

PAVING THE WAY WITH TREADS

GRADES K-3

This document lists the Wisconsin 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 Wisconsin Department of Public Instruction.

42

MATH

41

ELA

16

CS

5

SCIENCE

104

TOTAL STANDARDS

MATHEMATICS

42 STANDARDS

Based on the Wisconsin state standards

GRADE	CODE	STANDARD
K-3	Math Practice 1	Make sense of problems and persevere in solving them.
K	M.K.CC.A.1	Count to 100 by ones and by tens.
K	M.K.CC.B.4	Understand the relationship between numbers and quantities; connect counting to cardinality.
K	M.K.OA.A.1	Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, or numbers. Drawings need not show details, but should show the mathematics in the problem.
K	M.K.OA.A.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	M.K.MD.A.1	Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
K	M.K.MD.A.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	M.K.MD.B.3	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. Limit category counts to be less than or equal to 10.
K	M.K.G.A.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	M.K.G.A.2	Correctly name shapes regardless of their orientations or overall size.
1	Math Practice 2	Reason abstractly and quantitatively.

GRADE	CODE	STANDARD
1	M.1.OA.A.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	M.1.OA.A.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	M.1.NBT.B.2	Understand that the two digits of a two-digit number represent amounts of tens and ones.
1	M.1.NBT.B.3	Compare two two-digit numbers based on meanings of the tens and ones digits and describe the result of the comparison using words and symbols ($>$, $=$, and $<$).
1	M.1.MD.A.1	Order three objects by length; compare the lengths of two objects indirectly by using a third object.
1	M.1.MD.A.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	M.1.MD.C.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	M.1.G.A.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	M.1.G.A.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. Student use of formal names such as "right rectangular prism" is not expected.
2	M.2.OA.A.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	M.2.NBT.A.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	M.2.NBT.A.3	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
2	M.2.NBT.B.5	Flexibly and efficiently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. In Grade 2, subtraction with decomposition is an exception and may include drawings/representations.
2	M.2.MD.A.1	Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
2	M.2.MD.A.3	Estimate lengths using units of inches, feet, centimeters, and meters.

GRADE	CODE	STANDARD
2	M.2.MD.C.8	Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately.
2	M.2.MD.D.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	M.2.MD.D.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	M.2.G.A.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. Sizes are compared directly or visually, not compared by measuring.
2	M.2.G.A.3	Partition circles and rectangles into two, three, or four equal shares, describe and count the shares using the words halves, thirds, and fourths, and use phrases half of, a third of, and a fourth of the whole. Describe the whole as composed of two halves, three thirds, and four fourths. Recognize that equal shares of identical wholes need not have the same shape.
3	M.3.OA.A.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	M.3.OA.A.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	M.3.OA.B.4	Apply properties of operations as strategies to multiply and divide. Student use of the formal terms for these properties is not necessary.
3	M.3.OA.B.5	Understand division as an unknown-factor problem.
3	M.3.NF.A.1	Understand a unit fraction as the quantity formed when a whole is partitioned into equal parts and explain that a unit fraction is one of those parts (e.g., $1/4$). Understand fractions are composed of unit fractions.
3	M.3.NF.A.2	Understand and represent a fraction as a number on the number line.
3	M.3.MD.B.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	M.3.MD.B.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, fourths.
3	M.3.MD.C.5	Recognize area as an attribute of plane figures and understand concepts of area measurement.
3	M.3.MD.C.6	Measure areas by counting unit squares (square cm, square m, square in, square ft., and improvised units).
3	M.3.G.A.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.

