

Lesson 1

PATTERN RECOGNITION

KINDERGARTEN



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 engage in recognizing patterns in a song, a shared reading (rhyming words), and ScratchJr blocks.

ELA Standards:

Communication and Multimodal Literacies:

- K.1 The student will begin to develop oral communication skills.
- a) Listen actively and speak using agreed-upon rules for discussion.

Reading:

- K.3 The student will orally identify, segment, and blend various phonemes to develop phonological and phonemic awareness.
- a) Begin to discriminate between spoken sentences, words, and syllables.
 - b) Identify and produce words that rhyme.
- K.4 The student will understand how print is organized and read.
- d) Follow words from left to right and from top to bottom on a printed page.
 - e) Match voice with print.
- K.6 The student will develop an understanding of basic phonetic principles.
- c) Demonstrate a speech-to-print match through accurate finger-point reading in familiar text that includes words with more than one syllable.

CS Standards:

- K.4 The student will categorize a group of items based on one attribute or the action of each item, with or without a computing device.

MATERIALS AND RESOURCES NEEDED FOR THIS LESSON:

- [Teacher Slides](#)
- A class copy of *Twinkle Twinkle Little Star* on [sentence strips](#), anchor chart, or [screen share](#).
- A pointer
- ScratchJr [Blocks](#)
- [Word wall cards](#)
- [Rhyming Words Star Picture Cards](#)
- [Rhyming Words Star Picture PowerPoint](#)
- [Student Checklist](#)

Hello Ruby Resources:

In preparation for this lesson, you may wish to read aloud *Hello Ruby* chapter 1 in advance.

LESSON OBJECTIVES: 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 rhyming patterns in a song or shared reading (i.e., rhyming words, word families, beginning sounds in words)
- Match rhyming word picture cards with support and/or independently

INTRODUCTION

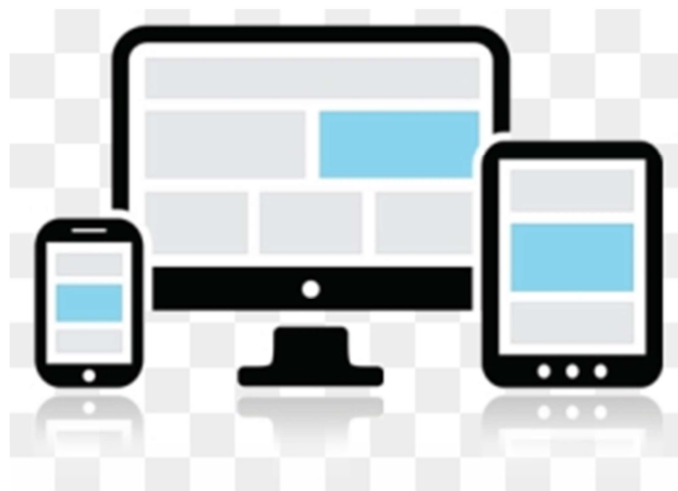
NOTE: All slides for this lesson are scripted so that, if needed, you can see exact definitions and instructions for teaching this lesson in the notes at the bottom of the teacher slide deck.



Computer Science

Introduce Computer Science Word Wall and Patterns: show “computer science”, “computer”, and “pattern” word wall cards on slide 6, 7, and 8.

Teacher: “Welcome to **computer science** (show “computer science” [word wall card](#) - slide 6) in Kindergarten)! **Computer science** is using the power of **computers** (show “computer” word wall card- slide 7) to solve our problems and express ourselves.



computer

Introduce Computer Science Word Wall and Patterns: show “computer science”, “computer”, and “pattern” word wall cards on slide 6, 7, and 8.



pattern

Introduce Computer Science Word Wall and Patterns: show “computer science”, “computer”, and “pattern” word wall cards on slide 6, 7, and 8.

Today, we’re going to think like **computer scientists** and look for **patterns** (show “pattern” word wall card - slide 8). You might even see a **pattern** on this card right away! We see **patterns** everywhere -- especially in Kindergarten.”

