

UNIT LESSON 3

PATTERNS AND SEQUENCES IN WRITING

3RD & 4TH GRADE



Award #1837380

Lesson created by the GMU-ODU CSforAll Team. For more information about this lesson and our CSforAll initiative, contact Dr. Amy Hutchison at achutchison1@ua.edu

SUMMARY AND STANDARDS

Summary:

In this lesson, students will identify and create patterns and sequences in writing and also code a pattern and sequence.

ELA Standards:

The student will read and demonstrate comprehension of nonfiction texts.

The student will write in a variety of forms to include narrative, descriptive, opinion, and expository.

- a) Engage in writing as a process.
- c) Use a variety of prewriting strategies.
- d) Use organizational strategies to structure writing according to type
- g) Use transition words to vary sentence structure

CS Standards:

The student will construct sets of step-by-step instructions (algorithms), both independently and collaboratively

- a) using sequencing;
- b) using events.

MATERIALS AND RESOURCES NEEDED FOR THIS LESSON:

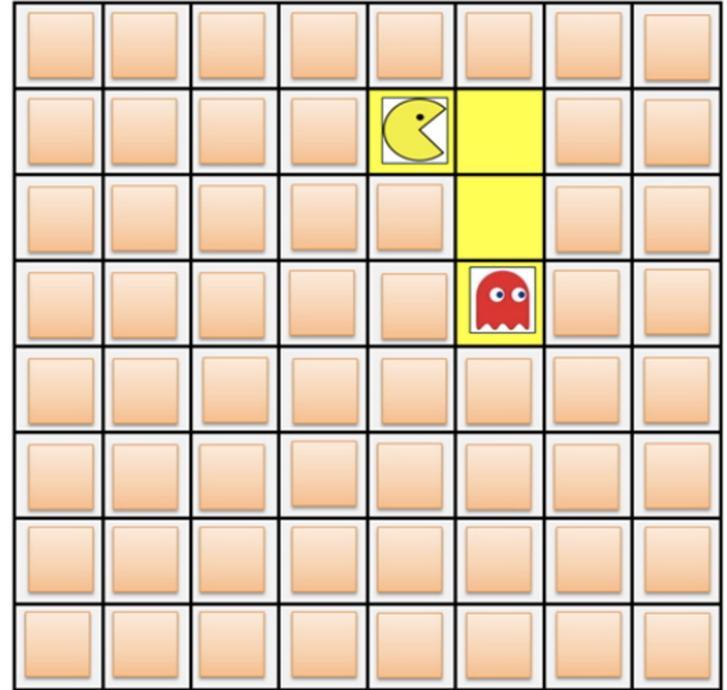
- Teacher slide deck
- Student slide deck
- Chromebook/Laptop
- Internet Access
- [Drink recipe graphic organizer:](#)



WARM UP

PATTERNS & SEQUENCING REVIEW ACTIVITY

1. Open your [student slides](#)
2. Click on the [link to the warm up](#)
3. Answer each question
4. Review [answers](#) as a class!



LESSON OBJECTIVES

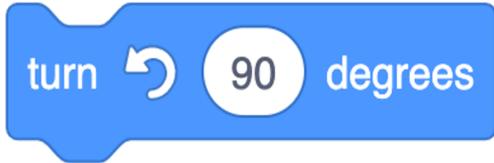
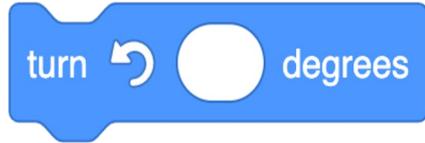
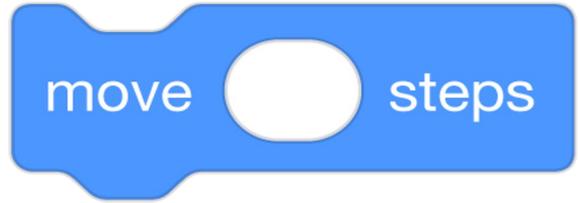
- ❑ Create a pattern and sequence a set of written instructions (Whole group)
- ❑ Identify patterns found in writing (EXPLANATORY)
- ❑ Participate in Pair Programming
- ❑ Identify and Operate Scratch blocks to create a sequence, using Move and Wait Blocks (Create a square)

INTRODUCING MOVE, TURN, & WAIT BLOCKS

REMEMBER...

