

Lesson Plan

Description
 Students will work through an introduction the python while exploring various aspects of our solar system. Once familiar with the basic programming constructs and data types they will explore the role of the Sun in our solar system using a simulation programmed in python.

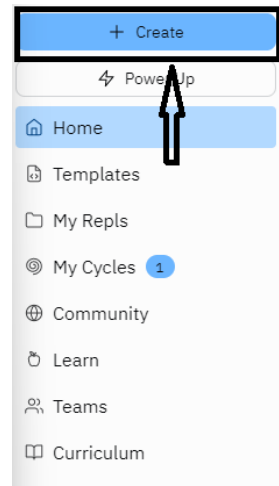
- Learning Outcomes**
- Understand basic data types in python including functions, strings, variables, and numbers
 - Recognize the importance of the sun being its exact size and distance from Earth for Life as we know it to exist
 - Characterize the planets of our solar system with their similarities and differences
 - Write simple but functional programs in python

- Specific Expectations**
- E2.1** describe the importance of the Sun and its characteristics, including its role in the solar system and in sustaining life on Earth
- E2.4** describe major components of the solar system and the universe and compare their characteristics
- E2.5** quantify distances in the solar system and the universe by applying an understanding of relative distances and sizes and using appropriate units of measure

Introduction

Before beginning this series of lessons and exercises students must first log on to and create an account on replit.com. Once they have successfully created an account and have logged-in they will choose the create button on the left-hand side of their page as shown in the photo here to the right.

A new pop-up window will appear where they can type python into the search bar to create a new python file. Click python then create and it will open a new window with two distinct halves. The left-hand side is where we will write our code while the write hand side will act as the computer monitor and display our code when the program is run.



<p>Action</p> <p>Students will be led through the “Intro to Python Lessons 1-4” and complete all accompanying exercises.</p> <p>After completing of lessons and examples students will open and work through the Solar System Simulator using the instructions and worksheet documents</p>	
<p>Consolidation/Extension</p> <ul style="list-style-type: none"> • Students will start a new python file and create a short 5 question quiz on the topics covered throughout the lessons of either space or python • Each question will use if statements to determine if the answer is correct and tell the user whether they were correct or not before the next question • At the end of the quiz the program should display the users score to the quiz • Ensure proper organization and comments through the code so it is easy to read 	
<p>Accommodations/Modifications</p> <ul style="list-style-type: none"> • Have students work in partners to allow for more collaboration for the programming 	<p>Assessment</p> <ul style="list-style-type: none"> • Students will submit their Solar System Worksheet document for grading • Students can download the quizzes they created from Replit and submit them to the teacher
<p>Additional Resources</p> <ul style="list-style-type: none"> • Laptops or iPads or any other device with access to the internet. Phones are not ideal as they’re so small. A device with a keyboard is preferred as there is a lot of typing involved. Chromebooks do work as well as there are no applications needed to be downloaded. 	