“WHAT’S A PATTERN?” -CLICK ON IMAGE TO PLAY VIDEO



Engagement & Interest: “[Banana, Banana, Meatball](#)” by Blazer Fresh (3 minutes).

“We are going to watch and listen to a song. I want you to think about where you see **patterns** in the classroom and where we have talked about **patterns** in reading and math.”

Teacher: “We see **patterns** (draw attention to “pattern” word wall card) all around us. There was even a pattern in the song we just listened to. Can you guess what it was? **Turn and talk with a partner or brainstorm independently.** Great! Where else have you seen a **pattern**?” (Wait time) “That’s right! We see **patterns** in math! What kind of **patterns** do we see in math?” (Wait time) “That’s right, we see color **patterns**, like yellow, blue, red, yellow... Where else?” (Wait time) “That’s right! We’ve also made **patterns** with our cubes!” (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.)

“Just like we have learned in math, **patterns** are very important because they can help us see what could happen next. Today, we are going to learn about **patterns** in words and how they can help us to be a better reader! These **patterns** are called rhyming words” (To draw more attention to vocabulary, consider challenging students to wiggle their fingers silently in the air, or some other signal, each time they hear or

use the vocabulary of the day: rhyming words)

Video link: <https://www.youtube.com/watch?v=OAnbQRGmquQ>

FOLLOW THE LEADER! -CLICK TO PLAY



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’)

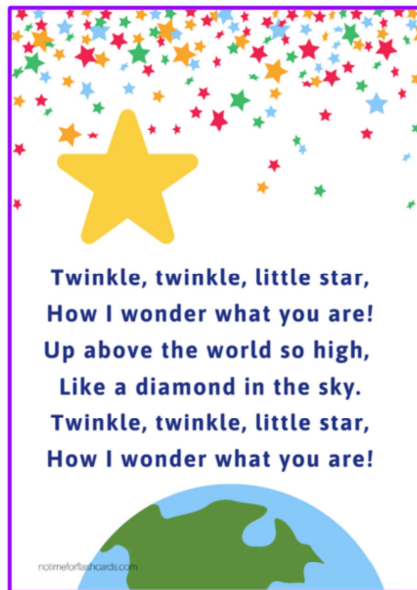
Video link: https://www.youtube.com/watch?v=xi3aDcAZ_Eo

PAUSE AND DISCUSS PATTERNS

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. Finally, draw attention to the patterns in words (rhyming words).

GUIDED INSTRUCTION

LET'S THINK ABOUT RHYMING PATTERNS...



1. Introduce “Twinkle, Twinkle Little Star”: Display a copy of one of the following songs/poems on [sentence strips](#), as an anchor chart, or via screen share (slide 13). Select one that your class may already be familiar with:

- “Twinkle, Twinkle, Little Star”*
- “Five Little Monkeys”
- “Five Little Ducks”
- “Banana, Banana, Meatball”
- “Rain, Rain, Go Away”

● **For this lesson sample, we will be using and providing resources for “Twinkle, Twinkle, Little Star”. You are welcome to adapt materials for the poem of your choice.*

“Before we learn about word **patterns** (draw attention to “pattern” word wall card), or rhyming words (cue finger wiggling prompted earlier by explicitly modeling), let’s warm up our reading brains! Let’s read the poem all together.”

“Great job! We read as a team and your reading voices were so smooth!”

“Today, I wanted to teach you how to find word **patterns** or rhyming words (cue finger wiggling) in our reading! Rhyming words (cue finger wiggling) are fun because they sound *almost* the same, and they usually come back again and again!”

“Let’s read ‘Twinkle, Twinkle, Little Star’ again. This time, I want you to listen closely and think like a computer scientist to find the word **patterns** or rhyming words (cue finger wiggling) in the poem. Get ready to listen!”

LET'S THINK ABOUT RHYMING PATTERNS...

Twinkle, twinkle, little **star***

How I wonder what you **are***

Explain Rhyming Patterns: Read the poem again. Allow students to choose to only listen, or participate in the reading. Ask students what words sounded almost the same.

