PAVING THE WAY WITH TREADS

GRADES K–3

This document lists the South Dakota 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 South Dakota Department of Education.

42	39	10	5	96
MATH	ELA	CS	SCIENCE	TOTAL STANDARDS

MATHEMATICS

42 STANDARDS

Based on the South Dakota 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.
K	K.MD.1	Describe measurable attributes of a single object or objects, such as length, weight, or size.
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 number of objects in each category and sort the categories by count. Limit category counts to be less than or equal to 10.
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.
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 and Identify regular and irregular two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) and compose three-dimensional shapes (cubes, spheres, 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 (standard form), number names (word form), 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.8b	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, identify, and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces; to include 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 5x7 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 (example: 1 part out of 4 equal parts is the same as 1/4); 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

39 STANDARDS

Based on the South Dakota state standards

GRADE	CODE	STANDARD
K	K.RF.1c	Recognize that words are separated by spaces in written text.
K	K.RF.2c	Recognize, generate, and categorize rhymes.
K	K.RF.3b	Associate predictable consonant and short vowel sounds with corresponding letters.
K	K.RF.3e	Read grade-appropriate high-frequency words.
K	K.L.2	Demonstrate command of the conventions of standard English when writing.
K	K.L.5c	Identify real-life connections between words and their use.
K	K.SL.2	Confirm understanding from content presented by asking questions and requesting clarification.
K	K.SL.5	Add drawings, digital media, or other visual displays to provide additional detail.
1	1.RF.2b	Recognize initial, final and medial phonemes in spoken words.
1	1.RF.3	Decode and encode using grade-level phonics and word analysis skills.
1	1.RF.3a	Differentiate between long and short vowel sounds in regularly spelled one-syllable words.
1	1.RF.3c	Decode and encode one-syllable words with regular spelling patterns, including CVC, CCVC, CVCC, CVVC, CVCe in context.
1	1.RF.3d	Decode common vowel teams to represent long vowel sounds in words.
1	1.RF.3h	Read and spell grade-appropriate high-frequency words.
1	1.RF.4	Read with sufficient accuracy and fluency to support comprehension.
1	1.L.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
1	1.SL.2	Ask and answer questions about key ideas and details from content 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	Decode and encode sound-spelling correspondences for common vowel teams including diphthongs.
2	2.L.1a	Use common, proper, possessive and collective nouns.
2	2.L.1b	Form and use frequently occurring irregular plural nouns.
2	2.L.2d	Use an apostrophe to form contractions and singular possessives.
2	2.L.4a	Use sentence-level context to determine the meaning of a word or phrase.
2	2.L.5a	Identify real-life connections between words and their use (e.g., describe foods that are spicy or juicy).

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GRADE	CODE	STANDARD
2	2.W.1	Write opinion pieces that: a. Introduce an opinion using a topic sentence. b. Supply reasons and details that support the opinion. c. Use grade-level appropriate linking words to connect the opinion and reasons (e.g., so, but, because, for example). d. Provide a concluding sentence or paragraph.
2	2.W.3	Write narratives (e.g., story, poetry) that: a. Recount a well-elaborated event or short sequence of events. b. Include details to describe actions, thoughts, dialogue, and feelings. c. Use transition words to signal event order. d. Provide a sense of closure.
2	2.W.5	Develop the focus of the topic of writing through revision and improve the clarity of the writing through editing with guidance and support from adults, peers, and/or digital tools.
2	2.SL.1c	Ask for clarification and explanation to better understand topics and texts under discussion.
2	2.SL.2	Retell and describe key ideas or details from content presented orally or through other media.
2	2.SL.4	Tell a story or recount an experience with relevant facts and descriptive details, speaking audibly in coherent sentences.
2	2.SL.5	Create audio recordings, visual displays, performances, or media presentations of stories or poems to express ideas, thoughts, and feelings.
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.2	Retell stories, determine the central message and theme and explain how it is revealed through key details in the text.
3	3.RF.3	Know and apply grade-level phonics and word analysis skills in decoding and encoding words.
3	3.L.4	Determine or clarify the meaning and origin of unknown and multiple-meaning words and phrases based on grade 3 reading and content, using flexible strategies.
3	3.L.5	Demonstrate understanding of word relationships and subtle differences in word meanings.
3	3.W.3	Write narratives (e.g. story, poetry, drama) to develop real and imagined experiences or events using descriptive details, and clear event sequences.
3	3.W.5	Develop and strengthen writing as needed, with guidance and support from peers, adults, and digital tools by planning, drafting, revising, and editing.
3	3.SL.2	Determine the main ideas and supporting details of content presented in diverse media and formats, such as visual, quantitative, and oral formats.

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COMPUTER SCIENCE

10 STANDARDS

Based on the South Dakota state standards

GRADE	CODE	STANDARD
K–2	K-2.CS.01	Use suitable hardware/software to perform different tasks while recognizing individual's needs and preferences.
K–2	K-2.AP.01	Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks (with or without devices).
K–2	K-2.IC.02	Identify and explain how technologies are used in daily life, school, and the workforce.
3	3-5.DA.01	Organize and visually present collected data to highlight relationships and support a claim.
3	3-5.AP.01	Compare and refine multiple algorithms for the same task and determine which is the most appropriate.
3	3-5.AP.02	Create programs that use variables to store and modify data.
3	3-5.AP.03	Create programs that include sequences, events, loops, and conditionals.
3	3-5.AP.06	Use the iterative process to test and debug a program or algorithm to ensure it runs as intended.
3	3-5.AP.07	Collaborate with peers during all stages of program development.
3	3-5.AP.08	Describe choices made during program development using code comments, presentations, and demonstrations.

SCIENCE

5 STANDARDS

Based on the South Dakota 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 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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