PAVING THE WAY WITH TREADS

GRADES K–3

This document lists the Hawaii 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 Hawai'i State Department of Education, the Common Core State Standards Initiative, the Computer Science Teachers Association (CSTA) and the NGSS Lead States, as adopted by Hawaii.

42	41	11	5	99
MATH	ELA	CS	SCIENCE	TOTAL STANDARDS

MATHEMATICS

42 STANDARDS

Based on the Hawaii state standards

GRADE	CODE	STANDARD
K–3	MP.1	Make sense of problems and persevere in solving them.
K	K.CC.1	Count to 100 by ones and by tens.
K	K.CC.4	Understand the relationship between numbers and quantities; connect counting to cardinality.
K	K.OA.1	Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
K	K.OA.2	Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.
K	K.MD.1	Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
K	K.MD.2	Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference.
K	K.MD.3	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.
K	K.G.1	Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.
K	K.G.2	Correctly name shapes regardless of their orientations or overall size.
1	MP.2	Reason abstractly and quantitatively.

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GRADE	CODE	STANDARD
1	1.OA.1	Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
1	1.OA.2	Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
1	1.NBT.2	Understand that the two digits of a two-digit number represent amounts of tens and ones.
1	1.NBT.3	Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.
1	1.MD.1	Order three objects by length; compare the lengths of two objects indirectly by using a third object.
1	1.MD.2	Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.
1	1.MD.4	Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.
1	1.G.1	Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.
1	1.G.2	Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.
2	2.OA.1	Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
2	2.NBT.1	Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones.
2	2.NBT.3	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
2	2.NBT.5	Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
2	2.MD.1	Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
2	2.MD.3	Estimate lengths using units of inches, feet, centimeters, and meters.
2	2.MD.8	Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately.

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GRADE	CODE	STANDARD
2	2.MD.9	Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.
2	2.MD.10	Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.
2	2.G.1	Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.
2	2.G.3	Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.
3	3.OA.1	Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each.
3	3.OA.3	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
3	3.OA.4	Determine the unknown whole number in a multiplication or division equation relating three whole numbers.
3	3.OA.5	Apply properties of operations as strategies to multiply and divide.
3	3.NF.1	Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b.
3	3.NF.2	Understand a fraction as a number on the number line; represent fractions on a number line diagram.
3	3.MD.3	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.
3	3.MD.4	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.
3	3.MD.5	Recognize area as an attribute of plane figures and understand concepts of area measurement.
3	3.MD.6	Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).
3	3.G.1	Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

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ENGLISH LANGUAGE ARTS

41 STANDARDS

Based on the Hawaii state standards

GRADE	CODE	STANDARD
K	K.RF.1c	Understand that words are separated by spaces in print.
K	K.RF.2b	Recognize and produce rhyming words.
K	K.RF.2g	Distinguish long from short vowel sounds in spoken single-syllable words.
K	K.RF.3b	Associate the long and short sounds with common spellings (graphemes) for the 5 major vowels (closed and open syllables).
K	K.RF.3d	Read common grade-appropriate decodable and irregularly-spelled high-frequency words by sight (e.g., can, the, of, to, you, she, my, is, are, do, does).
K	K.WF.2	Know and apply phonics and word analysis skills when encoding words: a. Write a letter or letters for consonant and short vowel sounds. b. Represent phonemes in simple words, using letter-sound relationships, including phonetic spellings of unknown words. c. Spell common, regular, single-syllable words: VC (Vowel-Consonant) (e.g., at, in); CVC (Consonant-Vowel-Consonant) (e.g., pet, mud) words; d. Spell common, grade-appropriate decodable and irregularly-spelled high-frequency words.
K	K.WF.3	Demonstrate command of the conventions of English when writing simple sentences: a. Produce and expand complete sentences. b. Recognize and name end punctuation. c. Capitalize the first word in a sentence and the pronoun I.
K	K.W.5.SL	With prompting and support, leverage available technology to provide additional detail.
K	K.SL.2	Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.
K	K.L.4c	Identify real-life connections between words and their use (e.g., note places at school that are colorful).
1	1.RF.2c	Isolate and pronounce initial, medial vowel, and final sounds (phonemes) in spoken single-syllable words.
1	1.RF.3	Know and apply grade-level phonics and word analysis skills to read: a. Read regularly spelled one and two-syllable words in isolation and in text, including: Short vowel words with CVC, CCVC, CVCC, and CCVCC patterns; Digraphs (sh, ch, wh, th, ng, ck); Vowel-Consonant-Silent e (VCe) (e.g., cave); Vowel Teams (e.g., pain); R-Controlled Vowels (ar, er, ir, or, ur); Diphthongs; Closed Syllables; Open Syllables; Inflectional Suffixes with no spelling change (e.g., help, helps, helped, helping); Prefixes; Compound Words; Contractions; Possessives; Plurals; b. Use knowledge that every syllable must have a vowel sound to determine the number of syllables in a printed word. c. Read common, grade-appropriate decodable and irregularly-spelled high-frequency words by sight (e.g., eat, can, the, of, to, you, she, my, is, are, do, does).
1	1.RF.3a	Read regularly spelled one and two-syllable words in isolation and in text, including: Short vowel words with CVC, CCVC, CVCC, and CCVCC patterns; Digraphs (sh, ch, wh, th, ng, ck); Vowel-Consonant-Silent e (VCe) (e.g., cave); Vowel Teams (e.g., pain); R-Controlled Vowels (ar, er, ir, or, ur); Diphthongs; Closed Syllables; Open Syllables; Inflectional Suffixes with no spelling change (e.g., help, helps, helped, helping); Prefixes; Compound Words; Contractions; Possessives; Plurals.

