

MEDICAL ROBOTICS

GRADES 8–12

This document lists the Tennessee 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 Tennessee State Board of Education.

1

SCIENCE

5

CS

12

TOTAL STANDARDS

SCIENCE

7 STANDARDS

Based on the Tennessee state standards

GRADE	CODE	STANDARD
8	7.LS1.3	Develop and use a hierarchical model of a multicellular organism to explain that the body of humans and other animals is a system of multiple interacting subsystems specialized for particular body functions [e.g., digestion, respiration, excretion, circulation, sensation (nervous and integumentary), locomotion (musculoskeletal), reproduction, and immunity].
8	8.PS2.5	Plan and conduct an investigation to provide evidence 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	7.ETS1.1	Examine a problem from the medical field (e.g., prosthetic limbs, organ transplants) and design a solution taking into consideration the criteria, constraints, and relevant scientific principles of the problem that may limit possible solutions.
9–12	HAP.LS1.18	Explain how the anatomy of the respiratory system functions to provide oxygen and carbon dioxide transport mechanisms between the lungs and the circulatory system, considering capillary structures, red blood cell structures, diffusion, and affinity.
9–12	BIO1.LS1.2	Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.
9–12	PSCI.PS3.3	Design, build, and refine a device within design constraints that has a series of simple machines to transfer energy and/or do mechanical work.
9–12	PHYS1.PS3.6	Recognize and communicate information about energy efficiency and/or inefficiency of machines used in everyday life.

COMPUTER SCIENCE

5 STANDARDS

Based on the Tennessee state standards

GRADE	CODE	STANDARD
8	MS.AT.1	Use clearly named variables of various data types to create generalized algorithms.
8	MS.PC.1	Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.
8	MS.IC.1	Identify and evaluate the impacts computer science innovations have had on our society.
9–12	CS.PC.4	Design and develop iterative programs that combine control structures, including nested loops and compound conditionals.
9–12	CS.AT.3	Create prototypes that use algorithms to solve computational problems by leveraging prior student knowledge and personal interests.

SOURCES & NOTES

- The official science and computer science standards for Tennessee, as published by the Tennessee State Board 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.