The image shows the Scratch IDE interface. On the left side, a vertical sidebar contains various block categories, each represented by a colored circle: Motion (blue), Looks (purple), Sounds (pink), Events (yellow), Control (orange), Sensing (light blue), Operators (green), Variables (orange), and My Blocks (pink). A red rectangular box highlights this entire sidebar. A large grey arrow points from the text "Block categories" towards the sidebar. The main workspace shows a script area with several blocks: "point towards mouse-pointer", "point in direction 90", "glide 2 secs to x: -170 y: -4", "turn 15 degrees", "turn 15 degrees", "move 10 steps", "change x by 10", "set x to -170", "change y by 10", and "set y to -4". The right side of the interface features a stage with a light blue background and a purple horizontal bar, with the Scratch cat sprite on it. Below the stage are controls for the selected sprite (Sprite1), including position (x: -170, y: -4), size (100), and direction (90). The bottom right corner shows a "Backpack" button and a "Stage" button.

MOTION BLOCKS



MOVE BLOCK (EXPLAINER VIDEO)

The image shows the Scratch development environment. On the left, the 'Motion' category is selected in the block palette. A script on the stage contains a 'when green flag clicked' event block followed by a 'move 50 steps' block. A red arrow points from this 'move 50 steps' block to the Cat sprite on the stage. Another red arrow points from the Cat sprite to the 'Sprite' control panel on the right, which shows the Cat sprite selected and its current position at x: 118, y: -14.

Moves your sprite a certain number of steps.

TURN BLOCK (EXPLAINER VIDEO)

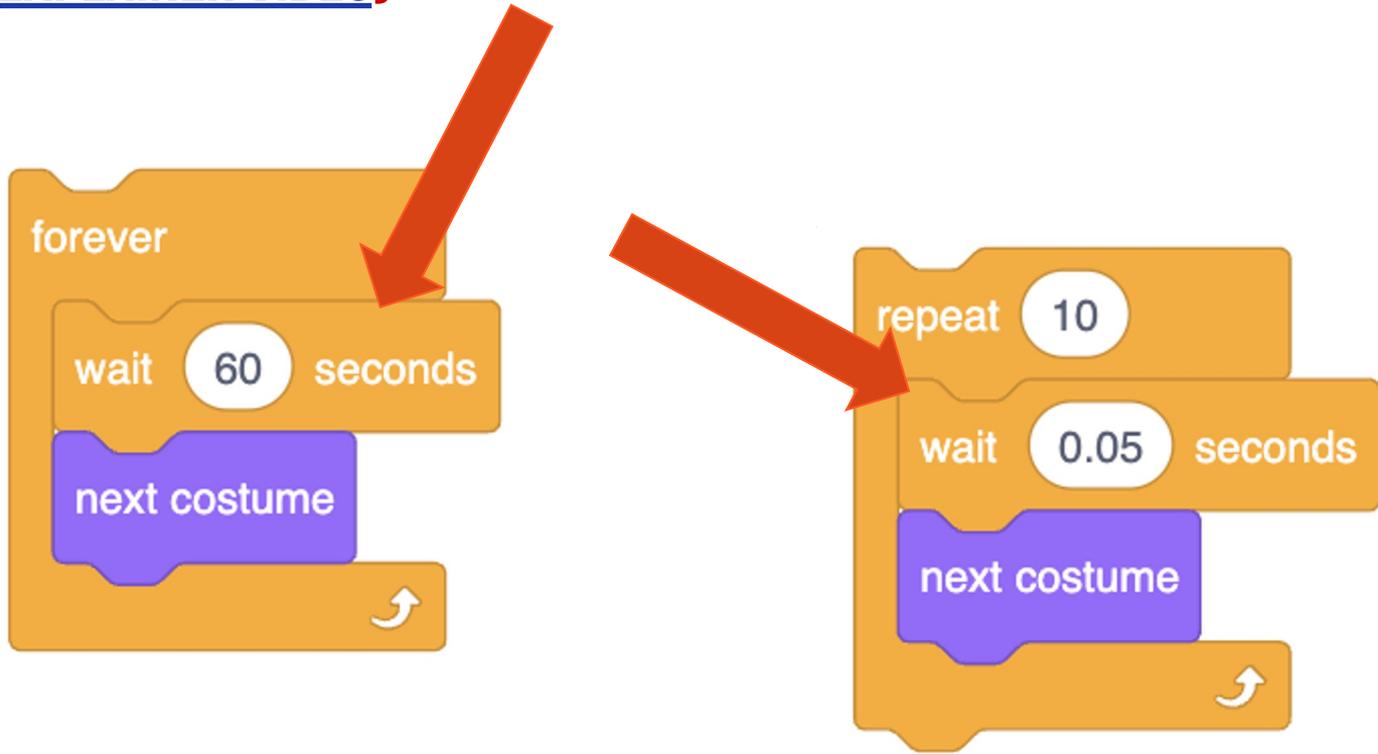
The image shows the Scratch web interface. The top navigation bar includes the Scratch logo, a globe icon, and menu items for File, Edit, Tutorials, and a project name 'Unfitted-2'. There are 'Share' and 'See Project Page' buttons. The right side of the top bar shows a user profile icon for 'ejmanchester' and window control icons. Below the top bar are tabs for 'Code', 'Costumes', and 'Sounds'. The left sidebar contains a 'Motion' category selected, with various block options like 'move 10 steps', 'turn 15 degrees', 'go to random position', etc. The main workspace shows a cat sprite on a grid. A script block is attached to the sprite, starting with a 'when clicked' event block followed by a 'turn 90 degrees' block. A large red arrow points from the top right towards the cat sprite. The bottom right panel shows the 'Sprite' area with 'Cat' selected, and its current position (x: 118, y: -14) and direction (180). A 'Backdrops' panel on the far right shows '1' backdrop.