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GRADE	CODE	STANDARD
1	1.RF.3c	Read common, grade-appropriate decodable and irregularly-spelled high-frequency words by sight (e.g., eat, can, the, of, to, you, she, my, is, are, do, does).
1	1.RF.4	Read grade-level text orally with fluency (accuracy, automaticity, and prosody) to support comprehension, in accordance with grade-level fluency norms.
1	1.WF.2	Know and apply phonics and word analysis skills when encoding words: a. Spell common, regular, single-syllable words using: Short vowels and single consonants; Consonant graphemes including qu, x, and -ck; Digraphs (e.g., thin, shop, when, much, sing); Doubled letters (e.g., off, will, mess); Initial and final consonant blends (e.g., must, slab, plump); Long vowel patterns spelled correctly, including VCe (Vowel-Consonant-silent e) (e.g., came, like) and open syllables (e.g., go, cry); b. Spell common, grade-appropriate decodable and irregularly-spelled high-frequency words.
1	1.WF.3	Demonstrate command of the conventions of English when writing sentences and single paragraphs: a. Produce and expand complete simple and compound sentences in response to prompts. b. Produce and expand declarative, interrogative, imperative, and exclamatory sentences in response to prompts. c. Capitalize dates and names of people. d. Use correct end punctuation for sentences. e. Use commas in dates and to separate single words in a series.
1	1.SL.2	Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
1	1.SL.4	Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.
2	2.RF.3b	Apply knowledge of the 6 syllable types when reading one- and 2-syllable words (open, closed, VCE, r-controlled, consonant + le, and vowel teams).
2	2.WF.3d	Use an apostrophe to form contractions and frequently occurring possessives.
2	2.W.1	Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a conclusion that follows from the argument presented, as appropriate to the task.
2	2.W.3	Write narratives in which they recount a well elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure.
2	2.W.4	With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing.
2	2.W.5.SL	Leverage available technology to clarify ideas, thoughts, and feelings.
2	2.SL.1c	Ask for clarification and further explanation as needed about the topics and texts under discussion.
2	2.SL.2	Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.
2	2.SL.4	Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.
2	2.L.1a	Use collective nouns (e.g., group).

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GRADE	CODE	STANDARD
2	2.L.1b	Form and use frequently occurring irregular plural nouns (e.g., feet, children, teeth, mice, fish).
2	2.L.3a	Use sentence-level context as a clue to the meaning of a word or phrase.
2	2.L.4a	Identify real-life connections between words and their use (e.g., describe foods that are spicy or juicy).
3	3.RF.3	Know and apply grade-level phonics and word analysis skills to read: a. Read regularly spelled single-syllable and multisyllabic words in isolation and in text, including: Multisyllabic words with the patterns: VC/CV, V/CV, VC/V, and CV/VC; Possessives and Plurals; Irregular Past Tense and Plurals; Common Latin Affixes and Roots; b. Demonstrate and apply knowledge of syllable division and morpheme meaning when reading multisyllabic words. c. Read common grade appropriate decodable and irregular high frequency words.
3	3.RL.1	Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
3	3.RL.2a	Determine a theme and explain how it is conveyed through key details in the text.
3	3.RL.2b	Retell stories, including fables, folktales, and myths from diverse cultures.
3	3.W.3	Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences: a. Establish a situation and introduce a narrator and/or characters; organize an event sequence that unfolds naturally. b. Use dialogue and descriptions of actions, thoughts, and feelings to develop experiences and events or show the response of characters to situations. c. Use temporal words and phrases to signal event order. d. Provide a sense of closure.
3	3.W.4	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing.
3	3.SL.2	Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
3	3.L.3	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 3 reading and content, choosing flexibly from a range of strategies: a. Use sentence-level context as a clue to the meaning of a word or phrase. b. Determine the meaning of the new word formed when a known affix is added to a known word (e.g., agreeable/disagreeable, comfortable/uncomfortable, care/careless, heat/preheat). c. Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., company, companion). d. Use glossaries or beginning dictionaries, both print and digital, to determine or clarify the precise meaning of key words and phrases.
3	3.L.4	Demonstrate understanding of word relationships and nuances in word meanings: a. Distinguish the literal and nonliteral meanings of words and phrases in context (e.g., take steps). b. Identify real-life connections between words and their use (e.g., describe people who are friendly or helpful). c. Distinguish shades of meaning among related words that describe states of mind or degrees of certainty (e.g., knew, believed, suspected, heard, wondered).

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COMPUTER SCIENCE

11 STANDARDS

Based on the Hawaii state standards

GRADE	CODE	STANDARD
K–2	1A-CS-01	Select and operate appropriate software to perform a variety of tasks, and recognize that users have different needs and preferences for the technology they use.
K–2	1A-AP-08	Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks.
K–2	1A-AP-10	Develop programs with sequences and simple loops, to express ideas or address a problem.
K–2	1A-IC-16	Compare how people live and work before and after the implementation or adoption of new computing technology.
3	1B-CS-01	Describe how internal and external parts of computing devices function to form a system.
3	1B-DA-06	Organize and present collected data visually to highlight relationships and support a claim.
3	1B-AP-08	Compare and refine multiple algorithms for the same task and determine which is the most appropriate.
3	1B-AP-10	Create programs that include sequences, events, loops, and conditionals.
3	1B-AP-15	Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.
3	1B-AP-16	Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.
3	1B-AP-17	Describe choices made during program development using code comments, presentations, and demonstrations.

SCIENCE

5 STANDARDS

Based on the Hawaii state standards

GRADE	CODE	STANDARD
K–2	K-2-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	K-2-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	K-2-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	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.
3	3-5-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

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- 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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