"I heard lots of rhyming words (cue finger wiggling) this time! Hmm... what words did you hear that sounded *almost* the same? **Turn and talk with a partner or brainstorm independently.**" (Wait time) (Slide 10) "That's right! 'Star' and 'are' sound almost exactly the same! They're rhyming words (cue finger wiggling)! Listen closely:

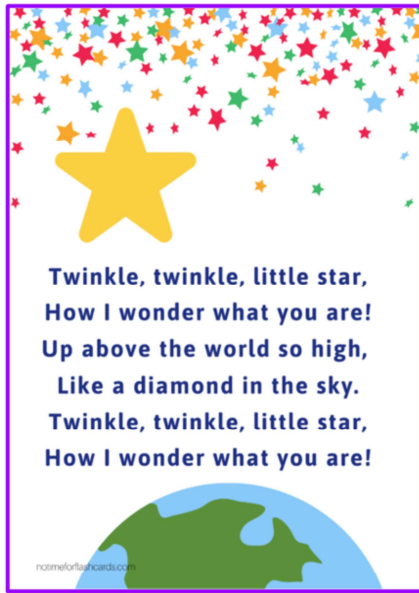
Twinkle, twinkle, little **star***

How I wonder what you **are***

(* indicate rhyming words by wiggling your fingers only for "star" and "are")
Repeat after me: **Star! Are!** They sound the same at the end *and* make a **pattern** in our poem!"

(Note that some students may not make this connection right away and may need additional scaffolding to identify the first rhyming pair. In addition, rhyming is a skill that evolves across Kindergarten. Some students may not understand the concept, but they will develop their ear to hear rhyming words through exposure. Turn and Talk is a great way for students to develop this concept with a partner in a low-risk setting.)

WHAT OTHER PATTERNS DO YOU SEE?



Twinkle, twinkle, little star,
How I wonder what you are!
Up above the world so high,
Like a diamond in the sky.
Twinkle, twinkle, little star,
How I wonder what you are!

Up above the world
so **high***

Like a diamond in
the **sky***

Guide students to look for the final rhyming pair: high and sky. If needed, they can turn and talk with a partner or brainstorm independently

“What other rhyming words (cue finger wiggling) did you hear? **Turn and talk with a partner or brainstorm independently.**” (Wait time) “That’s right! ‘High’ and ‘Sky’ are rhyming words (cue finger wiggling). Repeat after me: Sky! High!

GUIDED PRACTICE

This lesson can be completed on Day 2 if needed due to time constraints/student interest. If completing on Day 2, review the core concepts from Direct Instruction (including finger wiggling cue) and reread “Twinkle Twinkle, Little Star” as a shared reading.

WHAT IS IT?



Hold up each card, one at a time, ‘reading’ the cards to the students OR show each card on slides 17-24. This builds common vocabulary and avoids confusion in what each picture could be showing.

“We can find rhyming words (cue finger wiggling) in *lots* of places. Once we’ve trained our brains to think like a **computer scientist** and look for **patterns**, we can find them everywhere!”

“You’ll never believe this... I even found some special stars with rhyming words on them, too! Let’s go over each one first. Look and listen to what each picture shows.

WHAT IS IT?



WHAT IS IT?



WHAT IS IT?



WHAT IS IT?



WHAT IS IT?



WHAT IS IT?



WHAT IS IT?

