

PAVING THE WAY WITH TREADS

GRADES K-3

This document lists the Montana 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 Montana Office of Public Instruction.

44

MATH

40

ELA

10

CS

6

SCIENCE

100

TOTAL STANDARDS

MATHEMATICS

44 STANDARDS

Based on the Montana state standards

GRADE	CODE	STANDARD
K-3	MT.MP.1	Problem Solve and Persevere
K	MT.K.CC.1	Flexibly count to 100 by ones and by tens.
K	MT.K.CC.4	Understand the relationship between numbers and quantities and connect counting to cardinality by recognizing that each successive number name refers to a quantity that is one larger within a normal counting sequence.
K	MT.K.OA.1	Represent addition and subtraction in multiple ways.
K	MT.K.OA.2	Solve addition and subtraction problems in context within 10. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities.
K	MT.K.MD.1	Describe several attributes of a single object.
K	MT.K.MD.2	Directly compare two objects with a measurable attribute in common using comparative language.
K	MT.K.MD.3	Classify, count, and sort objects into categories. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities.
K	MT.K.G.1	Describe the relative positions of objects in their environment. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities.
K	MT.K.G.2	Correctly name shapes regardless of their orientations or overall size.
1	MT.MP.2	Mathematically proficient students are able to decontextualize and symbolically represent both mathematical and non-mathematical situations to search for and analyze regularities, patterns, and structures.

GRADE	CODE	STANDARD
1	MT.1.OA.1	Use addition and subtraction within 20 to solve problems of all types. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities.
1	MT.1.OA.2	Solve problems in context that call for addition of three whole numbers with a sum less than or equal to 20 in context of all types. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities.
1	MT.1.NBT.2	Understand that ten is a unit composed of ten ones and that a two-digit number represents tens and ones.
1	MT.1.NBT.3	Compare two two-digit numbers using comparison symbols $>$, $=$, and $<$.
1	MT.1.MD.1	Order three objects by length and compare the lengths of two objects indirectly by using a third object. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities.
1	MT.1.MD.2	Express the length of an object as a whole number of length units. Understand that the measurement of an object is the number of same-size length units that span it with no gaps or overlaps.
1	MT.1.MD.5	Organize, represent, and interpret data with up to three categories
1	MT.1.G.1	Distinguish between defining attributes versus nondefining attributes.
1	MT.1.G.2	Build and draw shapes to possess defining attributes.
1	MT.1.G.3	Compose new shapes using two- and three-dimensional shapes.
2	MT.2.OA.1	Use addition and subtraction within 100 to solve one- and two-step problems in context involving all problem types. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities.
2	MT.2.NBT.1	Understand one hundred is a unit composed of ten tens and that three-digit numbers represent amounts of hundreds, tens, and ones.
2	MT.2.NBT.3	Flexibly count, read, write, and represent numbers to 1000.
2	MT.2.NBT.5	Flexibly, accurately, and efficiently add and subtract within 100 using multiple strategies.
2	MT.2.MD.1	Measure the length of an object by selecting and using appropriate tools.
2	MT.2.MD.3	Estimate lengths using units of common measurement.
2	MT.2.MD.8	Solve problems in context involving dollar bills, quarters, dimes, nickels, and pennies using \$ and ¢ symbols appropriately.
2	MT.2.MD.9	Generate measurement data and present the data in multiple ways. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities.
2	MT.2.MD.10	Organize, represent, and interpret data with up to four categories. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities.
2	MT.2.MD.11	Solve addition and subtraction problems of all types using data presented.
2	MT.2.G.1	Recognize and draw shapes having specified attributes.

GRADE	CODE	STANDARD
2	MT.2.G.3	Partition circles and rectangles into equal shares, recognize that equal shares need not have the same shape, and express the shares in two-halves, three-thirds, and four-fourths.
3	MT.3.OA.1	Understand products of whole numbers as the total number found by multiplying a number of groups by the number of objects per group.
3	MT.3.OA.3	Use multiplication and division within 100 to solve problems in context in situations involving equal groups, arrays, and measurement quantities.
3	MT.3.OA.4	Determine the unknown whole number in a multiplication or division equation relating three whole numbers.
3	MT.3.OA.5	Apply the commutative property of multiplication, associative property of multiplication, and distributive property of multiplication over addition on whole numbers as strategies to multiply.
3	MT.3.NF.1	Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts and understand a fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$.
3	MT.3.NF.2	Understand a fraction as a number on the number line
3	MT.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. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities.
3	MT.3.MD.4	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch and show the data by making a line plot where the horizontal scale is marked off in appropriate units.
3	MT.3.MD.5	Recognize area as an attribute of plane figures and understand concepts of area measurement
3	MT.3.MD.6	Measure areas by counting unit squares.
3	MT.3.G.1	Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category. 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 AND LITERACY

