PAVING THE WAY WITH TREADS

GRADES K–3

This document lists the Oklahoma learning standards addressed by Paving the Way with Treads, True Robotics' grades K–3 robotics curriculum. Standards are grouped by subject and grade level, with codes and wording as published by the Oklahoma State Department of Education.

44	39	16	5	104
MATH	ELA	CS	SCIENCE	TOTAL STANDARDS

MATHEMATICS

44 STANDARDS

Based on the Oklahoma state standards

GRADE	CODE	STANDARD
K–3	MAP: Develop Strategies for Problem Solving	Analyze the parts of complex mathematical tasks and identify entry points to begin the search for a solution. Students will select from a variety of problem-solving strategies and use corresponding multiple representations (verbal, physical, symbolic, pictorial, graphical, tabular) when appropriate. They will pursue solutions to various tasks from real-world situations and applications that are often interdisciplinary in nature. They will find methods to verify their answers in context and will always question the reasonableness of solutions.
K	K.N.1.1	Count aloud forward in sequence to 100 by 1s and 10s.
K	K.N.1.2	Recognize that a number can be used to represent how many objects are in a set up to 10.
K	K.N.2	Develop conceptual understanding with addition and subtraction (up to 10) using objects and pictures.
K	K.A.1.1	Sort and group up to 10 objects into a set based upon characteristics such as color, size, and shape. Explain verbally what the objects have in common.
K	K.GM.1.1	Recognize squares, circles, triangles, and rectangles.
K	K.GM.1.3	Identify attributes of two-dimensional shapes using informal and formal geometric language interchangeably, such as the number of corners/vertices and the number of sides/edges.
K	K.GM.1.6	Use basic shapes and spatial reasoning to represent objects in the real world.
K	K.GM.2.1	Use words to compare objects according to length, size, weight, position, and location.
K	K.GM.2.2	Order up to 6 objects using measurable attributes, such as length and weight.
K	K.D.1.2	Use categorical data to create real-object graphs and pictographs.

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GRADE	CODE	STANDARD
1	MAP: Develop Mathematical Reasoning	Explore and communicate a variety of reasoning strategies to think through problems. Students will apply their logic to critique the thinking and strategies of others to develop and evaluate mathematical arguments, including making arguments and counterarguments and making connections to other contexts.
1	1.N.1.2	Use concrete representations to describe whole numbers between 10 and 100 in terms of tens and ones. Know that 10 is equivalent to 10 ones and 100 is equivalent to 10 tens.
1	1.N.1.7	Compare and order whole numbers from 0 to 100.
1	1.N.2.1	Represent and solve problems using addition and subtraction with sums and minuends of up to 10.
1	1.GM.1.2	Compose larger, defined shapes using smaller two-dimensional shapes.
1	1.GM.1.3	Compose structures with three-dimensional shapes.
1	1.GM.2.2	Illustrate that the length of an object is the number of same-size units of length that, when laid end-to-end with no gaps or overlaps, reach from one end of the object to the other.
1	1.D.1.1	Collect, sort, and organize data in up to three categories using representations (e.g., tally marks, tables, Venn diagrams).
1	1.D.1.3	Draw conclusions from pictographs and bar graphs.
2	2.N.1.1	Read, write, discuss, and represent whole numbers up to 1,000. Representations should include, but are not limited to, numerals, words, pictures, tally marks, number lines, and manipulatives.
2	2.N.1.3	Use place value to describe whole numbers between 10 and 1,000 in terms of hundreds, tens, and ones, including written, standard, and expanded forms. Know that 10 is equivalent to 10 ones and 100 is equivalent to 10 tens.
2	2.N.1.7	Use place value to compare and order whole numbers up to 1,000 using comparative language, numbers, and symbols (e.g., 425 > 276, 73 < 107, page 351 comes after page 350, 753 is between 700 and 800).
2	2.N.2.4	Use strategies and algorithms based on knowledge of place value and equality to add and subtract two-digit numbers.
2	2.N.2.5	Solve addition and subtraction problems involving whole numbers up to two digits.
2	2.N.3.2	Construct equal-sized portions through fair sharing (length, set, and area models for halves, thirds, and fourths).
2	2.N.4.1	Determine the value of a collection of coins up to one dollar using the cent symbol.
2	2.GM.1.1	Recognize regular and irregular trapezoids and hexagons.
2	2.GM.1.2	Describe, compare, and classify two-dimensional figures according to their geometric attributes.
2	2.GM.2.2	Explain the relationship between length and the numbers on a ruler by using a ruler to measure lengths to the nearest whole unit.
2	2.D.1.2	Organize a collection of data with up to four categories using pictographs and bar graphs in intervals of 1s, 2s, 5s or 10s.

