ozobot

Grade 5
Pacing Guide

Overview

The **Ari Pacing Guide** is a resource designed to guide educators as they integrate Ari into their classrooms or programming.

Within each grade band, you will find a curated selection of lessons aligned to the corresponding content standards. We recommend starting with our 'Meet Ari' lessons, included in each grade, to build a foundational understanding of the coding and programming concepts used with Ari.

From there, use your grade-level guide as a lesson playlist. We've arranged the lessons in a suggested order based on their progression in coding and robotics skills, but you can choose the ones that best align with your instructional goals and content focus.

Lesson	Objective	Standard
1 **Meet Ari: Hardware, Software, and Apps (5-12)**	Students will learn the basic functions of Ari and demonstrate their ability to use the software for learning applications. Students will understand the capabilities of 13 hardware components on Ari and identify the location of each on a diagram.	**CSTA.3A-CS-01** Explain how abstractions hide the underlying implementation details of computing systems embedded in everyday objects.
2 **Meet Ari: Color Codes (5-12)**	Students will program Ari using Color Codes and the Color Codes app, by enabling the robot to perform specific actions and navigate through the track. Students will demonstrate their problem-solving skills by analyzing which Color Code will enable Ari to move from start to finish.	**CSTA.2-CS-02** Design projects that combine hardware and software components to collect and exchange data.
3 **Meet Ari: The Ozobot Editor (5-12)**	Students will learn how to navigate and use the Ozobot Editor, including selecting, editing, deleting, duplicating, and customizing blocks to create block-based programs. Students will write pseudocode to plan the sequence of actions Ari will perform, then use the Ozobot Editor to translate their pseudocode into a functional program. Students will demonstrate their understanding of coding concepts by programming Ari to perform a sequence including movement, light effects, sounds, timing, and loops.	**CSTA.2-AP-10** Use flowcharts and/or pseudocode to address complex problems as algorithms.
4 **Ari's Energy Food Chain**	Students will demonstrate their understanding of energy transfer in ecosystems by designing a conceptual model. Students will apply their understanding of energy transfer by programming Ari to simulate the flow through five distinct stages of an ecosystem food chain. Students will use the language of sequencing to write a summary of their food chain model.	**NGSS.5-PS3-1** Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.

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5 **Zodiac Constellations**	Students will identify and sketch constellations visible during different months of the year, simulating the Earth's orbit using Ari. Students will design and create a constellation track for Ari, demonstrating their understanding of star patterns and the relationship between Earth's position and visible constellations. Students will describe how Ari is programmed to simulate Earth's orbit, by describing how internal and external parts of the robot function to form a system.	**NGSS.5-ESS1-2** Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.
6 **Halley's Comet**	Students will learn how the sun's gravity dictates the elliptical path of Halley's Comet and note the changes in its appearance at various stages of its 76-year orbit. Students will use specialized color codes and Ari's screen to create an accurate model of Halley's Comet at various points throughout its orbit.	**NGSS.MS-ESS1-2** Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.
7 **Moon Phases with Ari Level 2**	Students will identify eight phases of the moon. Students will program Ari to recognize a color to indicate each phase.	**NGSS.5-ESS1-2** Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.
8 **Area and Perimeter Everywhere**	Students will measure the side lengths of rectangular shapes using the Ari distance application. Students will calculate the area and perimeter of rectangular shapes.	**CCSS.MATH.CONTENT.4.MD.A.3** Apply the area and perimeter formulas for rectangles in real world and mathematical problems.

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9 Shadow Shifts	Students will measure the lengths of shadows. Students will compare shadow lengths at different times of the day.	**CSTA.1B-DA-07** Use data to highlight or propose cause-and-effect relationships, predict outcomes, or communicate an idea.
10 Conjunctions by Chance	Students will be able to describe the function of a verb, adverb and conjunction. Students will be able to correctly categorize words as verbs, adverbs and conjunctions. Students will be able to construct grammatically correct sentences using the words chosen and categorized.	**CCSS.ELA-LITERACY.L.5.1.a** Explain the function of conjunctions, prepositions, and interjections in general and their function in particular sentences.
11 Synonyms in Action	Students will use context clues to determine the meaning of a word. Students will identify synonyms from a word bank. Students will program Ari to show the defnition of a pair of synonyms using Color Codes.	**CCSS.ELA-LITERACY.L.5.5.c** Use the relationship between particular words (e.g., synonyms, antonyms, homographs) to better understand each of the words.
12 Count Down with the Point Counter	Students will add and subtract points by drawing the appropriate color codes. Student swill strategically plan where to use the Point +1 and Point -1 Color Codes. Students will use the Enable Point Counter Color Code to program Ari to stop when the counter gets to 0.	**NGSS.3-5-ETS1-2** Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.