TRUE ROBOTICS

TAKING OFF WITH PILOT

GRADES 3–5

This document lists the Oregon 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 Oregon Department of Education.

28	6	34
MATH	SCIENCE	TOTAL STANDARDS

MATHEMATICS

28 STANDARDS

Based on the Oregon state standards

GRADE	CODE	STANDARD
3	3.OA.A.1	Represent and interpret multiplication of two factors as repeated addition of equal groups.
3	3.OA.A.3	Use multiplication and division within 100 to solve problems in authentic contexts involving equal groups, arrays, and/or measurement quantities.
3	3.NBT.A.2	Fluently add and subtract within 1000 using accurate, efficient, and flexible strategies and algorithms based on place value and properties of operations.
3	3.NBT.A.3	Find the product of one-digit whole numbers by multiples of 10 in the range 10-90, such as 9 x 80. Students use a range of strategies and algorithms based on place value and properties of operations.
3	3.NF.A.2	Understand a fraction as a number on the number line; Represent fractions on a number line diagram.
3	3.NF.A.3	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
3	3.GM.A.1	Understand that shapes in different categories may share attributes and that shared attributes can define a larger category.
3	3.GM.B.3	Tell, write, and measure time to the nearest minute. Solve problems in authentic contexts that involve addition and subtraction of time intervals in minutes.
3	3.GM.C.7	Relate area to multiplication and addition. Use relevant representations to solve problems in authentic contexts.
3	3.GM.D.8	Solve problems involving authentic contexts for perimeters of polygons.

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GRADE	CODE	STANDARD
3	3.DR.A.1	Generate questions to investigate situations within the classroom, school or community. Collect or consider measurement data that can naturally answer questions by using information presented in a scaled picture and/or bar graph.
4	4.OA.A.1	Interpret a multiplication equation as comparing quantities. Represent verbal statements of multiplicative comparisons as equations.
4	4.OA.B.4	Find all factor pairs for a whole number in the range 1-100. Determine whether a given whole number in the range of 1-100 is a multiple of a given one-digit number, and whether it is prime or composite.
4	4.NBT.B.4	Fluently add and subtract multi-digit whole numbers using accurate, efficient, and flexible strategies and algorithms based on place value and properties of operations.
4	4.NBT.B.5	Use representations and strategies to multiply a whole number of up to four digits by a one-digit number, and a two-digit number by a two-digit number using strategies based on place value and the properties of operations.
4	4.NBT.B.6	Use representations and strategies to find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division.
4	4.NF.A.2	Compare two fractions with different numerators and/or different denominators, record the results with the symbols >, =, or <, and justify the conclusions.
4	4.GM.A.2	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size.
4	4.GM.B.5	Apply knowledge of the four operations and relative size of measurement units to solve problems in authentic contexts that include familiar fractions or decimals.
4	4.GM.B.6	Apply the area and perimeter formulas for rectangles in authentic contexts and mathematical problems.
4	4.DR.B.2	Analyze line plots to display a distribution of numerical measurement data, which include displays of data sets of fractional measurements with the same denominator. Interpret information presented to answer investigative questions.
5	5.NF.A.1	Add and subtract fractions with unlike denominators, including common fractions larger than one and mixed numbers.
5	5.NF.A.2	Solve problems in authentic contexts involving addition and subtraction of fractions with unlike denominators, including common fractions larger than one and mixed numbers.
5	5.NF.B.3	Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ b). Solve problems in authentic contexts involving division of whole numbers that result in answers that are common fractions or mixed numbers.
5	5.NF.B.4	Apply and extend previous understanding and strategies of multiplication to multiply a fraction or whole number by a fraction. Multiply fractional side lengths to find areas of rectangles, and represent fractional products as rectangular areas.
5	5.GM.C.4	Convert between different-sized standard measurement units within a given measurement system. Use these conversions in solving multi-step problems in authentic contexts.
5	5.GM.D.6	Measure the volume of a rectangular prism by counting unit cubes using standard and nonstandard units.

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GRADE	CODE	STANDARD
5	5.GM.D.7	Relate volume of rectangular prisms to the operations of multiplication and addition. Solve problems in authentic contexts involving volume using a variety of strategies.

SCIENCE

6 STANDARDS

Based on the Oregon state standards

GRADE	CODE	STANDARD
3	3.ETS1.1	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
3	3.ETS1.2	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
3	3.PS2.1	Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.
4	4.PS3.1	Use evidence to construct an explanation relating the speed of an object to the energy of that object.
4	4.PS3.3	Ask questions and predict outcomes about the changes in energy that occur when objects collide.
5	5.PS1.3	Make observations and measurements to identify materials based on their properties.

SOURCES & NOTES

- The official mathematics and science standards for Oregon, as published by the Oregon Department of Education.
- 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.
- Oregon publishes no computer science standards for grades 3–5, so that section is omitted.

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