Turns your sprite right or left by a matter of degrees.

CONTROL BLOCKS



WAIT BLOCK (EXPLAINER VIDEO)

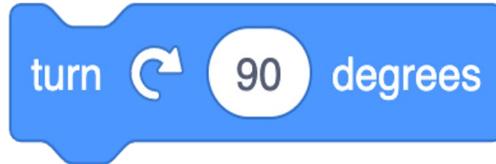


Your Sprite will PAUSE or wait for a specified amount of time.

ACTIVITY: WALK IN A SQUARE

IN SCRATCH, PROGRAM YOUR SPRITE TO WALK IN A SQUARE

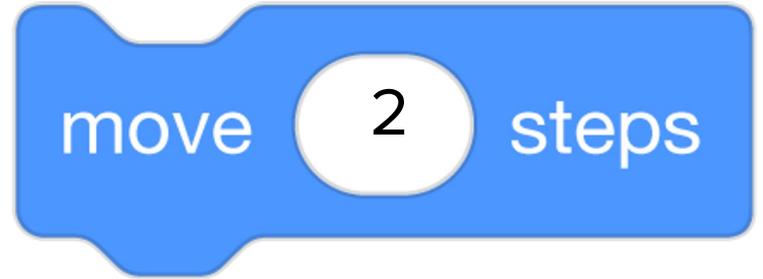
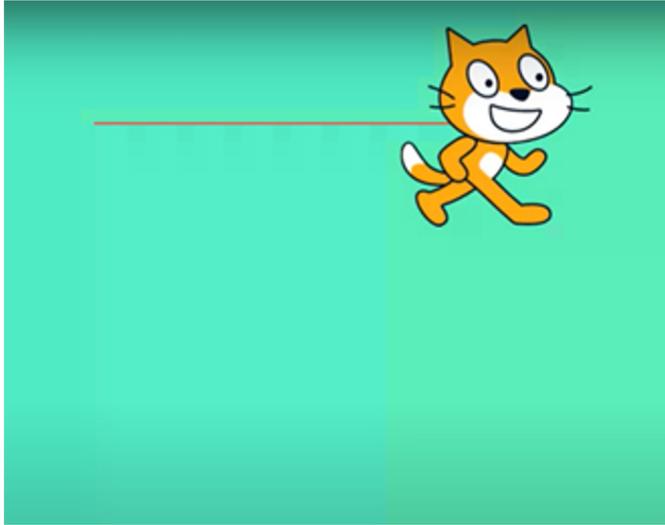
Use the new move, turn, and wait blocks we just learned to program your sprite to walk in a square.