ENGLISH LANGUAGE ARTS

41 STANDARDS

Based on the Wisconsin state standards

GRADE	CODE	STANDARD
K	RF.K.1c	Understand words are separated by spaces in print.
K	RF.K.2a	Recognize and produce rhyming words.
K	RF.K.3b	Associate the long and short sounds with common spellings (graphemes) for the five major vowels.
K	RF.K.3c	Read common high-frequency words by sight (e.g., the, of, to, you, she, my, is, are, do, does).
K	SL.K.2	With guidance and support, ask and answer questions about key details in a text read aloud or information presented orally or through other media.
K	SL.K.3	Ask and answer questions in order to seek help, get information, or clarify something that is not understood.
K	SL.K.5	With guidance and support, create an original or utilize existing visual displays to support descriptions.
K	L.K.3d	Connect common words to real life (e.g., colorful).
K	L.K.6	Demonstrate contextually appropriate use of the conventions of standardized English capitalization, punctuation, and spelling when writing. Discern when and where it is appropriate to use standardized English.
1	RF.1.2a	Distinguish long from short vowel sounds in spoken single-syllable words.
1	RF.1.2c	Isolate and pronounce initial, medial vowel, and final sounds (phonemes) in spoken single-syllable words.
1	RF.1.3	Know and apply grade-level phonics and word analysis skills in decoding words.
1	RF.1.3b	Decode and encode regularly spelled one-syllable words (e.g., cat, fox, bet, cup, fit, etc.).
1	RF.1.3c	Know final -e and common vowel team conventions for representing long vowel sounds (Examples include but are not limited to: ai, ay, oa, ea, ee, ie, ue, ow).
1	RF.1.3g	Recognize and read grade-appropriate irregularly spelled words.
1	RF.1.4	Read emergent-reader texts with purpose, understanding, and sufficient accuracy and fluency to support comprehension.
1	SL.1.2	Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
1	SL.1.4	Describe people, places, things, and events with relevant details, expressing ideas clearly.
1	L.1.6	Demonstrate contextually appropriate use of the conventions of standardized English capitalization, punctuation, and spelling when writing. Discern when and where it is appropriate to use standardized English.
2	RF.2.3a	Distinguish long and short vowels when reading regularly spelled one-syllable words.
2	RF.2.3b	Know spelling-sound correspondences for additional common vowel teams.

GRADE	CODE	STANDARD
2	W.2.2a	Write text in a variety of modes: Opinion pieces in which they introduce the topic or text they are writing about, state an opinion, supply reasons that support the opinion, using words for emphasis, addition, contrast, or order to connect opinion and reasons, and provide a concluding statement or section.
2	W.2.2c	Convey events, real or imagined, through 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	W.2.5	With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing.
2	SL.2.1c	Ask for clarification and further explanation as needed about the topics and texts under discussion.
2	SL.2.2	Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.
2	SL.2.4	Tell a story or recount an experience with descriptive details, expressing ideas clearly.
2	SL.2.5	Include digital media and visual displays in presentations to clarify or support ideas, thoughts, and feelings.
2	L.2.2	Determine or clarify the meaning of unknown and multiple-meaning words and phrases in grade-level reading and content; use context clues, analyze meaningful word parts, consult general and specialized reference materials, and apply word solving strategies (for meaning) as appropriate.
2	L.2.3b	Identify real-life connections between words and their use (e.g., describe foods that are juicy).
2	L.2.5a	Appropriately use and explain the intended purpose of language choice with: Collective nouns, adjectives and adverbs, frequently occurring regular plural nouns, frequently occurring irregular past tense verbs.
2	L.2.6c	Appropriately use and explain the intended purpose in conventions with: Apostrophes in contractions and frequently occurring possessives.
3	RF.3.3	Know and apply grade-level phonics and word analysis skills in decoding words.
3	R.3.1	Develop and answer questions to locate relevant and specific details in a text to support an answer or inference.
3	R.3.2	Summarize portions of a text to determine a theme or central idea and explain how it is supported by key details.
3	W.3.2c	Convey events, real or imagined, through narrative/short stories to develop experiences or events using descriptive details and clear event sequences to establish a situation and introduce a narrator and/or characters. Use dialogue and description of actions, thoughts and feelings to develop experiences and events or show the responses of characters to situations.
3	W.3.5	With guidance and support from adults and peers, respond to questions and suggestions from peers and add details to strengthen writing as needed by planning, revising, and editing.
3	SL.3.2	Determine main ideas and supporting details of a text read aloud or information presented in diverse media and formats.

