



SUMMER IMMERSION PROGRAM

# DAY 2 – DRAW SHAPES



# GOALS

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- **YOU WILL BE ABLE TO...**
  - Use loops in a Scratch program to repeat a task.
  - Use variables in a Scratch program to store a value.
  - Use user input to change the output of a Scratch Program.

**Project:** Draw Shapes



# AGENDA

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## 1. Introduction - 30 min

- Draw a Square
- Draw Triangles
- Abstracting

## 2. Start the Project - 120 min

- Math
- User Input
- Variables

## 3. Introduce New Information - 30 min

## 4. Finish Project - 45 min



# INSTRUCTIONS

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- **Think-Pair-Share**
  - Discuss and answer the following:
    - What did the sample project do?
    - How could you customize this project or make it special in some way?
    - What do you need to learn in order to build this project yourself?



# INSTRUCTIONS

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- **Independent Work**

- On your own, work on the Draw Square activity. Explore the different block menus and try new things to solve the problem.
- If you find a solution, challenge yourself to find a **different** way to draw a square.



# INSTRUCTIONS

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- **Journal Response (10 min)**
  - In plain English, explain how you got the cat to draw a square.
  - Be ready to discuss your strategy with your classmates!



# INSTRUCTIONS

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- **Independent Work**

- On your own, work on the Draw Triangles activity. Explore the different block menus and try new things to solve the problem.
- If you find a solution, challenge yourself to find a **different** way to draw a triangle, or challenge yourself with one of the extensions.



# INSTRUCTIONS

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- **Journal Response (5 min)**
  - How many degrees did your cat have to turn at each corner to draw a triangle?
  - How many degrees would a cat have to turn at each corner to draw a hexagon? Give an example that proves you are correct.





# NEW INFORMATION

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- **ABSTRACTION** - To use patterns to simplify an idea to its simplest characteristics.



# INSTRUCTIONS

- **Paired Work**

- Abstraction - Find a mathematical formula that relates the number of sides in the polygon with the degrees turned at each corner by the cat.

Shape	# of Sides	Degrees turned
Square	4	
Triangle	3	
Hexagon	6	



# NEW INFORMATION

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- **MATH IN SCRATCH:**
  - Research the following:
    - Why are some of the blocks rectangular and others have rounded corners?
    - What differences do you see in block appearance? What do they signify?



# NEW INFORMATION

- **USER INPUT IN SCRATCH:**
  - Experiment to answer the following:
    - How does the “Ask” Block work?
    - What information does it store?





# NEW INFORMATION

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- **VARIABLES IN SCRATCH:**
  - Experiment to answer the following:
    - How can you store values in order to use them later?
    - Why might you want to do this?



# INSTRUCTIONS

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- **Paired Work**

- Work together to finish your project by creating a program that takes in get user input and draws a shape with the designated number of sides.
- Begin by breaking your project down on paper!



# PRESENTATIONS

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- As a class, do mini-presentations to show off what you created!



# GOALS

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- **Are you able to...**
  - Use loops in a Scratch program to repeat a task?
  - Use variables in a Scratch program to store a value?
  - Use user input to change the output of a Scratch Program?





# REFLECTION

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- After seeing how other people created their programs, what might you change about your own?
- What surprised you about someone else's program? Why was it surprising?



# WRAP UP

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- Together, reflect on degree to which you agree to the following statements:
  - I am proud of what I made today.
  - If I had more time, I would change something about the program I made today.
  - Today's challenge was really hard.
  - I enjoyed solving the problems I tackled today.
- How can we make tomorrow even better?



# WRAP UP

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- Share a shoutout on GWC Loop!
- Share a highlight from your day on GWC Loop!

