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Lesson - Drawing with p5

Objectives: Students will be able to....

- Use shapes that they discovered in the p5 reference in order to create their own unique image/symbol
- Add comments to the different shapes/functions in order to identify/explain the sequencing of their code
- Use fill and stroke to change the colors of the shape in order to enhance/create depth in the detail of their image/symbol
- Center their image/symbol in the middle of the canvas as a means of demonstrating their knowledge of the coordinate plane in p5

Introductory Activity: 5 Minutes

(Ex: Do-Now, Formative Assessment, Discussion, Inquiry)

Do Now: Students create "p5 editor account"

- Students click on web editor link (provided in google classroom & Zoom chat)
- Students click on "sign up" to create account
- Students open p5 reference & color picker

p5 Guided Exploration: 10 Minutes

(Ex: Collaborative Problem Solving, Lab, Debate, Discussion, Direct Instruction)

Model:During this exploration, students will discover different shapes possible in p5, and how to use these shapes via coding to create a unique image of their own.

- Teacher reviews p5 doc with students
- Teacher models coding different shapes using p5 editor specifically highlighting:
    - `fill()`
    - `stroke()`
    - `strokeWeight()`
    - `Sequencing algorithms* (Math Connection: Order matters/logical ordering...p5 reads code top to bottom, so, order of shapes determines overlays)`
- Teacher allows students to try coding shapes...request for a volunteer to share their screen.

Assessment Questions:

- How is coding in p5 similar/different from coding in pyret?
- How can the p5 reference help with creating unique images/symbols?
- Why is it important to pay attention to the order/sequencing of code in p5?
- Describe the process you used to create your unique image/symbol.

Whole-Group Share Out/Summary: 6 Minutes

- Students will be expected to share their screens and explain their work process.
- Students will choose one reflection question to respond to in the Zoom chat before transitioning to independent work.

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Independent Work: 20 Minutes
(This is where you will use your hyperdoc with a variety of online learning activities which may include explorations, collaboration, discussion, video lessons, reading, and assessment.)

- Students will be expected to complete the given task independently (online or offline).
- Students will complete a written reflection

Lesson Concepts:

Abstraction	**Extracting essential details and repeatable patterns from a more complex system.**
	Includes decomposition, pattern recognition, generalization, modularity, interfaces.
Algorithms	**Instructions that convert a set of inputs into a desired output (kind of like a recipe).**
	Includes algorithm design, control flow, inputs/variables/outputs, application.

Programming	**Giving instructions to computers in human language.**
	Includes languages, syntax, development environments, collaboration.
Data	**Information that can be collected, stored, and processed by a computer.**
	Includes data abstraction & storage, transformation & visualization, feedback loops & automation.

Analyzing	**I can develop a deeper understanding of computing applications.**
	Describing, examining, interpreting, evaluating.
Prototyping	**I can express my ideas by making computing projects.**

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🎨	Iterating, imagining, planning, designing.
Communicating 📣	**I can engage others in my ideas and work on computing concepts.**
	Showing, explaining, presenting, discussing.

Notes:

Student Reference Sheet

P5 Resource Doc -- Drawing