SOLUTION

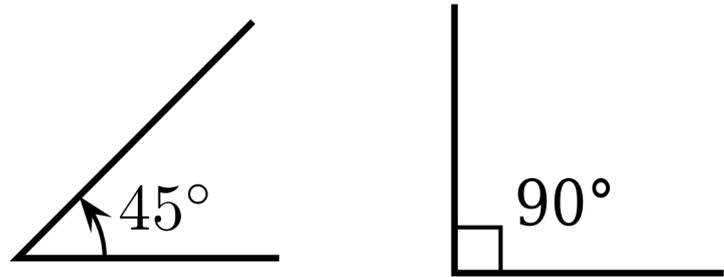
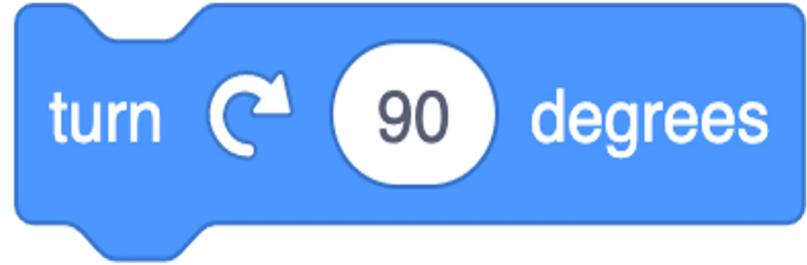
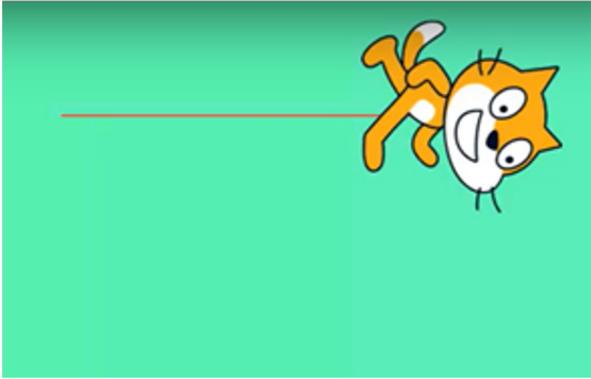
COMMANDS FOR WALKING IN A SQUARE

