



## 2020 Minor Challenge Set #1

**STEM Field:** Software Engineering/IT

**Level:** Junior

**Challenge Name:** Tynker: Lost In Space

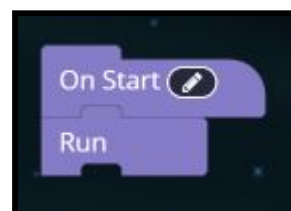
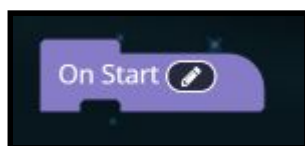
**Materials required:**

- Internet access (preferably laptop/computer)

## Introduction:

Biff is an astronaut on his way back to titan base when he is hit by an asteroid, launching Biff to nearby planet Targus 45. Using programming tools you must guide Biff to the nearest launchpad so that Biff can travel to the nearest moon base.

This game features 25 levels across two stages. In the first 13 levels you are tasked with helping Biff make his way on Targus 45 towards the nearest launchpad. To do so you must make use of Tynker, blocks of code that will tell Biff what to do. Each level starts with a On Start block. You can drag blocks from the left and place it under this On Start block.

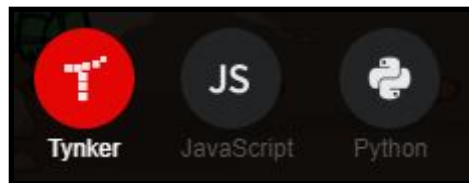


When you click the Start block, the blocks will run from top to bottom. Also you will notice that for a short amount of time, some blocks will glow green like the picture below.

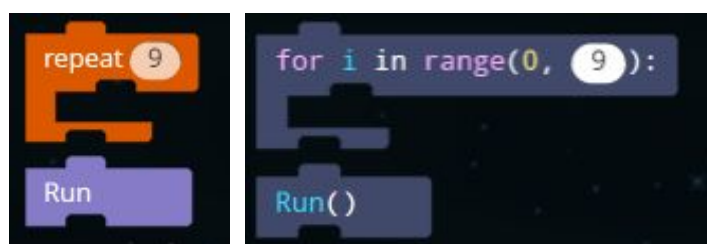


This means this is the part of the code that is currently being run. You will see Biff follow the exact instruction that is currently glowing green.

Fancy a challenge? You will notice the following picture in the bottom left of the game.



If you are completely new to programming we advise you not touch this section, but if you'd like to see how two of the most popular programming languages JavaScript and Python look like, you can play the entire game the same way using blocks of these widely used programming languages the same way.



Tynker

Python

These blocks do exactly the same thing in the game. Sort of like how you can say 'Hello' in English, French, Japanese and mean the same thing!

# Instructions:

Click or type in the following link into your browser, a browser like Google Chrome is recommended:

<https://www.brainpop.com/games/tynkerlostinspace/>

Try to beat all 25 levels! Make sure you've read the Introduction and Tips section of this document carefully. You can go back to previous levels at any time. There's also a Hint button in the game that may help you if you're stuck but make sure you carefully read everything the game tells you.

## Extension: Additional Tynker Games

There are a few other games similar to the one you just played. If you're looking for more, check them out:

- Tynker Sketch Racer  
<https://www.brainpop.com/games/tynkersketchracer/>
- Tynker Puppy Adventure  
<https://www.brainpop.com/games/tynkerpuppyadventure/>

## Tips:

- Infinite loops:
  - Using the repeat blocks it is possible for blocks to run forever because we forgot something to stop it when we want it to stop. You can see this when blocks keep blinking green and Biff is going in circles or not doing anything
  - In this game, just go back to a previous level then go back to the level to reset it

- Keep trying even if it you get stuck! Sometimes it takes a lot of tries, tweaking around blocks until it works (this is true for professional programmers as well!)
- As you get into the later stages, take the time to really think logically how your blocks work
- You will sometimes see notes saying the ‘best’ solution uses only a certain amount of blocks. You can certainly choose to go to the next level but if you’re up for a challenge try to redo the level with the least amount of blocks possible. After all we want Biff back home as soon as possible!

## Reflection Questions:

- Address problems that may be associated with the challenge and mention the improvements you can make
- What real world application you can apply the challenge to?
- What are the key concepts of science and engineering that relate to this challenge?
  
- Did you find this puzzle game easier or more difficult than you expected?
- Suggest why we want to use Repeat blocks whenever possible. Think of one of the levels where you had to run twice and jump three times.

## Submission Guidelines:

- Submit a screenshot or photo of the completed game, which should look like the below image. Include a short summary that addresses some of the Reflection Questions.
- In 2020 we have changed our submission guidelines compared to 2019. To submit fill out the form here:  
<https://forms.gle/ChrCXLud97E4x3AT9>



## Learn More! Resources:

- Tynker  
<https://www.tynker.com/>
- Video on Computer Programming by Brainpop:  
<https://www.brainpop.com/math/dataanalysis/computerprogramming/>
- Blockly Games  
<https://blockly-games.appspot.com/>

## Sources:

Brainpop.com. (2019). Tynker: Lost In Space - GameUp - BrainPOP.. [online] Available at: <https://www.brainpop.com/games/tynkerlostinspace/> [Accessed 22 Feb. 2019].