

Enrichment – VPython Directions

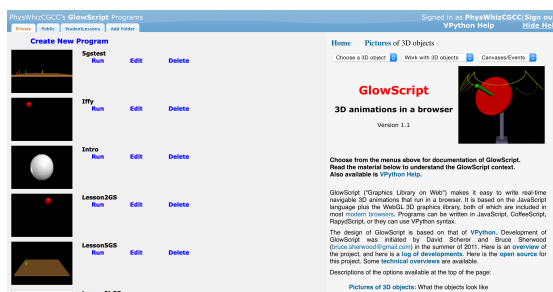
Introduction

For many enrichment activities, you will have the opportunity to use a computer program to demonstrate and analyze the motion of various scenarios. This assignment will teach you how to use the program. Each lesson below has a link to an example. Above the animation you can click on “edit this code” to see what the code actually looks like for that program. Notice the use of comments in the examples. I expect a similar comment-to-code ratio in all submissions.

Instructions

Go to glowscript.org, and click on the **Sign In** link in the upper right corner.

If this is your first time here, then you should click on the **Create account** link towards the bottom of the next screen.



Once you’ve created an account, you should check that all is well. Click on the **Create New Program** link, provide a name for the program (I called mine **Test**), and you’ll be taken to an editing window.

Line #1 is always filled in for you (don’t mess with it). As you can see, **# David Weaver Test** is in line 2 (lines beginning with a “#” are a **comment** that the program doesn’t try to do anything with, these will be **crucial** for earning points in this assignment) and **sphere ()** in line 3 which tells the program to create a sphere. Try this yourself.

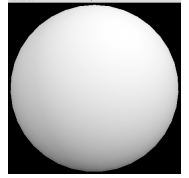
```
Test by PhysWhizCGCC (Saved)
Run this program S
1 GlowScript 1.1 VPython
2 # David Weaver Test
3 sphere ( )
```

Fun fact for programmers: The major change to **GlowScript** for most of **VPython** programs and previous training materials is the need for making object’s positions, colors, etc. as **vectors**. Many of the following example programs also include the statement **from visual import *** so these programs can also run directly in VPython. Also, **frames** are not available in **GlowScript**. The VPython version of this training has associated videos, but they are likely not necessary.

This assignment will walk you through how to create things in the program. Afterward, you will be able to complete the various associated enrichment activities.

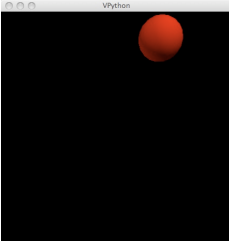
Lesson 1 – Create your 1st Program

- You will replicate what you did above and add what is required.
- Create your own 1st Program based on this [sample](#)



(<http://www.glowscript.org/#/user/PhysWhizCGCC/folder/StudentLessons/program/SH-Lesson1-GS>) (use *# Comments* as directed and make sure your name is included in the file name)

Lesson 2 – Adjust 1st Program to change position, size and color of your sphere



- Look at the Lesson 2 [example](#)

(<http://www.glowscript.org/#/user/PhysWhizCGCC/folder/StudentLessons/program/SH-Lesson2-GS>).

- Create your own 2nd Program (use *# Comments* as directed and make sure your name is included in the file name (use comments and proper file naming for all future programs)) for a named sphere with a position, size and color of your choosing.
- **Challenge** – Place multiple spheres (of different sizes and colors) in multiple places.
- **More challenging** – Go to the VPython Help and Help links in upper right corner of the GlowScript screen. Figure out how to create different sorts of 3-D shapes and add them to your program.

Lesson 3 – Create your initials with VPython (helps you learn about 3-D space)

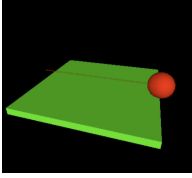
- Look at the Lesson 3 [example](#)



(<http://www.glowscript.org/#/user/PhysWhizCGCC/folder/StudentLessons/program/SH-Lesson3-GS>)

- Create your initials.
- **Challenge** – Capture this image so you can use it to “brand” your documents, websites, etc.
- Submit program(s)

Lesson 4 – Make a sphere move (finally starting to see some physics!)



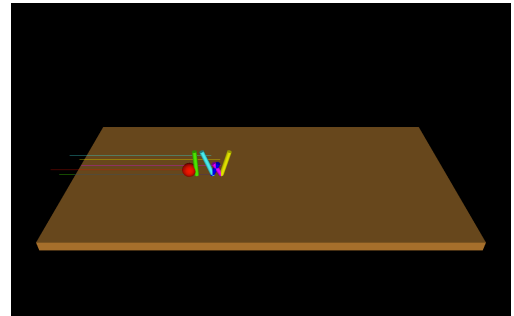
- Look at the Lesson 4 [example](#)

(<http://www.glowscript.org/#/user/PhysWhizCGCC/folder/StudentLessons/program/SH-Lesson4-GS>)

- Make your sphere move at a different velocity than this.
- Look at the Lesson 4b [example](#) (<http://www.glowscript.org/#/user/PhysWhizCGCC/folder/StudentLessons/program/SH-Lesson4b-GS>) and add trails to your moving objects. Also notice the adjusted view.

Lesson 5 – Use what you learned in Lessons 3 & 4 to animate your initials

- Look at the Lesson 5 [example](#)



(<http://www.glowscript.org/#/user/PhysWhizCGCC/folder/StudentLessons/program/SH-Lesson5-GS>)

- Make your initials move similarly. *Be sure to add trails and adjust the view in this and all future programs.*
- **Challenge** – Make each initial move in a different direction.