## This is a picture of the CS For All logo.

**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**](mailto:achutchison1@ua.edu)

| **Lesson 1: Pattern Recognition** | | **Grade Level: 1** |
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| **Concept: Patterns** | | |
| **Vocab:**   * Pattern | | |
| **Summary:** In this lesson, students will engage in recognizing patterns in a song, a shared reading (word families), and loops in ScratchJr blocks. | | |
| **Lesson Objectives (learning targets): I can…**   * Identify patterns in my environment (i.e., color patterns, big/small patterns, boy/girl, etc.) * Follow a pattern (i.e., clapping, follow the leader, etc.) * Identify word patterns (i.e., word families) * Identify words in a word family using the family rule * Find a word family within a poem “loop” * Explain what computer code is * Identify and organize coding blocks into patterns   NOTE: This list can be narrowed depending on teacher choice and pacing. Giving students multiple ways to “show what they know” creates a more inclusive, UDL framework. | | |
| **VDOE Literacy Standards** | **Computer Science Standard(s)** | |
| **Communication and Multimodal Literacies:**   * 1. The student will develop oral communication skills.   a) Listen actively and speak using agreed-upon rules for discussion.  **Reading:**  1.5 The student will apply phonetic principles to read and spell.  f) Use word patterns to decode unfamiliar words. | 1.5 The student will categorize a group of items based on one or two attributes or the actions of each item, with or without a computing device. | |

| **Materials** |
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| * Teacher slides (see website) * A class copy of “[The Tall Man](https://www.dropbox.com/scl/fi/3cfqxz51gtgiuzb490kh1/The-Tall-Man-Poem.docx?dl=0&rlkey=2j92is78pynbkd3y0y1jv1ea1)” poem displayed or screen share. * A pointer * Coding [Blocks](https://www.dropbox.com/s/emxlthbyjnhz5jq/ScratchJr%20Coding%20Blocks.pdf?dl=0) * [Word wall cards](https://www.dropbox.com/scl/fi/v6gtu1hv1a8r8716l96k2/G1-Word-Wall-Cards.docx?dl=0&rlkey=06c9as9id5frnoudj7qqqvjhs) * Class set of highlighters, markers, or crayons * [Student Checklist](https://www.dropbox.com/scl/fi/zgdl9haprkdiv57ttxssu/L1G1-Student-Checklist.docx?dl=0&rlkey=tllbhmg5wgk7s5jaw7widjslz)   ***Hello Ruby* Resources:** In preparation for this lesson, you may wish to read aloud *Hello Ruby* chapter 1 in advance. |

