**Lesson created by the GMU-ODU CSforAll Team. For more information about**

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| **Unit 1 Lesson 1: Introduction to Patterns, Sequencing, and Coding**  *5th and 6th Grade* | | |
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| **Concept: Patterns and Sequencing** | | |
| **Vocabulary:**   * sequencing * pattern * algorithm * commands * program * Code * Pair programming (Optional) | | |
| **Summary:**  In this lesson, students will be introduced to the basic commands of Scratch and sequencing a code. | | |
| **Lesson Objectives (learning targets): I can…**  • Review familiar patterns and sequences  • Review Scratch objects and blocks  • Identify and use the start block, speak block, think block  • Create a Scratch animation to introduce yourself | | |
| **Content Standard(s)** | **Computer Science Standard(s)** | |
| The student will use effective communication skills in group activities.  a) Listen attentively by making eye contact, facing the speaker, asking questions, and summarizing what is said.  b) Ask and respond to questions from teachers and other group members.  c) Explain what has been learned.  d) Use language appropriate for context.  e) Increase listening and speaking vocabularies. | The student will construct sets of step-by-step instructions (algorithms), both independently and collaboratively  a. using sequencing  b. using events | |

| **Materials** |
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| **Lesson materials:**   * [Teacher slides](https://drive.google.com/file/d/1ji0Od1Ad_c3TfS2uOg_Ctx0Wpc974KSz/view?usp=drive_link) * [Student slides](https://docs.google.com/presentation/d/1i7YNNLBKpjEOjMKAJh1x0GvTfmgMsksH/edit?usp=drive_link&ouid=104701427422211502426&rtpof=true&sd=true) * Teachers-Remember you need to create a new Scratch Studio for CoCo projects!   **Supplemental resources:** |

| **Lesson Structure and Activities** |
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| **(10 min) Warm-up & Introduction:**  **NOTE: All slides for this lesson are scripted so that, if needed, you can see exact definitions and instructions for teaching this lesson in the notes at the bottom of the teacher slide deck.**   1. (Optional) Introduce lesson expectations and lesson resources (slides 1-3) 2. Ask students to briefly discuss what the words “pattern” and “sequence” mean with a partner (slide 4). 3. Share definitions with class (slide 5-8) 4. Introduce a sequence of hand movements (this could be a hand jive or clapping sequence, see video below as an example) (slides 9-11)   Hand jive <https://www.youtube.com/watch?v=otrnZ5hNavM>   1. Ask partners to create their own three hand movements and then sequence the pattern together. (slide 10) 2. Optional-have partners find another group and teach their pattern and sequence (slide 11) 3. Introduce today’s objectives. (slide 12) |
| **(15-20 min) Direct Instruction & Guided Practice:**   1. Introduce vocabulary: “command” and “algorithm” and “code” (Slides 13-23) 2. Explain that patterns and sequences are very important in Computer Science (slide 24)    1. “We can see examples of patterns and sequences in algorithms in Scratch”    2. (Optional) Briefly explain that Scratch is a program that allows you to code and create animations and games. (slide 25) 3. Introduce and model how to use: (slides 26-28)    1. Start Block [(explainer video](https://www.dropbox.com/scl/fi/5or5l54rceoihkz76nm8e/When-greenflag-block.mp4?rlkey=pjphshzjlbfvmng8e62buqlqo&st=zjbfppu6&dl=0))    2. Think Block ([explainer video](https://www.dropbox.com/scl/fi/ewbstphkn5qs95ewfq4ch/ThinkCoCo_Nov16.mp4?rlkey=2kb9u5ak6al1pxbsp5fkc3zdv&st=ujw3xy72&dl=0))    3. Speak Block ([explainer video](https://www.dropbox.com/scl/fi/j7nj4qc4cpop3ojsi7vax/SayForSecondsCoCo_Nov16.mp4?rlkey=6sob21d6v5l438yzehmqod5z3&st=l3pa0ngz&dl=0))    4. How to use “[Text to Speech](https://www.dropbox.com/scl/fi/2qeje7uo6dp4x5mfbr7qe/Text-to-Speech.mp4?rlkey=ghke01wur7d13kbtizx7hx86b&st=x8dl0erl&dl=0)” and/or [Translate Extension](https://www.dropbox.com/scl/fi/kvttoks24zoqdqrzeokz4/translate.mp4?rlkey=ztkz57l5wvncnnibr6fpszsy6&st=85kj8cn5&dl=0) |
| **(25 min) Independent Practice:**  *Students may work independently or in pairs (pair programming).*   1. *Optional: if students are working in pairs, you may wish to play the video explaining* [*pair programming*](https://www.dropbox.com/scl/fi/mbqb1i88iulbi5pbl18ih/Pair-Programming-1080p.mp4?rlkey=bdnmsj9rwfu2p81qsxwg9n2vw&st=jipkhrl3&dl=0) *in computer science.* 2. Students will use the Scratch blocks just introduced to code a short animation to introduce themselves.    1. Challenge students to use each block or feature to create a short, animated introduction. Should also include a sprite and backdrop.    2. *Note to teacher: you may wish to adapt the checklist on slide 29 as a quick assessment to monitor students’ progress.* 3. When students are done, they should share their animations with a partner and to the [teacher Scratch](https://www.dropbox.com/scl/fi/k2t7ydsi6sdans7gohpft/Student-How-To-Add-A-Project-To-A-Studio-In-Scratch.mp4?rlkey=6jmehhmfutgb3jiirjxynvf29&st=cifroqna&dl=0) account |
| **(5 min) Wrap up:**  Review today’s vocabulary terms and Scratch blocks, and share the [“Careers in Tech” Video](https://www.dropbox.com/scl/fi/xpni0btxu64wc7lxduu6g/Careers-in-Tech_-My-name-is-Tess.mp4?rlkey=x1o44aiohshmolc95kubxpwwv&st=6pnvlwwf&dl=0) (Slide 34). Remind students that anyone can be a computer scientist! |
| **Assessment Strategy:**  Did the student…   * Review familiar patterns and sequences * Review Scratch objects and blocks * Identify and use the start block, speak block, think block * Create a Scratch animation to introduce themselves |