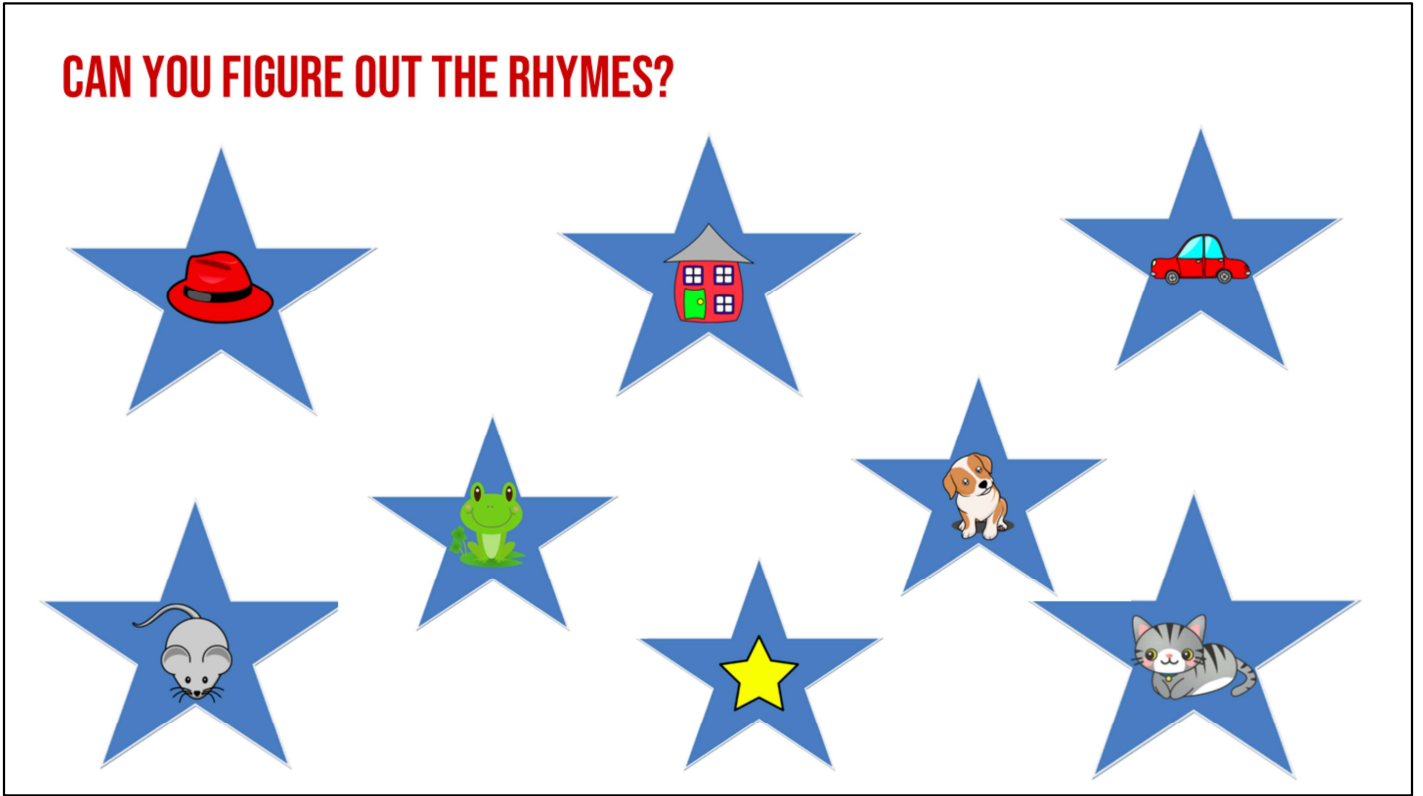


WHAT ARE THE RHYMING PAIRS?

Ask students to find rhyming word matches with a partner or independently and raise hands when they're done. (You may choose to assign partners, have students self-select, divide with cooperative learning groups, or allow students to work independently).

(Distribute several sets of cards and circulate while students match OR display slide 26 and have student verbally determine the pairs.

CAN YOU FIGURE OUT THE RHYMES?



With your partner or independently, see how many rhyming word matches you can find! When you're finished, raise your hand so that I know you've found the rhyming words."

"I was so impressed to see you all working together to find the matches, listening to the words, and looking for **patterns** to find the words that rhyme! Let's see if we can find some rhyming words in the pile. If you see a pair of rhyming words or two words that sound almost the same, put a thumb on your knee

WHAT ARE THE RHYMING SOUNDS?



“You picked ‘cat’ and ‘hat’. Class, repeat after me: ‘cat’, ‘hat’. Yes! ‘Cat’ and ‘hat’ rhyme!”

WHAT ARE THE RHYMING SOUNDS?



cat



hat

WHAT ARE THE RHYMING SOUNDS?