| **Lesson Structure and Activities** |
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| **Warm-up/Bell Ringer Activity: (5-10 min)**  **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.**  Given that this is the first lesson in the CS for ALL sequence, there is not a formal link to a prior lesson. It would be advantageous to link prior learning and knowledge of *patterns, pattern recognition, and/or word families* depending upon teacher preference where applicable. Or, skip to the anticipatory set. |
| **Introduction: (10 min)**   1. Introduce Computer Science Word Wall and Patterns: show “computer science”, “computer”, and “pattern” word wall cards on **slide 6, 7, and 8.** 2. Engagement & Interest: “[Banana, Banana, Meatball](https://www.youtube.com/watch?v=OAnbQRGmquQ)” by Blazer Fresh (3 minutes) **(Slide 9)** 3. Discuss Patterns:   Guide students to turn and talk about the pattern they see in the song with a partner or brainstorm independently.  Guide students to discuss patterns on **slide 12 & 13** and attempt to guess the next number in the sequence. Use these slides to review definitions of patterns and tell students that today they will learn about patterns in word families.  (Students may comment on other patterns and teachers can respond accordingly with links from prior learning - for example, hand-clapping games, musical patterns, rhyming patterns in their shared reading texts, etc.)  **Alternate Opening Activity in Place of ‘Banana, Banana, Meatball’** Play a game of “follow the leader.” Jump, hop, run in place, crawl, dance, etc. using a specific pattern and students follow your actions. See if they can guess a pattern. (Ex: ‘clap, clap, stomp, clap, clap, stomp’) **(Slide 11)**  NOTE: \*If some students are struggling to remember pattern concepts, it may be useful to take a few extra moments to reinforce grade-level content as you progress through the lesson or in small groups if doing balanced literacy or reading workshop. |
| **Guided instruction: (15 min)**  Display a copy of a word family poem in a place where students can see and hear the poem. You may even consider giving a copy to each student to follow along. (*Depending on your class, you may want different levels of scaffolding. For more intense scaffolding, select a word family that your class may already be familiar with. For minimal scaffolding, select a new sort.*):   * + - -an word family\*     - -op word family     - -ed word family     - -at word family     - -et word family     - -ig word family   *\*For this lesson sample, we will be using and providing resources for the -an word family. You are welcome to adapt materials for the word family of your choice.*   1. Introduce [“The Tall Man” Poem](https://www.dropbox.com/scl/fi/3cfqxz51gtgiuzb490kh1/The-Tall-Man-Poem.docx?dl=0&rlkey=2j92is78pynbkd3y0y1jv1ea1) (**Slide 15**):Lead class in a shared reading of the poem, modeling appropriate pacing, fluency, and one-to-one pointing. Allow students to choose to only listen or participate in the reading. 2. Introduce Word Patterns and Loops and make connections between the two (show students the “loop” word wall card) (**Slide 16**), point out today’s word family -an **(**write -an on the board. You will use this later to create a list).      1. Explore Word Patterns in the Poem:  * read the poem again and ask students to listen carefully for the words in the -an word family (cue snaps). (Allow students to choose to only listen or participate in the reading.) * Ask students to share what words they noticed by **turning and talking with a partner brainstorming independently**. Confirm the answers and read again to them stressing the words “man” and “ran” (**slide 17**).   Read again:  A tall, tall **man\***  Who **ran** and **ran\***  (\* indicate words in the same word family by snapping your fingers only for “man” and “ran”) (**Slide 19**)   * Ask students to repeat after you reading the two words and remind them to pay attention to the spelling (**Slide 20**). Then start a list, with previous -an at the top, adding ‘man’ and ‘ran’.   **Students:** Co-create a class list of words that match the word family pattern  *Note that some students may not make this connection right away and may need additional scaffolding. Turn and Talk is a great way for students to develop an understanding of the word family concept with a partner in a low-risk setting.* |
| **Guided Practice: (30 min)**  (If students already have an individual copy of The Tall Man, continue on with Guided Practice. If not, distribute individual copies of the poem and highlighters or markers now).   * Encourage students to find more -an words and highlight them in the poem **(slide 22**), start by highlighting -an in the box at the bottom of the poem. Ask them to **turn and talk with a partner or brainstorm independently** about other -an words they can find. Guide them to find “Can” and “plan” (cue snaps) and add them to the list (**slide 24**)   (Circulate as students look for the -an words.. Encourage speedy workers to make a list on the bottom of their paper of other -an words that they can think of while the class works.)   * **Connect Patterns to Computer Science (slide 25-28):**    + Explain that computer scientists write code to tell computers what to do   + Show example that computer code is also full of patterns * **Introduce Coding Blocks:** Show [coding blocks](https://www.dropbox.com/s/emxlthbyjnhz5jq/ScratchJr%20Coding%20Blocks.pdf?dl=0) (**Slides 29-37**). Ask students to make patterns using the coding blocks’ color or icons.   *This is an open-response whole group activity. Students can offer suggestions for various patterns with the coding blocks, using the block colors, arrow directions, or other attributes to create the pattern.* |
| **Wrap up: (2 min)**  Review the concept of pattern (point to word wall card) (**slide 39**), the -an word family, loops.  NOTE: Students are beginning to learn computer science *and* literacy vocabulary. It’s important to integrate both throughout instruction to help students see connections  Optional: Hand out a copy of the [student checklist](https://www.dropbox.com/scl/fi/zgdl9haprkdiv57ttxssu/L1G1-Student-Checklist.docx?dl=0&rlkey=tllbhmg5wgk7s5jaw7widjslz) to each student OR display it on the board (**slide 40**). Talk about each activity you did and have students check off their progress as you talk through each one. |
| **Assessment Strategy:**  The independent -an word hunt in The Tall Man is an ideal time to circulate, observe, and take brief notes on students who may need additional individual and/or small group support with identifying words in word families, or those that could use extension activities. If needed, observe students completing a word family sort in small groups.  *If students are struggling with identifying -an words in general, explicit instruction in building CVC -an words or -an picture sorts may help their understanding of the concept.* |

| ***Extension Ideas:*** | * **Art:** Provide bingo dotters, stickers, watercolors, or finger paints. Allow children to explore making patterns with the materials, guiding them, and modeling as necessary. * **P.E.:** Play a game of “follow the leader.” Jump, hop, run in place, crawl, etc. using a specific pattern and have your child follow you. Switch roles and follow your child. (Ex: ‘clap, clap, stomp, clap, clap, stomp’) * **Music:** Young children typically enjoy clapping games that require observation, mimicking of the sound pattern, and opportunities to lead the patterns themselves. Model a clapping pattern for them to copy and give them a turn, simultaneously teaching the pattern of turn-taking. * **Writing:** To combine word families and handwriting skills, invite children to choose two markers or colored pencils to use. They can practice rainbow writing words from the word family in different color patterns. Some students may elect to use 3 or 4 colors; encourage them to remember the color pattern they’ve picked as they write. * **Science:** Collect a wide assortment of natural materials, including leaves, sticks, rocks, shells, etc. Invite children to make patterns with the materials. * **Social studies:** Community helpers often have uniforms that tell other people how they help. Show children pictures of community helpers. What patterns do they notice? How are the uniforms the same and different? * **Reading:** There aremany types of word families that have different patterns at the end of the word that helps us to read and spell. Hone students’ visual discrimination by asking them to find words from the same family in a poem, book, or sort that end the same way. |
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| ***Alignment:*** | This is the first lesson in the unit. Lesson 2 is Sequencing. |
| ***Supplemental Resources:*** | **Center Idea: Memory with** [Rhyming Words Star Picture Cards](https://www.dropbox.com/scl/fi/ly7l9b0jjgy6fwd8yoqaa/Rhyming-Words-Star-Picture-Cards.docx?dl=0&rlkey=6pwsp5y0sqgsnappuw6bu1hg6)  After students have become familiar with the star picture cards, add them to the literacy center. Students can practice independently or extend their learning by playing memory. Students will place all cards face-down on the table and take turns trying to find a rhyming match. If a student finds a rhyming pair, they keep the cards. If it’s not a match, they place the cards back in the same position, face-down. Students continue until all rhyming pairs have been found.  **Word Wall Idea: Add Star Cards**  Additionally, the star cards could be labeled during interactive writing and added to the classroom word wall for students to reference. |