# TAKING OFF WITH PILOT

GRADES 3–5

This document lists the Mississippi 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 Mississippi Department of Education.

| 28 | 5 | 7 | 40 |
|---|---|---|---|
| MATH | SCIENCE | CS | TOTAL STANDARDS |

## MATHEMATICS

28 STANDARDS

Based on the Mississippi state standards

| GRADE | CODE | STANDARD |
|---|---|---|
| 3 | 3.OA.1 | Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. |
| 3 | 3.OA.3 | Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. |
| 3 | 3.NBT.2 | Fluently add and subtract (including subtracting across zeros) within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. Include problems with whole dollar amounts. |
| 3 | 3.NBT.3 | Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations. |
| 3 | 3.NF.2 | Understand a fraction as a number on the number line; represent fractions on a number line diagram. |
| 3 | 3.NF.3d | Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. |
| 3 | 3.MD.1 | Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram. |
| 3 | 3.MD.4 | Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters. |

© 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 | 3.MD.7b | Multiply side lengths to find areas of rectangles with whole-number side lengths (where factors can be between 1 and 10, inclusively) in the context of solving real-world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. |
| 3 | 3.MD.8 | Solve real-world and mathematical problems involving perimeters of polygons, including: finding the perimeter given the side lengths, finding an unknown side length, and exhibiting (including, but not limited to, modeling, drawing, designing, and creating) rectangles with the same perimeter and different areas or with the same area and different perimeters. |
| 3 | 3.G.1 | Understand that shapes in different categories (e.g., rhombuses, rectangles, circles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories. |
| 4 | 4.OA.1 | Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations. |
| 4 | 4.OA.4 | Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite. |
| 4 | 4.NBT.4 | Fluently add and subtract (including subtracting across zeros) multi-digit whole numbers using the standard algorithm. |
| 4 | 4.NBT.5 | Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. |
| 4 | 4.NBT.6 | 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. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. |
| 4 | 4.NF.2 | Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. |
| 4 | 4.MD.2 | Use the four operations to solve word problems involving intervals of time, money, distances, liquid volumes, masses of objects including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. |
| 4 | 4.MD.3 | Apply the area and perimeter formulas for rectangles in real-world and mathematical problems. |
| 4 | 4.G.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. Categorize triangles by sides and angles (equilateral, isosceles, right, and scalene). |

© 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 |
|---|---|---|
| 5 | 5.NF.1 | Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. |
| 5 | 5.NF.2 | Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. |
| 5 | 5.NF.3 | Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ b). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. |
| 5 | 5.NF.4b | Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas. |
| 5 | 5.MD.1 | Convert among different-sized standard measurement units within a given measurement system (customary and metric) (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems. |
| 5 | 5.MD.5a | Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication. |
| 5 | 5.MD.5b | Apply the formulas V = l × w × h and V = B × h for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real-world and mathematical problems. |
| 5 | 5.MD.5c | Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real-world problems. |

## SCIENCE

5 STANDARDS

Based on the Mississippi state standards

| GRADE | CODE | STANDARD |
|---|---|---|
| 3 | P.3.6.1 | Compare and contrast the effects of different strengths and directions of forces on the motion of an object (e.g., gravity, polarity, attraction, repulsion, or strength). |
| 3 | P.3.6.2 | Plan an experiment to investigate the relationship between a force applied to an object (e.g., friction, gravity) and resulting motion of the object. |
| 4 | P.4.6A.6 | Design a device that converts any form of energy from one form to another form (e.g., construct a musical instrument that will convert vibrations to sound by controlling varying pitches, a solar oven that will convert energy from the sun to heat energy, or a simple circuit that can be used to complete a task). Use an engineering design process to define the problem, design, construct, evaluate, and improve the device. |

© 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 |
|---|---|---|
| 5 | P.5.5A.3 | Analyze matter through observations and measurements to classify materials (e.g., powders, metals, minerals, or liquids) based on their properties (e.g., color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, solubility, or density). |
| 5 | P.5.6.5 | Predict how a change of force, mass, and/or friction affects the motion of an object to convert potential energy into kinetic energy. |

## COMPUTER SCIENCE

7 STANDARDS

Based on the Mississippi state standards

| GRADE | CODE | STANDARD |
|---|---|---|
| 3 | E3.ALG.05 | Create algorithms that include sequence, events, looping, and selection (conditionals) to solve a problem or express ideas. |
| 3 | E3.PRO.08 | Develop code from a student-created algorithm that includes sequence, events, looping, and selection to complete a task or express ideas. |
| 3 | E3.SAS.16 | Explain how the basic hardware components of a computing system, including sensors, work together to perform input/output (I/O) operations. |
| 4 | E4.CAS.03 | Evaluate when it is appropriate to use or not use computing technologies to solve a problem. |
| 4 | E4.PRO.08 | Compare multiple programming solutions to a given problem based on their correctness and clarity. |
| 5 | E5.PRO.09 | Construct individual components of a program that are collaboratively assembled into a working project. |
| 5 | E5.DAA.13 | Use computational tools to collect and organize different types of data. |

## SOURCES & NOTES

- The official mathematics, science and computer science standards for Mississippi, as published by the Mississippi 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.

© 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