40 STANDARDS

Based on the Montana state standards

GRADE	CODE	STANDARD
K	RF.K.1c	understand that 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)

GRADE	CODE	STANDARD
K	SL.K.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	SL.K.5	Add drawings or other visual displays to descriptions as desired to provide additional detail.
K	L.K.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
K	L.K.5c	Identify real-life connections between words and their use (e.g., note places at school that are colorful).
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 regularly spelled one-syllable words
1	RF.1.3c	know final -e and common vowel team conventions for representing long vowel sounds
1	RF.1.3g	recognize and read grade-appropriate irregularly spelled words
1	RF.1.4	Read with 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 and feelings clearly.
1	L.1.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
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
2	W.2.1	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 concluding statement or section.
2	W.2.3	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	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 appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.

GRADE	CODE	STANDARD
2	SL.2.5	Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.
2	L.2.1a	Use collective nouns (e.g., group).
2	L.2.1b	Form and use frequently occurring irregular plural nouns (e.g., feet, children, teeth, mice, fish).
2	L.2.2c	Use an apostrophe to form contractions and frequently occurring possessives.
2	L.2.4a	Use sentence-level context as a clue to the meaning of a word or phrase.
2	L.2.5a	Identify real-life connections between words and their use (e.g., describe foods that are spicy or juicy).
3	RL.3.1	Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
3	RL.3.2	Recount stories, including fables, folktales, and myths from diverse cultures; including those by and about American Indians; determine the central message, lesson, or moral; and explain how it is conveyed through key details in the text.
3	RF.3.3	Know and apply grade-level phonics and word analysis skills in decoding words
3	W.3.3	Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences
3	W.3.5	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing.
3	SL.3.2	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	L.3.4	Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on grade 3 reading and content, choosing flexibly from a range of strategies.
3	L.3.5	Demonstrate understanding of word relationships and nuances in word meanings.

COMPUTER SCIENCE

10 STANDARDS

Based on the Montana state standards

GRADE	CODE	STANDARD
K-3	CS.2.K12	collaborating around computing
K-2	CS.5.K12	creating computational artifacts
2	CS.AP.2.1	model daily processes by creating and following sets of step-by-step instructions to complete tasks
2	CS.AP.2.3	develop programs with sequences and simple loops to express ideas or address a problem
2	CS.AP.2.4	break down the steps needed to solve a problem into a precise sequence of instructions
2	CS.CS.2.1	select and operate appropriate tools to perform a variety of tasks

GRADE	CODE	STANDARD
2	CS.IC.2.1	identify how computing technology has changed how people live and work
3	CS.6.K12	testing and refining computational artifacts
3	CS.AP.3.1	compare and contrast multiple algorithms to complete the same task
3	CS.DA.3.1	collect data from multiple sources and display the data in graphs

SCIENCE

6 STANDARDS

Based on the Montana state standards

GRADE	CODE	STANDARD
K	MT.K.PS.2	analyze data to determine whether a design solution works as intended to change the speed or direction of an object with a push or a pull
1	MT.1.PS.4	design a solution or build a device that facilitates communication over distance using light or sound
2	MT.2.PS.2	conduct an investigation and analyze data to determine which materials have the properties best suited for an intended purpose
2	MT.2.ESS.2	construct explanations to compare multiple physical and naturally built designs which impact wind or water's effect on the shape of the land
3	MT.3.PS.4	define a simple design problem that can be solved by applying scientific ideas about magnets
3	MT.3.ESS.3	make a claim based on information about the merit of a design solution that reduces the impacts of a weather-related hazard

SOURCES & NOTES

- The official mathematics, English language arts, computer science and science standards for Montana, as published by the Montana Office 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.
- Standards text remains the property of its publisher and is reproduced here for alignment reference only.
- A lesson-level crosswalk is available on request at info@truerobotics.org.