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GRADE	CODE	STANDARD
2	2.D.1.3	Write and solve one-step word problems involving addition or subtraction using data represented within pictographs and bar graphs with intervals of one.
3	3.N.2.1	Represent multiplication facts by modeling a variety of approaches (e.g., manipulatives, repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line, skip counting).
3	3.N.2.7	Apply the relationship between multiplication and division to represent and solve problems.
3	3.N.3.3	Apply understanding of unit fractions and use this understanding to compose and decompose fractions related to the same whole.
3	3.N.3.4	Use models and number lines to order and compare fractions that are related to the same whole.
3	3.N.4.2	Add and subtract a collection of bills up to twenty dollars using whole dollars in monetary transactions.
3	3.A.2.1	Use number sense with the properties of addition, subtraction, and multiplication, to find unknowns (represented by symbols) in one-step equations. Generate real-world situations to represent number sentences.
3	3.A.2.2	Identify, represent, and apply the number properties (commutative, identity, and associative properties of addition and multiplication) using models and manipulatives to solve problems.
3	3.GM.1.3	Classify angles within a polygon as acute, right, obtuse, and straight.
3	3.GM.2.4	Find the area of two-dimensional figures by counting the total number of same-size unit squares that fill the shape without gaps or overlaps.
3	3.GM.2.6	Choose an appropriate measurement instrument and measure the length of objects to the nearest whole yard, whole foot, or half inch.
3	3.D.1.1	Collect and organize a data set with multiple categories using a frequency table, line plot, pictograph, or bar graph with scaled intervals.
3	3.D.1.2	Solve one- and two-step problems using categorical data represented with a frequency table, pictograph, or bar graph with scaled intervals.

ENGLISH LANGUAGE ARTS

39 STANDARDS

Based on the Oklahoma state standards

GRADE	CODE	STANDARD
K	K.2.PA.2	Students will distinguish rhyming and non-rhyming pairs and produce a rhyme when given a word.
K	K.2.PA.3	Students will isolate and pronounce initial and final sounds in spoken words.
K	K.2.PC.4	Students will recognize that written words are made up of letters and are separated by spaces.
K	K.2.PWS.3	Students will produce the sounds for short and long vowels and the most common sound for consonants (e.g., a = /ă/ & /ā/, f = /f/, s = /s/, x = /ks/).

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GRADE	CODE	STANDARD
K	K.2.F.3	Students will begin to develop a sight word vocabulary by decoding and reading regularly- and irregularly-spelled words in isolation and context with increasing automaticity.
K	K.3.R.2	Students will ask and answer basic questions (e.g., who, what, where, and when) about texts, photographs, or illustrations during shared reading or other text experiences with prompting.
K	K.4.R.3	Students will begin to acquire new vocabulary and relate new words to prior knowledge.
K	K.5.W.1	Students will begin to compose simple sentences that begin with a capital letter and conclude with an end mark.
K	K.7.W	Students will combine movement with relevant props, images, or illustrations to support their writing and speaking.
1	1.1.S.4	Students will orally describe people, places, things, and events with relevant details expressing their ideas.
1	1.2.PA.3	Students will isolate and pronounce medial sounds in spoken words.
1	1.2.PWS.1	Students will decode one-syllable phonetically-regular words by using their knowledge of the following phonics skills
1	1.2.F.1	Students will expand their sight word vocabulary by reading regularly- and irregularly-spelled words in isolation and context with increasing automaticity.
1	1.2.F.2	Students will orally and accurately read grade-level text at a smooth rate with expression that connotes comprehension.
1	1.3.R.4	Students will ask and answer basic questions (e.g., who, what, where, why, and when) about texts.
1	1.5.W.3	Students will capitalize the first letter of a sentence, proper names, and months and days of the week.
1	1.5.W.4	Students will use periods, question marks, and exclamation points.
2	2.1.S.3	Students will ask and answer relevant questions to seek help, get information, or clarify information to confirm understanding.
2	2.1.S.4	Students will report on a topic or text, tell a story, or recount an experience with relevant facts descriptive details, speaking audibly in coherent sentences.
2	2.2.PWS.1	Students will decode one- and two-syllable words by using their knowledge of the following phonics skills
2	2.2.PWS.2	Students will decode words by applying knowledge of all major syllable types
2	2.2.R.1	Students will identify the main idea and supporting details of a text.
2	2.2.W.3	Students will revise drafts by adding, deleting, and/or moving text.
2	2.3.W.1	Students will write narratives incorporating characters, plot (i.e., beginning, middle, end), and a basic setting (i.e., time, place).
2	2.3.W.3	Students will write an opinion about a topic and provide reasons as support in a paragraph.
2	2.4.R.2	Students will use context clues to determine the meaning of words.

