

MEDICAL ROBOTICS

GRADES 8–12

This document lists the Virginia learning standards addressed by Medical Robotics, True Robotics' grades 8-12 robotics curriculum. Standards are grouped by subject and grade level, with codes and wording as published by the Virginia Department of Education.

10

SCIENCE

9

CS

19

TOTAL STANDARDS

SCIENCE

10 STANDARDS

Based on the Virginia state standards

GRADE	CODE	STANDARD
8	PS.8b	motion is described by Newton's laws
8	PS.1b	apply scientific ideas or principles to design, construct, and/or test a design of an object, tool, process, or system
8	PS.1c	use data to evaluate and refine design solutions to best meet criteria
8	PS.1d	generate and compare multiple solutions to problems based on how well they meet the criteria and constraints
9–12	AP.2b	Plan and conduct investigations related to feedback mechanisms and homeostasis.
9–12	AP.4b	Develop and use models to illustrate how the structure and function of body systems support transport and exchange.
9–12	AP.5b	Develop and use models to illustrate how the structure and function of body systems support regulation and communication.
9–12	AP.4d	Make, support, and evaluate a claim about how transport and exchange require body systems to work independently and together.
9–12	PHII.4b	Plan and conduct an investigation to determine the relationship between work, power, and efficiency.
9–12	PHII.4d	Evaluate the efficiency of simple real-world systems and justify improvements to efficiency.

COMPUTER SCIENCE

9 STANDARDS

Based on the Virginia state standards

GRADE	CODE	STANDARD
8	8.AP.1d	Use pseudocode, decision trees, or flowcharts to illustrate complex problems as algorithms.
8	8.AP.2	The student will plan and implement algorithms that include sequencing, loops, variables, user input, conditional control structures, functions, and various data types.
8	7.AP.2d	Read and write programs that contain nested conditionals and nested loops.
8	8.AP.3a	Create and test programs that contain multiple control structures.
8	7.CSY.1	The student will design projects that use computing devices to collect and exchange data.
9–12	CSP.AP.1e	Create a prototype that uses algorithms to address a complex computational problem.
9–12	CSF.AP.1b	Decompose a problem or process into sub-components.
9–12	CSF.AP.1c	Implement abstractions to improve program modularity, reusability, and readability.
9–12	CSF.IC.1	The student will research and hypothesize the societal, environmental, and ethical impacts of present and future computing technologies.

SOURCES & NOTES

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