

PAVING THE WAY WITH TREADS

GRADES K-3

This document lists the Pennsylvania 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 Pennsylvania Department of Education and the Computer Science Teachers Association (CSTA), as adopted by Pennsylvania.

28

MATH

32

ELA

9

CS

9

SCIENCE

78

TOTAL STANDARDS

MATHEMATICS

28 STANDARDS

Based on the Pennsylvania state standards

GRADE	CODE	STANDARD
K-3	MP.1	Make sense of problems and persevere in solving them.
K	CC.2.1.K.A.1	Know number names and write and recite the count sequence.
K	CC.2.1.K.A.2	Apply one-to-one correspondence to count the number of objects.
K	CC.2.2.K.A.1	Extend the concepts of putting together and taking apart to add and subtract within 10.
K	CC.2.3.K.A.1	Identify and describe two- and three-dimensional shapes.
K	CC.2.4.K.A.1	Describe and compare attributes of length, area, weight, and capacity of everyday objects.
K	CC.2.4.K.A.4	Classify objects and count the number of objects in each category.
1	MP.2	Reason abstractly and quantitatively.
1	CC.2.1.1.B.2	Use place-value concepts to represent amounts of tens and ones and to compare two digit numbers.
1	CC.2.2.1.A.1	Represent and solve problems involving addition and subtraction within 20.
1	CC.2.3.1.A.1	Compose and distinguish between two- and three-dimensional shapes based on their attributes.
1	CC.2.4.1.A.1	Order lengths and measure them both indirectly and by repeating length units.
1	CC.2.4.1.A.4	Represent and interpret data using tables/charts.
2	CC.2.1.2.B.1	Use place-value concepts to represent amounts of tens and ones and to compare three digit numbers.

GRADE	CODE	STANDARD
2	CC.2.1.2.B.2	Use place-value concepts to read, write, and skip count to 1000.
2	CC.2.1.2.B.3	Use place-value understanding and properties of operations to add and subtract within 1000.
2	CC.2.2.2.A.1	Represent and solve problems involving addition and subtraction within 100.
2	CC.2.3.2.A.1	Analyze and draw two- and three-dimensional shapes having specified attributes.
2	CC.2.3.2.A.2	Use the understanding of fractions to partition shapes into halves, quarters, and thirds.
2	CC.2.4.2.A.1	Measure and estimate lengths in standard units using appropriate tools.
2	CC.2.4.2.A.3	Solve problems and make change using coins and paper currency with appropriate symbols.
2	CC.2.4.2.A.4	Represent and interpret data using line plots, picture graphs, and bar graphs.
3	CC.2.1.3.C.1	Explore and develop an understanding of fractions as numbers.
3	CC.2.2.3.A.1	Represent and solve problems involving multiplication and division.
3	CC.2.2.3.A.2	Understand properties of multiplication and the relationship between multiplication and division.
3	CC.2.3.3.A.1	Identify, compare, and classify shapes and their attributes.
3	CC.2.4.3.A.4	Represent and interpret data using tally charts, tables, pictographs, line plots, and bar graphs.
3	CC.2.4.3.A.5	Determine the area of a rectangle and apply the concept to multiplication and to addition.

ENGLISH LANGUAGE ARTS

32 STANDARDS

Based on the Pennsylvania state standards

GRADE	CODE	STANDARD
K	CC.1.1.K.B	Understand that words are separated by spaces in print.
K	CC.1.1.K.C	Recognize and produce rhyming words.
K	CC.1.1.K.D	Know and apply grade-level phonics and word analysis skills in decoding words.
K	CC.1.3.K.J	Use words and phrases acquired through conversations, reading, and being read to, and responding to texts.
K	CC.1.4.K.F	Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.
K	CC.1.5.K.B	Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
1	CC.1.1.1.C	Demonstrate understanding of spoken words, syllables, and sounds (phonemes).
1	CC.1.1.1.D	Know and apply grade-level phonics and word analysis skills in decoding words.
1	CC.1.1.1.E	Read with accuracy and fluency to support comprehension.

GRADE	CODE	STANDARD
1	CC.1.4.1.F	Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.
1	CC.1.5.1.B	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.
1	CC.1.5.1.D	Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.
1	CC.1.5.1.F	Add drawings or other visual displays when sharing aloud to clarify ideas, thoughts, and feelings.
2	CC.1.1.2.D	Know and apply grade-level phonics and word analysis skills in decoding words.
2	CC.1.3.2.I	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing from a range of strategies and tools.
2	CC.1.3.2.J	Acquire and use grade-appropriate conversational, general academic, and domain-specific words and phrases.
2	CC.1.4.2.F	Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.
2	CC.1.4.2.G	Write opinion pieces on familiar topics or texts.
2	CC.1.4.2.M	Write narratives to develop real or imagined experiences or events.
2	CC.1.4.2.T	With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing.
2	CC.1.5.2.B	Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.
2	CC.1.5.2.C	Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.
2	CC.1.5.2.D	Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.
2	CC.1.5.2.F	Add drawings or other visual displays to presentations when appropriate to clarify ideas, thoughts, and feelings.
3	CC.1.1.3.D	Know and apply grade-level phonics and word analysis skills in decoding words.
3	CC.1.3.3.A	Determine the central message, lesson, or moral in literary text; explain how it is conveyed in text.
3	CC.1.3.3.B	Ask and answer questions about the text and make inferences from text, referring to text to support responses.
3	CC.1.3.3.F	Determine the meaning of words and phrases as they are used in grade-level text, distinguishing literal from nonliteral meaning as well as shades of meaning among related words.
3	CC.1.3.3.I	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing flexibly from a range of strategies and tools.

GRADE	CODE	STANDARD
3	CC.1.4.3.M	Write narratives to develop real or imagined experiences or events.
3	CC.1.4.3.T	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing.
3	CC.1.5.3.B	Determine the main ideas and supporting details of a text read aloud or information presented in diverse media formats, including visually, quantitatively, and orally.

COMPUTER SCIENCE

9 STANDARDS

Based on the Pennsylvania 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.
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, TECHNOLOGY & ENGINEERING

9 STANDARDS

Based on the Pennsylvania state standards

GRADE	CODE	STANDARD
K-2	3.5.K-2.F	Investigate the use of technologies in the home and community.
K-2	3.5.K-2.K	Safely use tools to complete tasks.
K-2	3.5.K-2.O	Illustrate that there are different solutions to a design and that none are perfect.
K-2	3.5.K-2.U	Explain that design is a response to wants and needs
2	3.3.2.B	Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.

GRADE	CODE	STANDARD
3	3.5.3-5.C	Follow directions to complete a technological task.
3	3.5.3-5.N	Identify why a product or system is not working properly.
3	3.5.3-5.S	Illustrate that there are multiple approaches to design.
3	3.5.3-5.U	Evaluate designs based on criteria, constraints, and standards.

SOURCES & NOTES

- The official mathematics, English language arts, computer science and science standards for Pennsylvania, as published by the Pennsylvania Department of Education and the Computer Science Teachers Association (CSTA), as adopted by Pennsylvania.
- 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.