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GRADE	CODE	STANDARD
2	2.4.R.5	Students will acquire new grade-level vocabulary, relate new words to prior knowledge, and apply vocabulary in new situations.
2	2.5.R.2	Students will recognize parts of speech in sentences: common, proper, and irregular plural nouns
2	2.5.W.5	Students will use apostrophes to form simple contractions (e.g., isn't, aren't, can't).
2	2.7.W	Students will use a combination of writing, sound, visual content, and/or movement to communicate ideas, thoughts, and feelings.
3	3.2.PWS.1	Students will decode multisyllabic words using their knowledge of the following phonics skills
3	3.2.R.1	Students will determine the main idea and supporting details of a text.
3	3.2.R.3	Students will summarize and sequence the important events of a story.
3	3.2.W.2	Students will routinely use a recursive process to revise content for clarity, coherence, and organization (e.g., logical order and transitions).
3	3.3.R.5	Students will answer inferential questions, using a text to support answers.
3	3.3.W.1	Students will write narratives incorporating
3	3.4.R.1	Students will identify relationships among words, including synonyms, antonyms, homophones, and homographs.
3	3.4.R.2	Students will use context clues to clarify the meaning of words.
3	3.5.W.5	Students will use apostrophes to form complex contractions (e.g., should've, won't, y'all) and to show possession.

COMPUTER SCIENCE

16 STANDARDS

Based on the Oklahoma state standards

GRADE	CODE	STANDARD
K–2	5.2.4	With guidance, use multiple communication tools and methods to share information.
K	K.AP.A.01	With guidance, model daily processes and follow algorithms (sets of step-by-step instructions) to complete tasks verbally, kinesthetically, with robot devices, or a programming language.
K	K.AP.PD.01	With guidance, create a grade-level appropriate artifact to illustrate thoughts, ideas, or stories in a sequential manner (e.g., story map, storyboard, and sequential graphic organizer).
1	1.CS.D.01	With guidance, select and use a computing device to perform a variety of tasks for an intended outcome.
1	1.AP.C.01	With guidance, independently or collaboratively create programs to accomplish tasks using a programming language, robot device, or unplugged activity that includes sequencing and repetition.
1	1.IC.CU.01	Identify how people use different types of technologies in their daily work and personal lives.

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GRADE	CODE	STANDARD
2	2.CS.D.01	Select and use appropriate computing devices or software to perform a variety of tasks for an intended outcome.
2	2.AP.A.01	With guidance, model daily processes by creating and following algorithms (sets of step-by step instructions) to complete tasks verbally, kinesthetically, with robot devices, or a programming language.
3	3.CS.D.01	Select and use computing systems to perform a variety of tasks for an intended outcome.
3	3.DA.CVT.01	Collect and organize data in various visual formats.
3	3.AP.A.01	Model and compare multiple algorithms for the same task.
3	3.AP.C.01	Create programs using a programming language that utilize sequencing, repetition, conditionals, and variables to solve a problem or express ideas both independently and collaboratively.
3	3.AP.M.01	Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions.
3	3.AP.PD.03	Analyze and debug a program that includes sequencing, repetition, and variables in a programming language.
3	3.IC.SI.01	Develop a code of conduct, explain, and practice grade-level appropriate behavior and responsibilities while participating in an online community. Identify and report inappropriate behavior.
3	5.5.2	Select and use multiple communication tools and/or resources.

SCIENCE

5 STANDARDS

Based on the Oklahoma state standards

GRADE	CODE	STANDARD
K–2	K2.ETS1.1	Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
K–2	K2.ETS1.2	Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
K–2	K2.ETS1.3	Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.
3	G35.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.
3	G35.ETS1.3	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

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SOURCES & NOTES

- The official mathematics, English language arts, computer science and science standards for Oklahoma, as published by the Oklahoma State Department of Education.
- Codes and standard wording are reproduced from the official standards documents. Clarification statements, examples and assessment boundaries are omitted.
- Grade shows the grade level at which True Robotics lessons address each standard. A range (for example K–2) marks a standard written for a grade band.
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- A lesson-level crosswalk is available on request at info@truerobotics.org.

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