TRUE ROBOTICS

TAKING OFF WITH PILOT

GRADES 3–5

This document lists the Nebraska 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 Nebraska Department of Education.

29	7	36
MATH	SCIENCE	TOTAL STANDARDS

MATHEMATICS

29 STANDARDS

Based on the Nebraska state standards

GRADE	CODE	STANDARD
3	3.N.2.c	Represent and understand a fraction as a number on a number line.
3	3.N.2.f	Compare and order fractions having the same numerators or denominators by reasoning about their size.
3	3.A.1.a	Add and subtract up to four-digit whole numbers with or without regrouping using strategies based on place value and algorithms.
3	3.A.1.c	Solve and write one-step whole number equations to represent authentic problems using the four operations including equations with an unknown start, unknown change, or unknown result.
3	3.A.1.f	Use drawings, words, arrays, symbols, repeated addition, equal groups, and number lines to interpret and explain the meaning of multiplication and division and their relationship.
3	3.A.1.h	Multiply one-digit whole numbers by multiples of 10 in the range of 10 to 90 using strategies based on place value and properties of operations.
3	3.G.1.1	Sort quadrilaterals into categories according to their attributes.
3	3.G.2.a	Solve authentic problems involving perimeters of polygons when given the side lengths or when given the perimeter and unknown side length(s).
3	3.G.2.c	Find the area of a rectangle with whole-number side lengths by modeling with unit squares; show that area can be additive and is the same as would be found by multiplying the side lengths.
3	3.G.3.b	Estimate and measure length to the nearest half inch, fourth inch, and centimeter.
3	3.G.4	Students will tell time to the nearest minute and find elapsed time.

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GRADE	CODE	STANDARD
3	3.D.1.b	Generate and represent data using line plots where the horizontal scale is marked off in halves and whole number units.
4	4.N.2.c	Compare and order fractions having unlike numerators or denominators using number lines, benchmarks, reasoning strategies, and/or equivalence.
4	4.N.4	Students will find factors and multiples and classify numbers as prime or composite.
4	4.A.1.a	Add and subtract multi-digit numbers using an algorithm.
4	4.A.1.b	Multiply up to a four-digit whole number by a one-digit whole number and multiply a two-digit whole number by a two-digit whole number, using strategies based on place value, properties of operations, and algorithms.
4	4.A.1.c	Divide up to a four-digit whole number by a one-digit divisor with and without a remainder using strategies based on place value.
4	4.G.1.c	Justify the classification of two-dimensional shapes based on the presence or absence of parallel and perpendicular lines or the presence or absence of specific angles.
4	4.G.2.a	Identify and use the appropriate tools, operations, and units of measurement, both customary and metric, to solve authentic problems involving time, length, weight, mass, and capacity.
4	4.G.2.c	Generate simple conversions from a larger unit to a smaller unit within the customary and metric systems of measurement.
4	4.G.3.a	Apply perimeter and area formulas for rectangles to solve authentic problems.
5	5.N.3.a	Interpret a fraction as division of the numerator by the denominator.
5	5.N.3.d	Solve authentic problems involving addition, subtraction, and multiplication of fractions and mixed numbers with like and unlike denominators.
5	5.N.3.e	Add and subtract fractions and mixed numbers with unlike denominators without simplifying.
5	5.G.3.a	Generate conversions in authentic mathematical situations from larger units to smaller units and smaller units to larger units, within the customary and metric systems of measurement.
5	5.G.4.a	Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the fraction side lengths and show that the area is the same as would be found by multiplying the side lengths.
5	5.G.4.b	Multiply fractional side lengths to find areas of rectangles and represent fraction products as rectangular areas.
5	5.G.4.d	Find the volume of a rectangular prism with whole-number side lengths by modeling with unit cubes and show that the volume can be additive and is the same as would be found by multiplying the area of the base times height.
5	5.G.4.e	Solve authentic problems by applying the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of rectangular prisms with whole number edge lengths.

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SCIENCE

7 STANDARDS

Based on the Nebraska state standards

GRADE	CODE	STANDARD
3	SC.3.1.1.a	Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.
3	SC.3.7.2.e	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.
4	SC.4.4.2.a	Use evidence to construct an explanation relating the speed of an object to the energy of that object.
4	SC.4.4.2.c	Ask questions and predict outcomes about the changes in energy that occur when objects collide.
4	SC.4.6.3.b	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
5	SC.5.3.1.c	Make observations and measurements to identify materials based on their properties.
5	SC.5.13.4.e	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

SOURCES & NOTES

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

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