TRUE ROBOTICS

INTRODUCTION TO ROBOTICS WITH AXLE

GRADES 6–8

This document lists the Nebraska learning standards addressed by Introduction to Robotics with Axle, True Robotics' grades 6–8 robotics curriculum. Standards are grouped by subject and grade level, with codes and wording as published by the Nebraska Department of Education.

36	8	44
MATH	SCIENCE	TOTAL STANDARDS

MATHEMATICS

36 STANDARDS

Based on the Nebraska state standards

GRADE	CODE	STANDARD
6	6.N.2.b	Divide non-negative fractions and mixed numbers.
6	6.R.1.b	Explain and determine unit rates.
6	6.R.2.b	Plot the location of an ordered pair in the coordinate plane.
6	6.R.2.e	Use the constant of proportionality to find the missing value in ratio tables.
6	6.R.2.f	Plot the pair of values from a ratio table on the coordinate plane.
6	6.R.2.g	Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation.
6	6.A.1.c	Use substitution to determine if a given value for a variable makes an equation or inequality true.
6	6.A.1.d	Solve one-step equations with non-negative rational numbers using addition, subtraction, multiplication, and division.
6	6.A.2.a	Create algebraic expressions (e.g., one operation, one variable as well as multiple operations, one variable) from word phrases.
6	6.A.2.b	Write equations (e.g., one operation, one variable) to represent authentic situations involving non-negative rational numbers.
6	6.G.1.a	Identify and create nets to represent two-dimensional drawings of prisms and pyramids.
6	6.G.3.a	Determine the area of quadrilaterals and triangles by composition and decomposition of these shapes, as well as applications of properties and formulas. Quadrilaterals include parallelograms and trapezoids.
6	6.G.3.b	Determine the surface area of rectangular prisms and triangular prisms using nets as well as application of formulas.

© 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
6	6.G.3.c	Apply volume formulas for triangular prisms.
6	6.D.1	Students will formulate statistical investigative questions, collect data, and organize data.
6	6.D.2.c	Find and interpret the mean, median, mode, and range for a set of data.
6	6.D.2.e	Compare and interpret data sets based upon their measures of central tendency and graphical representations (e.g., center, spread, shape).
7	7.N.2.a	Add, subtract, multiply, and divide rational numbers (e.g., positive and negative fractions, decimals, and integers).
7	7.N.2.b	Apply properties of operations (commutative, associative, distributive, identity, inverse, zero) as strategies for problem solving with rational numbers.
7	7.R.1.b	Represent and solve authentic problems with proportions.
7	7.R.1.c	Use proportional relationships to solve authentic percent problems (e.g., percent change, sales tax, mark-up, discount, tip).
7	7.R.1.d	Solve authentic problems involving scale drawings.
7	7.A.1.c	Solve one- and two-step equations involving rational numbers.
7	7.A.2.a	Write one- and two-step equations involving rational numbers from words, tables, and authentic situations.
7	7.G.2.b	Calculate vertical and horizontal distances in the coordinate plane to find perimeter and area of rectangles.
7	7.G.3.a	Solve authentic problems involving perimeter and area of composite shapes made from triangles and quadrilaterals.
7	7.G.3.b	Determine surface area and volume of composite rectangular and triangular prisms.
7	7.G.3.c	Determine the area and circumference of circles both on and off the coordinate plane using 3.14 for the value of Pi.
8	8.N.1.c	Describe the difference between a rational and irrational number.
8	8.N.1.d	Approximate, compare, and order real numbers, both rational and irrational, and locate them on the number line.
8	8.A.2.b	Determine and describe the rate of change for given situations through the use of tables and graphs.
8	8.A.2.c	Graph proportional relationships and interpret the rate of change.
8	8.G.3.b	Apply the Pythagorean Theorem to find side lengths of triangles and to solve authentic problems.
8	8.G.3.c	Find the distance between any two points on the coordinate plane using the Pythagorean Theorem.
8	8.G.3.d	Determine the volume of cones, cylinders, and spheres and solve authentic problems using volumes.
8	8.D.2.d	Use a linear model to make predictions and interpret the rate of change and y-intercept in context.

© 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

SCIENCE

8 STANDARDS

Based on the Nebraska state standards

GRADE	CODE	STANDARD
6	SC.6.4.1.b	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principle and potential impacts on people and the natural environment that may limit possible solutions.
7	SC.7.3.1.c	Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.
8	SC.8.1.1.a	Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.
8	SC.8.1.1.c	Plan an investigation to provide evidence of Newton's Laws that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.
8	SC.8.2.2.a	Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.
8	SC.8.2.2.b	Develop and use a model to describe that Light and mechanical waves are reflected, absorbed, or transmitted through various materials.
8	SC.8.2.2.c	Gather and make sense of information to support the claim that the structure of analog and digital signals allows for encoding and transmission of information.
8	SC.8.4.3.a	Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass and speed of an object.

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 6–8, so that section is omitted.

© 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