WHAT ARE THE RHYMING SOUNDS?



car



star

WHAT ARE THE RHYMING SOUNDS?



WHAT ARE THE RHYMING SOUNDS?



house

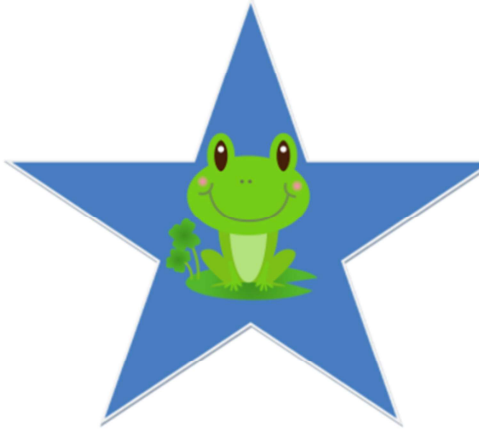


mouse

WHAT ARE THE RHYMING SOUNDS?



WHAT ARE THE RHYMING SOUNDS?

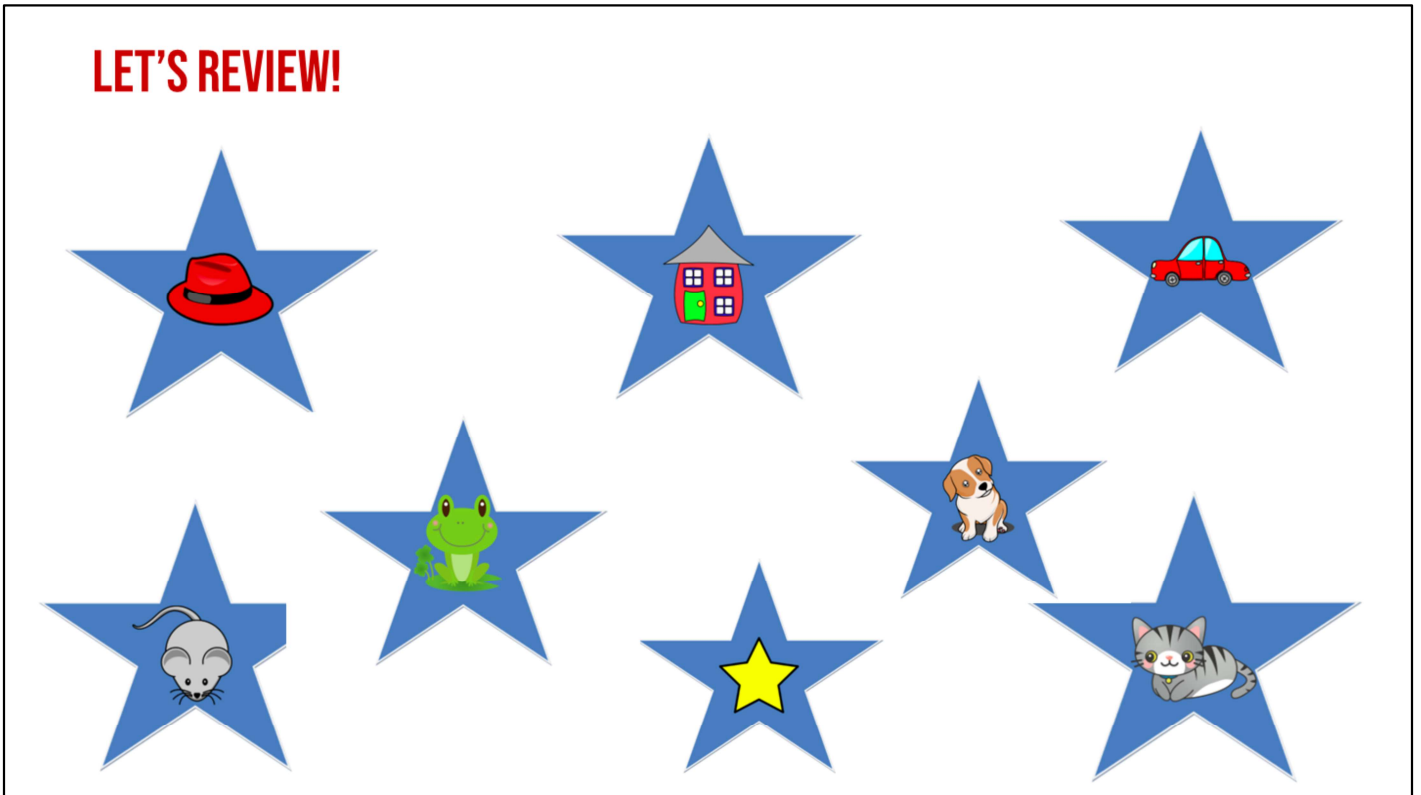


frog



dog

LET'S REVIEW!



- After students have finished matching the cards, gather the class back together in a circle on the rug. Place all the rhyming words star picture cards face-up in the middle of the rug, evenly dispersed for students to see. Let students listen to the words and put a thumb on their knee when they find rhyming pairs (observe students who immediately indicate they're ready and others who may be more uncertain of their ability to find rhyming words independently).
- Call on a student or allow students to volunteer to pick a rhyming pair out of the pile. Call on

additional students or allow for volunteers until all pairs have been matched.