Step 1 (First): Walk forward 2 steps



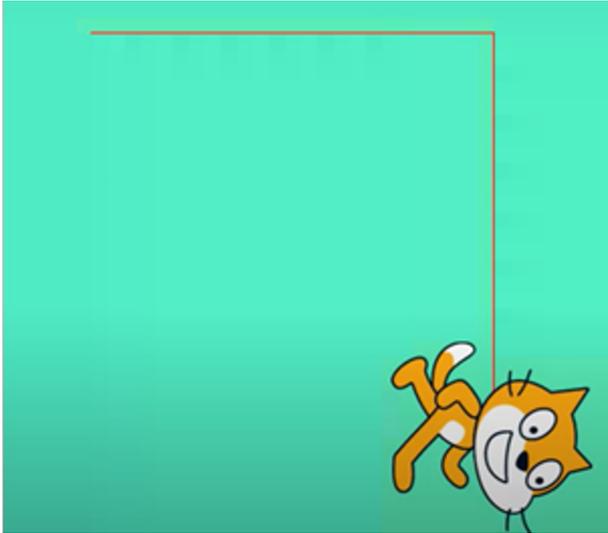
COMMANDS FOR WALKING IN A SQUARE

Step 2 (Then): Turn right



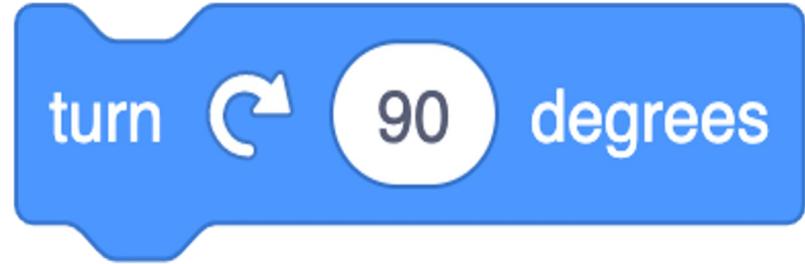
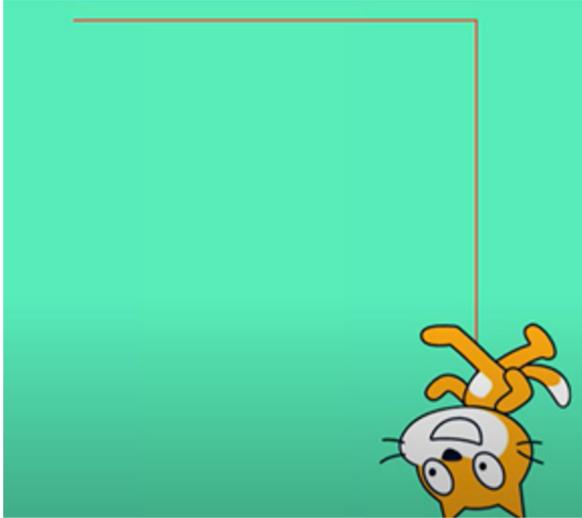
COMMANDS FOR WALKING IN A SQUARE

Step 3 (Next): Walk 2 steps



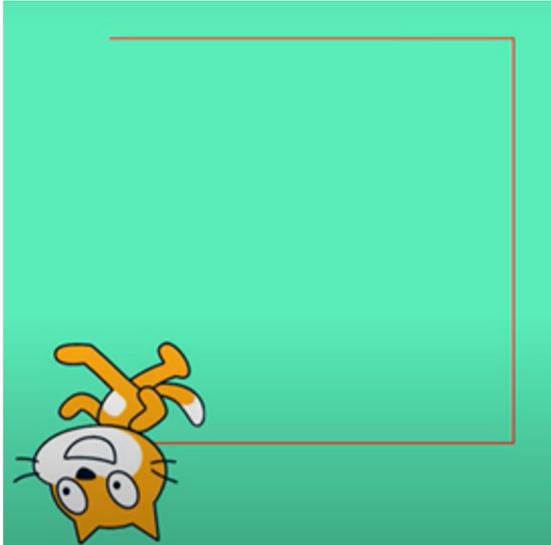
COMMANDS FOR WALKING IN A SQUARE

Step 4 (Then): Turn right



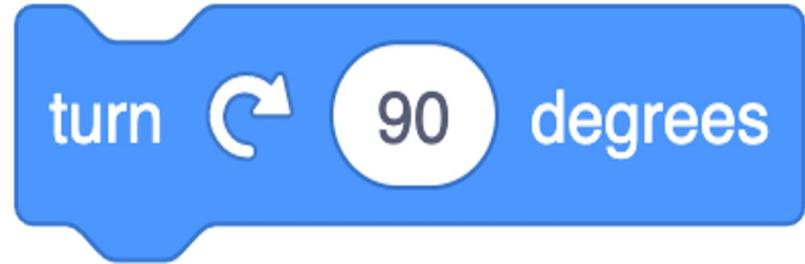
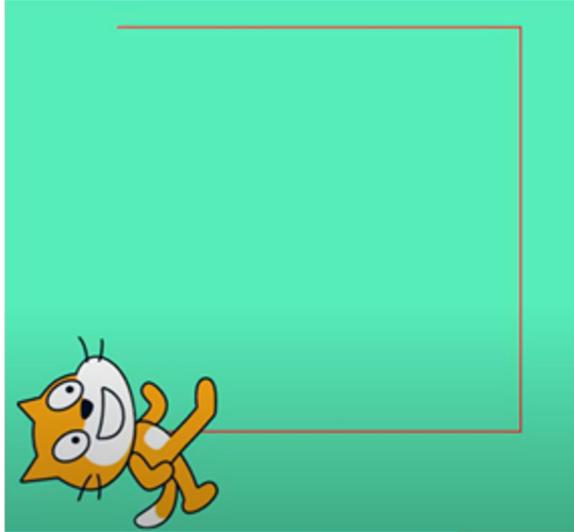
COMMANDS FOR WALKING IN A SQUARE

