LAW Lesson Plan Template

Date: 1/4	Teacher: Adams	Subject: APCSP	Unit/Topic Unit 3 Lab 1 Page 2 & 3

Objective

Page 2: Fractal Art

Learning Goals:

- Understand the result of nested repeat blocks in order to develop a program to draw triangles (submitted program and response)
- Read a program and predict the result of running it. (exit slip)

Page 3: Checking Each Quiz Answer.

Learning Goals:

- Explore recursion, one of the greatest ideas in computer science, in order to develop a complex program that utilizes recursion to make multiple different sized shapes. (submitted program and response)

Standards assessed this lesson:

Please see standard alignment on BJC website:
https://bjc.edc.org/bjc-r/cur/teaching-guide/U2/lab-pages/2-data-art.html?topic=nyc_bjc%2F2-teaching-guide.topic&course=bjc4nyc_teacher.html&novideo&noassignment

Evidence of Student Mastery (formative assessment)

Students will be submitting their completed code via Google Classroom and adding to their coding journals
After Day one they will submit URL via Google Classroom for me to review and an exit slip about this use of variables

Key Vocabulary and Terms:

Nested Blocks

- A block inside another block in Snap! Can be seen in other coding languages where you nest functions or procedures inside one another.

Recursion

- Calling a procedure from inside itself is called recursion.

Planning and Preparation

By the end of this lesson, I want my students…

to know *(knowledge gained):*	**to be able to** *(skills acquired):*	**to think critically about** *(provocative questions):*	**to understand how this connects to their identity:**
What a nested block is and how it is an example of recursion.	*Use recursion to develop a complex drawing program*	*How computers and abstraction allow the world and people to do incredibly complex things.*	How they can come up with unique abstract solutions to complex issues but simplifying the issues to their key detail

Materials and Resources (including texts)

https://bjc.edc.org/bjc-r/cur/teaching-guide/U2/lab-pages/1-variables-games.html?topic=nyc_bjc%2F2-teaching-guide.topic&course=bjc4nyc_teacher.html&novideo&noassignment

Instruction (45 minutes)

I will ensure that learning will be student-centered, engaging, and effective for all students by:

Multiple Entry Points/Launch of the Lesson: *(5-8 minutes)*

(all MEPS and launch activities are connected to the standard)

1. Can you think of any tasks in your life in which you have "nested" tasks associated with it? In other words, large tasks that have smaller tasks that must be executed in order for the larger task or goal to be complete.
2. List and define three ways in which the flow of control in a program can be determined.

Activity 1: Read/Write/Discuss *(10 minutes)*
Page 2 (20 mins)
Fractal Art
I will model how to draw the triangles and have students complete the other two that they need. I will give them a chance to try it before I show hwo to do it.
Then I will direct groups to work through the lab on their own and respond to the questions with their partners.
I will check in with groups and at the end of the page I will check that they had their predictions right and review it if there are many groups that are not predicting correctly

SDI/Groupings

- ***Scaffolds and specific targeted students:***
  - ***3rd: Kayla, Harmoni, Renisha, and Danaya will work as two pairs in a small group with me so I can help guide them.***
  - ***4th Tyscie and Maddie will worth together as they both need help catching up***
- ***Accomodations:***
  - ***Providing starter code for those that need it.***
- ***Enrichment:***
  - ***If there is time section and Take it further for students who want to push ahead on the lesson.***
  - ***Most will opt to move onto the next page of the lab.***

Check for understanding and misconceptions/Transition:
I will check in with most groups to view their code and ask for a show of hands for those that need assistance debugging their code and work with those groups via questioning.
Two Check in questions will pause after 10 mins and ask students to share out their answers and CFU with class. Will provide support for students that miss the self check ins. (2 mins)

Activity 2: Read/Write/Discuss
Page 3 Using Abstraction to Nest Triangles

- Students will predict what nesting means and review the concept
- Then I will work with groups who are at this point and show them how to develop the code.
- They will then develop their custom block and execute the code. It should look like the example and if it does not they will debug it to figure out why.

SDI/Groupings

- ***Scaffolds and specific targeted students:***
  - ***3rd: Kayla, Harmoni, Renisha, and Danaya will work as two pairs in a small group with me so I can help guide them.***
  - ***4th Tyscie and Maddie will worth together as they both need help catching up***
- ***Accomodations:*** *Lets students write out their quiz questions and answers instead of coding them and write them out in an algorithmic form… then we can work on adding them to a lsit and still developing a quiz app even if it is not as complex as the lab saks for. They can still create the question and asnwer lists to conceptually undertand the CS thinking behind it.*
- ***Enrichment: There is an if there is time section to push students to keep working ahead***

Check for understanding and misconceptions/Transition:
I will check in with most groups to view their code and ask for a show of hands for those that need assistance debugging their code and work with those groups via questioning.
Three Check in questions will pause after 10 mins and ask students to share out their answers and CFU with class. Will provide support for students that miss the self check ins. (2 mins) (may put these into google Form to answer post lesson for HW--will will take some time in class to check in on them… I will also tell students they can add these to journal if they are confused or needed more explanation.)

Closure: Self/Peer Assessment *(5-8 minutes)*

Review this program and predict the output:

Trouble:

- Kayla
- Kea Von
- Renisha
- Harmony
- Bella?
- Ash

Groups

- Aaliyah and Shlomie