•**Alternate Activity to Rug Activity:** Use slides 25-35 to conduct this activity on the board. Call on a student or allow students to volunteer to circle a rhyming pair on the board. Call on additional students or allow for volunteers until all pairs have been matched.

LET'S LOOK AT HOW WE WILL MAKE PATTERNS IN SCRATCHJR

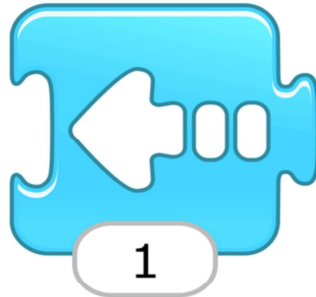
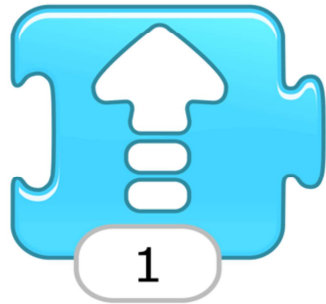


- Show [coding blocks](#) or use slides 36-42: *This is an open-response whole group activity. Students can offer suggestions for various patterns with the coding blocks, using the block colors, arrow directions, or other attributes to create the pattern.*

“Great work! Computer scientists also use **patterns** to help them to tell computers what to do. They give directions to the computer using coding blocks. Here they are!”

“What **patterns** can we make with the coding blocks?”

LET'S LOOK AT WAYS TO MOVE IN SCRATCHJR!

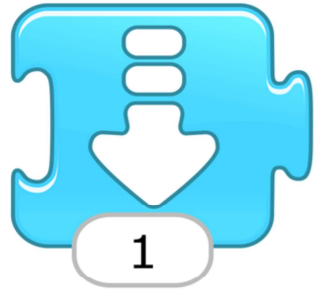


What do we think these commands help us do?

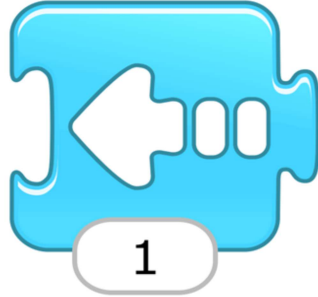
We can see the direction and number of spaces our sprite will move!