Step 5 (Next): Walk 2 steps



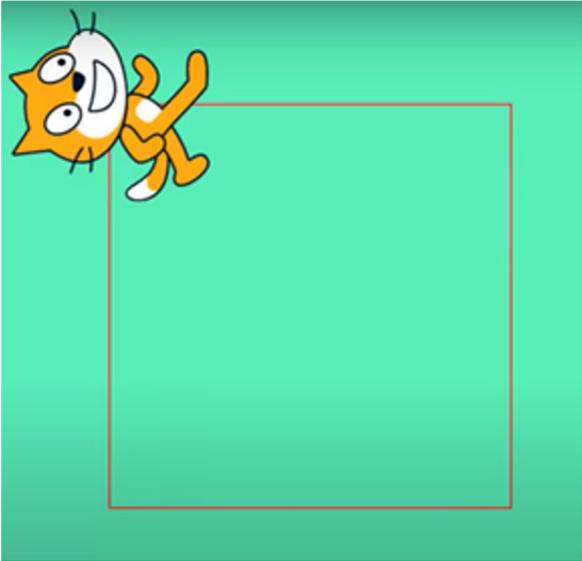
COMMANDS FOR WALKING IN A SQUARE

Step 6 (Last): Turn right



COMMANDS FOR WALKING IN A SQUARE

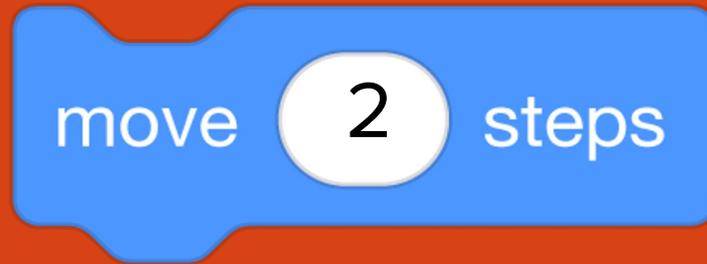
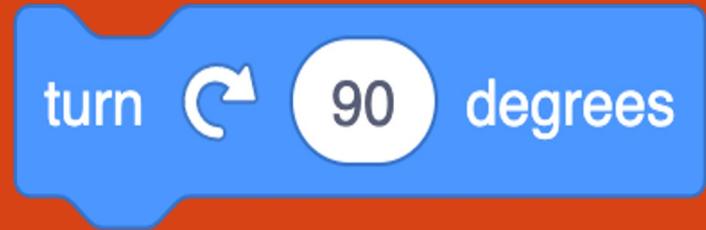
Step 7 (Finally): Walk 2 steps



COMMANDS FOR WALKING IN A SQUARE

| Written commands | Computer commands (code) |
|----------------------|---|
| Walk forward 2 steps |  |
| Turn right |  |
| Walk 2 steps |  |
| Turn right |  |
| Walk 2 steps |  |
| Turn right |  |
| Walk 2 steps |  |

