

**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: 2** |
|  |  |  |
| **Concept: Patterns** | | |
| **Vocab:**   * Pattern * Code | | |
| **Summary:** In this lesson, students will be introduced to patterns in everyday life and in word families. They will also learn about coding blocks and how computer scientists use patterns. | | |
| **Lesson Objectives (learning targets):**  **I can…**   * Explain or show what a pattern is (i.e., definitional or examples) * Explain or show why patterns are important (i.e., justification) * Identify or describe word patterns (i.e., word families) * Explain what computer code is * Identify and organize coding blocks into patterns | | |
| **VDOE English Standard(s)** | **Computer Science Standard(s)** | |
| **Communication and Multimodal Literacies:**  2.1 The student will use oral communication skills.  a) Listen actively and speak using appropriate discussion rules.  d) Share information orally with appropriate facts and relevant details.    **Reading:**  2.4 The student will use phonetic strategies when reading and spelling.   1. Use knowledge of consonants, consonant blends, and consonant digraphs to decode and spell words. 2. Use knowledge of short, long, and r-controlled vowel patterns to decode and spell words. 3. Decode regular multisyllabic words. 4. Apply decoding strategies to confirm or correct while reading. | 2.5 The student will compare and contrast a group of items based on the attributes oractions of each item, with or without a computing device. | |

|  |
| --- |
| **Materials** |
| * Teacher slides (see website) * A class copy of “[Blake the Bear](https://www.dropbox.com/scl/fi/7n3tmk3pmln62w3q4ccm7/Letter-from-Blake.docx?dl=0&rlkey=3f53e76zrzgm5s4hqljwq1j3g)” letter * A pointer * code [Blocks](https://www.dropbox.com/s/emxlthbyjnhz5jq/ScratchJr%20Coding%20Blocks.pdf?dl=0) * [Word wall cards](https://www.dropbox.com/scl/fi/f3j02494n1ryy9mcc9avw/G2-Word-Wall-Cards.docx?dl=0&rlkey=v0dvfjhepjfqxuuxelv4evuqx) * One copy of “Blake the Brown Bear” [letter](https://www.dropbox.com/scl/fi/7n3tmk3pmln62w3q4ccm7/Letter-from-Blake.docx?dl=0&rlkey=3f53e76zrzgm5s4hqljwq1j3g)per student or partners * Class set of highlighters, markers, or crayons * [Student Checklist](https://www.dropbox.com/scl/fi/jffuixesmusoxf8frza7j/L1G2-Student-Checklist.docx?dl=0&rlkey=9e6snogm8fvwsoadd1tfaym3h)   ***Hello Ruby* Resources:** In preparation for this lesson, you may wish to read aloud *Hello Ruby* chapter 1 in advance. |

|  |
| --- |
| **Lesson Structure and Activities** |
| **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, word patterns, 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**.**    1. Optional: watch this video introducing computer science: <https://www.youtube.com/watch?time_continue=1&v=HsXaVV6fFDY&feature=emb_logo> 2. Engagement & Interest: “[Banana, Banana, Meatball](https://www.youtube.com/watch?v=OAnbQRGmquQ)” by Blazer Fresh (3 minutes) 3. Discuss Patterns: guide students to turn and talk about the pattern they see in the song **with a partner or brainstorm independently**. For more discussion, ask them where else they have seen a pattern. 4. Guide students to discuss patternsand attempt to identify the patterns. 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.)  Introduce word patterns - **word families**  (To draw more attention to vocabulary, consider challenging students to snap (or some other signal) each time they hear or use the vocabulary of the day: word family)  **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’) |
| **Guided instruction: (15 min)**  *For this lesson, we will be using and providing resources for the bl- and br- consonant blends. You are welcome to adapt materials for the word family of your choice.*   1. **Introduce Blake the Bear’s Letter:** Display a copy of Blake’s [letter](https://www.dropbox.com/scl/fi/7n3tmk3pmln62w3q4ccm7/Letter-from-Blake.docx?dl=0&rlkey=3f53e76zrzgm5s4hqljwq1j3g) in a place where all students can see and hear the letter. In addition, give a copy to each student or partnership to follow along. Read the letter with students. 2. **Introduce Consonant Blends (bl- and br-):** introduce bl- and br- ,write br- and bl- in two separate columns on the board. You will use this later to create a list. 3. **Close Reading for Consonant Blends (bl- and br-):**  * Read the letter again. Note that some students may choose to only listen, while others may whisper read along with you. * Ask students what words they heard that began with bl- or br- as you point to the lists on the board. ***Turn and talk with a partner or brainstorm independently.*** * Add the words to the list one by one   **Students:** Co-create a class list of bl- and br- words  Have students help you generate a list of bl- and br- words. Share the full list in case they missed any and point out ones that they missed. |
| **Guided practice: (30 min)**   1. **Finding Words That Fit the Pattern**   (Distribute individual highlighters or markers now).   * Start by highlighting Br-, ask students to highlight the words that start with Br- (brainy) * Other words? ***Turn and talk with a partner or brainstorm independently.*** Then add new words to the list. * Use a new color to highlight Bl- words, again, let them **turn and talk** and then work out the list together.   (Students may work individually or in partnerships. Circulate as students look for words. Encourage early finishers to make a list on the bottom of their paper of other br- or bl- words that they can think of while the class works.)   1. **Connect Patterns to Computer Science:**     1. Explain that computer scientists write code to tell computers what to do    2. Show example that computer code is also full of patterns 2. **Introduce Coding Blocks:** Show [coding blocks](https://www.dropbox.com/s/emxlthbyjnhz5jq/ScratchJr%20Coding%20Blocks.pdf?dl=0). 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 spelling pattern-consonant blend br- and bl-, the concept loops, patterns.  Optional: Hand out a copy of the [student checklist](https://www.dropbox.com/scl/fi/jffuixesmusoxf8frza7j/L1G2-Student-Checklist.docx?dl=0&rlkey=9e6snogm8fvwsoadd1tfaym3h) to each student OR display it on the board. Talk about each activity you did and have students check off their progress as you talk through each one. |
| **Assessment Strategy:**  The independent br- and bl- word hunt 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 consonant blends, or those that could use extension activities. If needed, observe students completing a consonant blend sort in small groups.  NOTE: If students are struggling with identifying words with consonant blends in general, explicit, scaffolded instruction using word sorts may help their understanding of the concept. |

|  |  |
| --- | --- |
| ***Extension Ideas:*** | * **Art:** Provide stickers, watercolors, or tempera 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:** 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 with consonant blends 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 consonant blends that have two consonants at the beginning of the word that helps us to read and spell. Hone students’ visual discrimination by asking them to find words from the same blends in a poem, book, or sort. |
| ***Alignment:*** | This is the first lesson in the unit. Lesson 2 is Sequencing. |
| ***Supplemental Resources:*** | * This [video tutorial](https://youtu.be/ktg27z-COck) shows how to create a ScratchJr pattern project from the very beginning. Teachers who may wish to review this tutorial in order to show students ScratchJr projects following this activity model, or if they are going to talk through a ScratchJr Project with students. * The last few slides outline an additional activity that you can use with your students! |