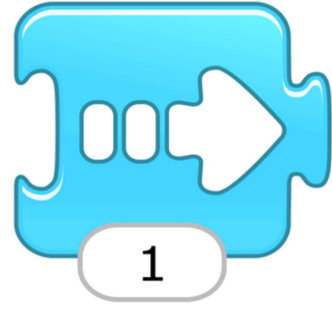
UP 1 space



DOWN 1 space

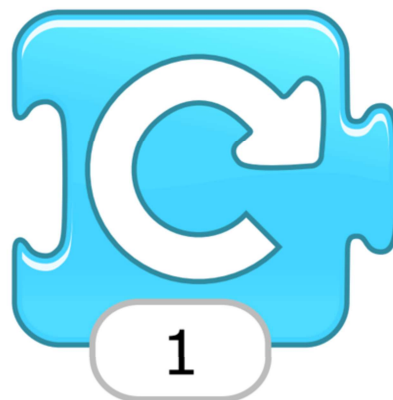


LEFT 1 space



RIGHT 1 space

WHAT DO WE THINK THESE COMMANDS MEAN?



WHAT DO WE THINK THESE COMMANDS MEAN?

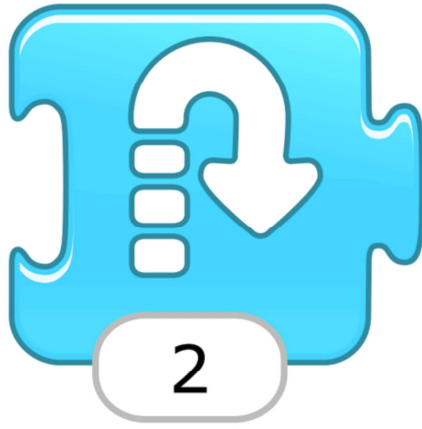


Turn LEFT 1 time

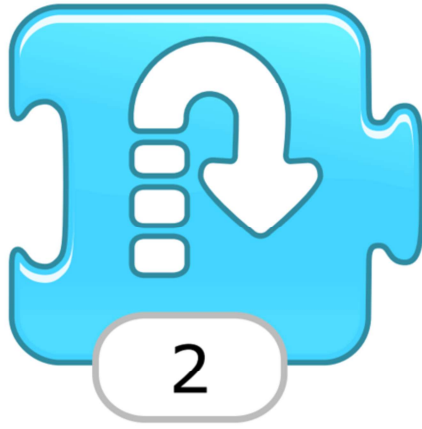


Turn RIGHT 1 time

WHAT DO WE THINK THESE COMMANDS MEAN?



WHAT DO WE THINK THESE COMMANDS MEAN?



HOP 2 times



Go "home" (back to where you started)

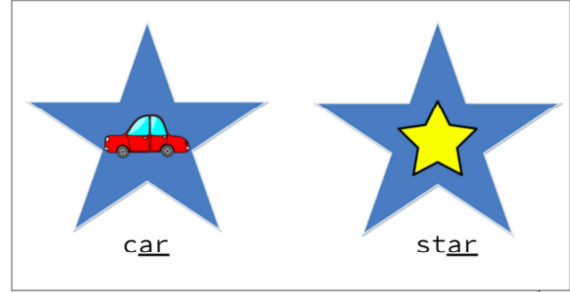
WRAP UP

- Review and summarize the patterns we learned today (slide 44).
- Optional: Hand out a copy of the [student checklist](#) to each student OR display it on the board (slide 44). Talk about each activity you did and have students check off their progress as you talk through each one

LET'S REVIEW!



pattern



rhyming pattern

computer



“Today, we learned about **patterns** (point to word wall card - slides 40) and saw that **patterns** are everywhere. We were just like computer scientists (point to kids in the “computer science” word wall card picture) and used **patterns** to help us guess what will happen next! We even learned about a new kind of **pattern**, a **word pattern**, called rhyming words (cue finger wiggle). We found some rhyming words in a poem and with pictures. Today and every day, I want you to think about where you see other **patterns**. The **patterns** will help us when we start to use computers (point to “computer” word wall card), too! Tomorrow, we will use our listening ears to practice finding even more rhyming words.”

LET'S REVIEW!

- I watched "Banana, Banana, Meatball" (or played "Follow the Leader").
- I talked with my teacher about where we see patterns all around us.
- I read/sang a song/poem that has rhyming words in it.
 - I talked with my teacher and classmates about what words rhyme in the song/poem.
- I found words that rhyme on the special stars.
 - I talked with my teacher and classmates about the words that rhyme on the special stars.