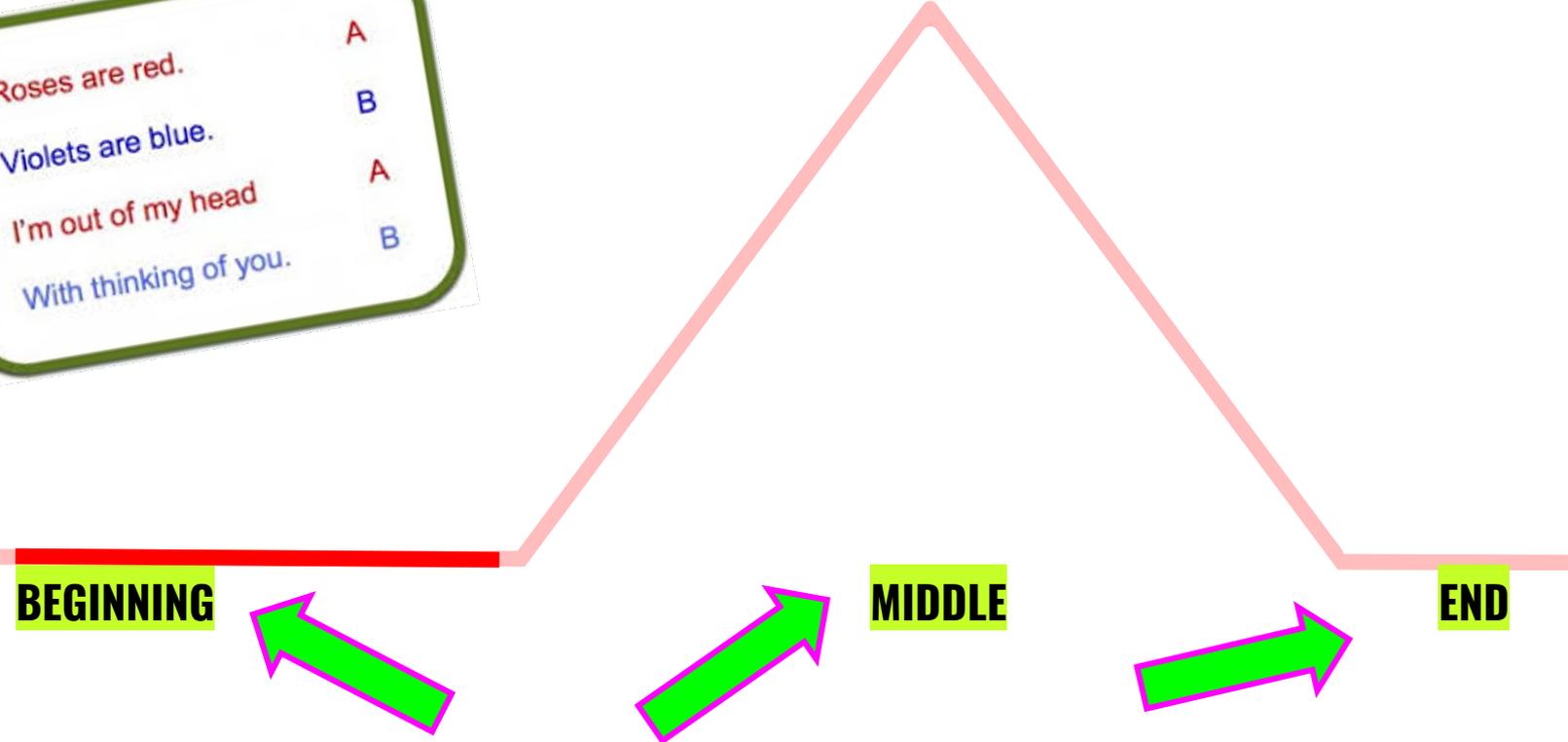
PATTERNS



PATTERNS IN WRITING

EXAMPLES OF PATTERNS IN OUR WRITING

Roses are red. A
Violets are blue. B
I'm out of my head A
With thinking of you. B



GUIDED PRACTICE: EXAMPLE A

Daquan was watching TV and saw a commercial for pizza and that gave him a great idea! “I’ll just make my own pizza here at the house!,” he thought. He found his mom’s recipe, which said:

“**First**, roll out the squishy pizza dough with the rolling pin. **Then**, use a spoon to spread on the red pizza sauce on top of the dough. **Next**, add shredded cheese all over the top. **Last**, top it with pepperoni slices, covering the whole pizza. **Finally**, put the pizza in the oven at 425 degrees.”

After about 15 minutes in the oven, his homemade pizza was ready to eat!

