



Highly Commended

Programming, Apps & Robotics Year R-2

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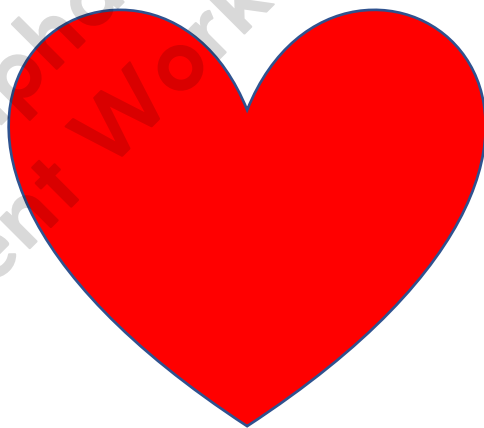


Launch the rocket

By Emika Ichinohe

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SASTA OLIPHANT SCIENCE AWARDS
SA

AIM:

The aim of my project was to teach lots of people that it is important to keep the whole universe clean. The world is facing a problem of orbital debris. Orbital debris are space junks that destroy the space environment. According to NASA, about 27,000 orbital debris including more than 3,000 dead satellites are found in space. Rockets are using a computer system to make sure that the rockets do not crash into these orbital debris. However, if the number of orbital debris increase, it makes it very difficult for rockets to go to space without crashing into them. So, it is important that we, humans, don't create more and more orbital debris, or to find a way to reduce the amount of space junks. By playing this game, I want everyone to learn how important it is to maintain a clean space environment.

Where did the idea come from?

My idea first came from a visit to the Australian Space Discovery Centre in Adelaide. I visited there on 30th May 2021 with my family except my dogs. I saw a screen with full of dots. After I realised that the dots represented orbital debris, I started thinking about making a game to teach people about space junks for the Oliphant science awards.

USEED SOFTWARE:

Launch the rocket was made in Scratch.

Instructions:

1. Open: <https://scratch.mit.edu/projects/553939783>
2. Avoid crashing into Orbital debris which are space junks, using the right and left arrow keys to control the rocket
3. If you see the game over scene, press space to start again
4. Congratulations if you win!

Bibliography

- Scratch tutorials and Discussion forums from <https://scratch.mit.edu/>
- Australian Space Discovery Centre <https://www.industry.gov.au/australian-space-discovery-centre>
- 'Space Debris and Human Spacecraft' from NASA https://www.nasa.gov/mission_pages/station/news/orbital_debris.html

Screenshots of the program

The image displays three segments of Scratch code blocks on a grid background. A large, diagonal watermark reading "2021 Oliphant Science Awards Student Work - DO NOT COPY" is overlaid across the center.

Segment 1:

- when clicked
- show
- say Hello! My name is Ralam. for 2 seconds
- ask What's your name? and wait
- say well, welcome to Launch the rocket. I'm your space teacher. for 4 seconds
- say let's get on with our game. for 3 seconds
- say So, this game is to help you understand the difference between having rubbish in space and having no rubbish in space. for 8 seconds
- say so next, I will explain how to play this game. for 3 seconds
- say you try not to bump into space rubbish by keeping in time. for 3 seconds
- say use the left and right to control the rocket. Enjoy! for 4 seconds
- hide
- broadcast level1

Segment 2:

- when backdrop switches to well done!
- show
- say well done! for 2 seconds

Segment 3:

- when backdrop switches to GAME OVER!!!!!!
- show
- say good try for 2 seconds

```
when clicked
hide

when right arrow key pressed
change x by 10

when left arrow key pressed
change x by -10

when I receive level1
set x to 0
set y to -120
show
say level 1 for 2 seconds
forever
change y by 3
if touching edge ? then
wait 1 seconds
go to x: 0 y: -120
say Good job! for 2 seconds
broadcast level2
```

```
when I receive level2
set x to 0
set y to -120
show
say level 2 for 2 seconds
forever
change y by 3
forever
if touching Apple2 ? then
hide
broadcast gameover
stop this script
if touching Apple3 ? then
hide
broadcast gameover
stop this script
if touching Apple4 ? then
hide
broadcast gameover
stop this script
if touching edge ? then
wait 1 seconds
hide
broadcast welldone
```

```
when clicked
```

```
hide
```

```
when I receive level2
```

```
show
```

```
set x to -150
```

```
forever
```

```
move 5 steps
```

```
if on edge, bounce
```

```
when backdrop switches to GAME OVER!!!!!!
```

```
hide
```

```
when backdrop switches to well done!
```

```
hide
```

```
when I receive gameover
```

```
switch backdrop to GAME OVER!!!!!!
```

```
if key space pressed? then
```

```
broadcast level2
```

```
when I receive level1
```

```
switch backdrop to Stars
```

```
when I receive level2
```

```
switch backdrop to Galaxy
```

```
when I receive welldone
```

```
switch backdrop to well done!
```

```
stop all
```

Acknowledgment:

Thanks to my family for letting me do it and Thanks to whoever made this program and thanks for including my school.

My mum helped me solving problems with coding on Scratch and finding what to write on this report.

**GO SASTA OLIPHANT SCIENCE
AWARDS SA!**

