TRUE ROBOTICS

TAKING OFF WITH PILOT

GRADES 3–5

This document lists the Pennsylvania learning standards addressed by Taking Off with Pilot, True Robotics' grades 3–5 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.

18	8	7	33
MATH	SCIENCE	CS	TOTAL STANDARDS

MATHEMATICS

18 STANDARDS

Based on the Pennsylvania state standards

GRADE	CODE	STANDARD
3	CC.2.1.3.B.1	Apply place-value understanding and properties of operations to perform multi-digit arithmetic.
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.2.3.3.A.1	Identify, compare, and classify shapes and their attributes.
3	CC.2.4.3.A.2	Tell and write time to the nearest minute and solve problems by calculating time intervals.
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.
3	CC.2.4.3.A.6	Solve problems involving perimeters of polygons and distinguish between linear and area measures.
4	CC.2.1.4.B.2	Use place-value understanding and properties of operations to perform multi-digit arithmetic.
4	CC.2.1.4.C.1	Extend the understanding of fractions to show equivalence and ordering.
4	CC.2.2.4.A.1	Represent and solve problems involving the four operations.
4	CC.2.2.4.A.2	Develop and/or apply number theory concepts to find factors and multiples.
4	CC.2.3.4.A.2	Classify two-dimensional figures by properties of their lines and angles.

© 2026 True Robotics, Inc. All rights reserved.

True Robotics, Inc. · 49 Canterbury Street, Suite 700, Worcester, MA 01610 · truerobotics.org · info@truerobotics.org · (774) 276-9820

GRADE	CODE	STANDARD
4	CC.2.4.4.A.1	Solve problems involving measurement and conversions from a larger unit to a smaller unit.
5	CC.2.1.5.C.1	Use the understanding of equivalency to add and subtract fractions.
5	CC.2.1.5.C.2	Apply and extend previous understandings of multiplication and division to multiply and divide fractions.
5	CC.2.4.5.A.1	Solve problems using conversions within a given measurement system.
5	CC.2.4.5.A.5	Apply concepts of volume to solve problems and relate volume to multiplication and to addition.

SCIENCE, TECHNOLOGY & ENGINEERING

8 STANDARDS

Based on the Pennsylvania state standards

GRADE	CODE	STANDARD
3–5	3.5.3-5.O	Describe requirements of designing or making a product or system.
3	3.2.3.B	Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.
3	3.5.3-5.A	Use appropriate symbols, numbers, and words to communicate key ideas about technological products and systems.
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.
4	3.2.4.A	Use evidence to construct an explanation relating the speed of an object to the energy of that object.
4	3.2.4.C	Ask questions and predict outcomes about the changes in energy that occur when objects collide.
5	3.2.5.B	Make and communicate observations and measurements to identify materials based on their properties.

COMPUTER SCIENCE

7 STANDARDS

Based on the Pennsylvania state standards

GRADE	CODE	STANDARD
3–5	1B-CS-01	Describe how internal and external parts of computing devices function to form a system.
3–5	1B-AP-08	Compare and refine multiple algorithms for the same task and determine which is the most appropriate.
3–5	1B-AP-09	Create programs that use variables to store and modify data.
3–5	1B-AP-10	Create programs that include sequences, events, loops, and conditionals.

© 2026 True Robotics, Inc. All rights reserved.

True Robotics, Inc. · 49 Canterbury Street, Suite 700, Worcester, MA 01610 · truerobotics.org · info@truerobotics.org · (774) 276-9820

GRADE	CODE	STANDARD
3–5	1B-AP-15	Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.
3–5	3.5.3-5.C	Follow directions to complete a technological task.
3–5	3.5.3-5.K	Judge technologies to determine the best one to use to complete a given task or meet a need.

SOURCES & NOTES

- The official mathematics, science and computer 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.

© 2026 True Robotics, Inc. All rights reserved.

True Robotics, Inc. · 49 Canterbury Street, Suite 700, Worcester, MA 01610 · truerobotics.org · info@truerobotics.org · (774) 276-9820