DO YOU NOTICE A PATTERN?

WHAT IS EXPLANATORY WRITING?

Explanatory writing:

- **Explains** something to someone or helps them understand how to do something. So it is important to provide many details!
- Is written in a specific order or **sequence**
 - A sequence is a set of things that follow each other in a particular order, where order matters!
- Often uses sequencing words such as **first, next, then** and **last** to communicate the correct order of steps, also known as their sequence

FIRST

THEN

NEXT

LAST

FINALLY

FOR BOTH WRITING & COMPUTER SCIENCE, SEQUENCE IS VERY IMPORTANT!



INDEPENDENT PRACTICE

INDEPENDENT PRACTICE

Open your student slides.

Write a recipe for making a drink.

You may choose to write about lemonade, Koolaid, or another drink of your choice!

<https://www.dropbox.com/scl/fi/qf1j67ajog6tu0gacc460/Lemonade-or-Koolaid-recipe.docx.docx?dl=0&rlkey=4vm66w2jppnter0oqmgmw8i2t>



WRAP UP

Can anyone share at least one “tip” for finding and using patterns in our writing or our code?

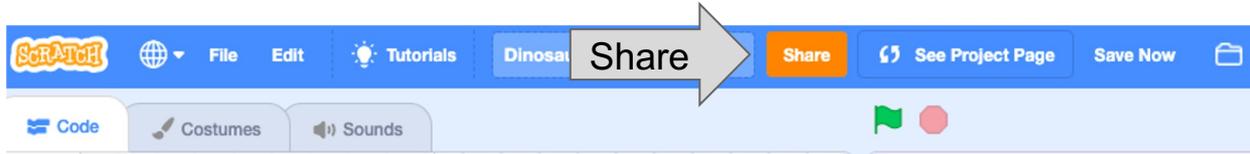
And remember: anyone can be a computer scientist!



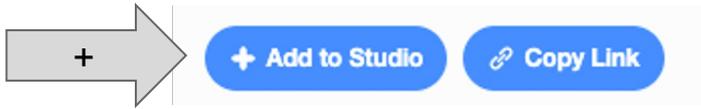
OPTIONAL

SHARING YOUR SCRATCH CREATION TO YOUR TEACHER'S STUDIO

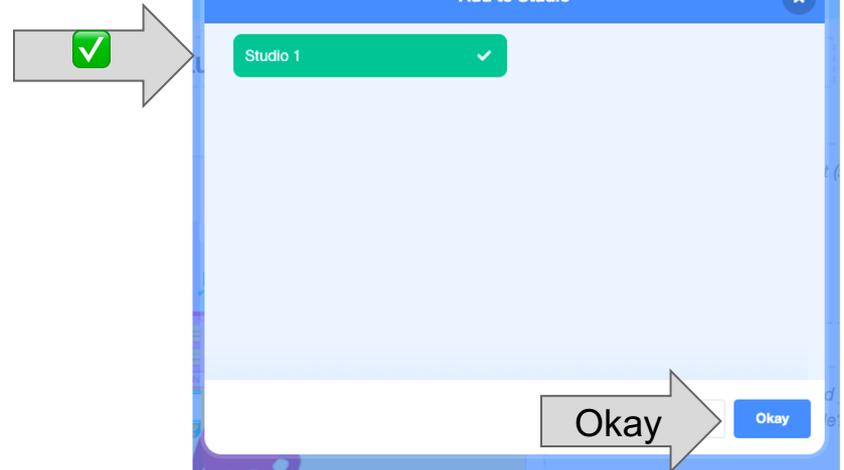
1. Click “Share” when you are done with your project.



1. Choose “+ Add to Studio”.



1. Pick the designated Studio for the Unit.



1. Click “Okay”.

HERE IS AN [OPTIONAL VIDEO](#) TO LEARN HOW TO SHARE YOUR PROJECT IN SCRATCH.

Pause here.

SCRATCH CHECKLIST

I LOGGED INTO SCRATCH

I SHARED MY PROJECT

I ADDED MY PROJECT TO MY TEACHER'S STUDIO