GRADE	CODE	STANDARD
3	L.3.2	Determine or clarify the meaning of unknown and multiple-meaning words and phrases in grade-level reading and content; use context clues, analyze meaningful word parts, consult general and specialized reference materials, and apply word solving strategies (for meaning) as appropriate.
3	L.3.3	Demonstrate understanding of figurative language, word relationships and nuances in word meanings.
3	L.3.5a	Appropriately use and explain the intended purpose of language choice with: Irregular and regular nouns and verbs.

COMPUTER SCIENCE

16 STANDARDS

Based on the Wisconsin state standards

GRADE	CODE	STANDARD
K-3	ALG.1.a.e.1	Identify algorithms as step-by-step instructions in daily activities, and represent them using visual formats such as diagrams, arrows, or storytelling.
K-3	PRO.1.a.e.1	Create code from an algorithm that includes sequence, events, and iteration to express ideas or complete a task.
K-3	CSS.1.b.e.1	Use technology tools (tablets, computers, or apps) in safe and appropriate ways to help complete tasks or solve problems.
K-3	EC.1.a.e	State the main message to be shared digitally.
K-2	ALG.1.a.e.2	Model daily processes by creating and following algorithms that include sequence, events, and repetition to complete tasks and solve problems.
K-2	FUT.2.b.e.1	Identify everyday technologies and discuss how people use them to meet needs and how they affect daily life.
K-2	FUT.3.a.e.1	Describe how people use digital tools in different jobs and explain how personal interests can connect to computing in work or careers.
K-2	IA3.b.e	Use digital tools with guidance to create a simple artifact (e.g., a basic presentation, a short written summary, a collection of images) using educator-selected information.
K-2	DC1.c.e	Recognize the importance of balance in screen use and identify strategies for healthy digital habits.
3	ALG.1.c.e.1	Write the steps in algorithms that include sequence, events, iteration, and selection to complete a task or solve a problem using everyday language.
3	ALG.3.a.e.1	Describe how different parts of an algorithm or task work together to get something done.
3	ALG.3.a.e.2	Compare different sets of steps to see which works better or faster.
3	PRO.3.a.1.e	Analyze and debug a program, which includes sequencing, events, loops, conditionals, and variables.
3	DA.1.a.e.1	Collect data using a variety of methods (e.g., observation, survey, measurement) and tools (e.g., sensors, online forms), including overtime and from multiple sources.

GRADE	CODE	STANDARD
3	DA.2.a.e.2	Organize and represent data using basic visual formats (e.g., picture graphs, bar graphs, tables) to help answer questions or identify simple patterns.
3	FUT.2.a.e.1	Use online collaborative spaces ethically and safely to work with another student to solve a problem, seek out diverse perspectives, or improve a project.

SCIENCE

5 STANDARDS

Based on the Wisconsin state standards

GRADE	CODE	STANDARD
K-2	SCI.ETS1.A.K-2	A situation that people want to change or create can be approached as a problem to be solved through engineering. Asking questions, making observations, and gathering information are helpful in thinking about problems. Before beginning to design a solution, it is important to clearly understand the problem.
K-2	SCI.ETS1.B.K-2	Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people.
K-2	SCI.ETS1.C.K-2	Because there is more than one possible solution to a problem, it is useful to compare and test designs.
3	SCI.ETS1.A.3-5	Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account.
3	SCI.ETS1.B.3-5	Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved.

SOURCES & NOTES

- The official mathematics, English language arts, computer science and science standards for Wisconsin, as published by the Wisconsin Department of Public Instruction.
- 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.