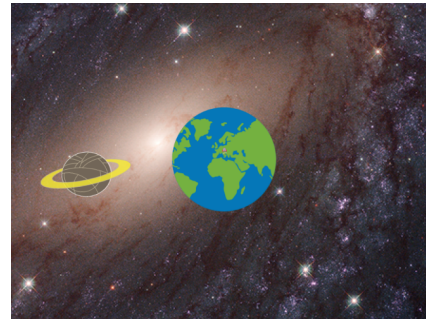


# SCRATCH Orbital



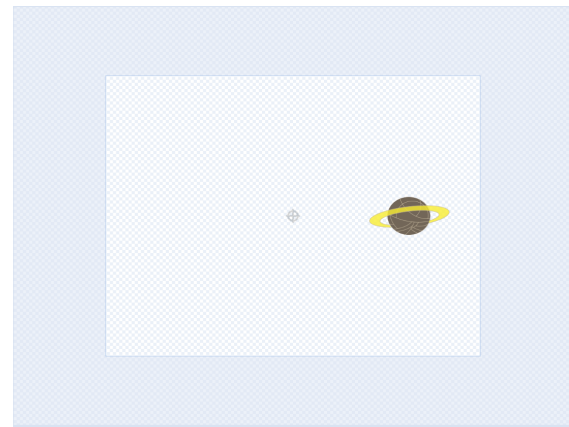
Register/login at <https://scratch.mit.edu>

*Make a planet with an orbiting moon.*

- 1) Create a sprite by choosing the “Earth.”
- 2) Create another new sprite, choosing “Planet2.”
- 3) Move **both** sprites to the **origin** (0,0) in the middle of the screen by setting their x, y coordinates to 0,0.

*We can rotate a sprite around its centre. Normally the centre is in the middle of the graphic, but we can move it further out.*

- 4) Select the **Planet2** costumes tab and zoom out until you see the whole of the sprite editable area.
- 5) Use the selection arrow to select the whole Planet and its rings.
- 6) Drag the sprite to the right.



*The centre of the sprite is shown as a small circle with a cross in it. That's the point it rotates around.*

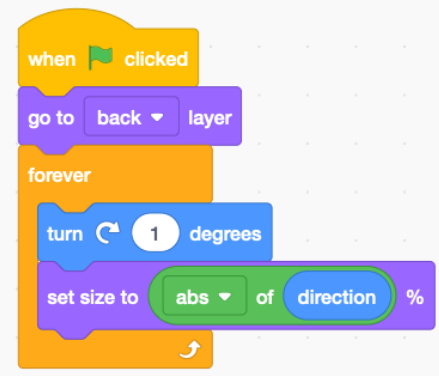
- 7) Add code (see right) to **Planet2** to slowly rotate it, turning 1° (degree) at a time.

*Press the **green flag**. It should orbit the Earth.*



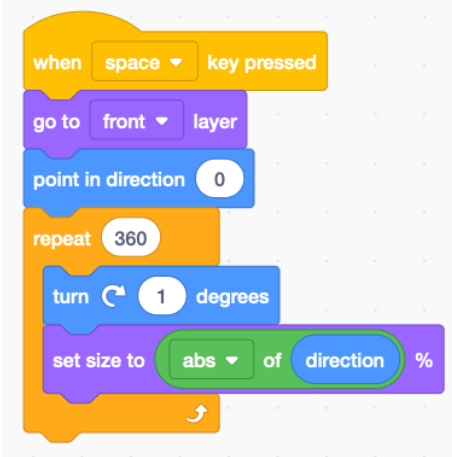
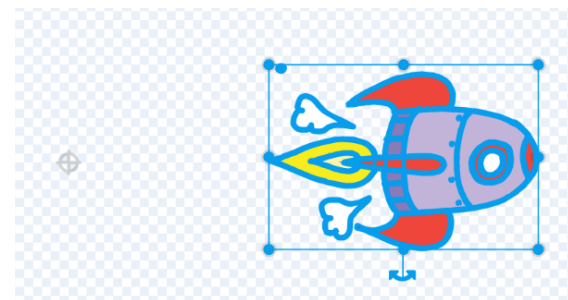
*Make it more exciting by changing the size, adding perspective. Make it look as though it's passing behind the Earth, by putting it on the back layer.*

- 8) Edit the code (see right) to set the **size** to the angle (direction) so it changes size as it moves around its orbit.
- 9) Add a space backdrop to make it more realistic.



*Launch a rocket from Earth using the same trick.*

- 10) Create a new “Rocketship” sprite.
- 11) Move the Rocketship to the origin 0,0.
- 12) Select the costumes tab and zoom out to the edge.
- 13) Select and drag the rocket to the right and this time rotate the graphic using the rotation ‘handle’ below it to make it point right.
- 14) Add code (right) to the **rocketship** to launch it when you press ‘space’ – geddit? **Turning** it 360° makes it turn a complete circle and return to Earth.



***Save** your code with a good name.*

***File > Save now***