

# MEDICAL ROBOTICS

**GRADES 8–12**

This document lists the Arizona 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 Arizona Department of Education.

**6**

SCIENCE

**7**

CS

**13**

TOTAL STANDARDS

## SCIENCE

6 STANDARDS

Based on the Arizona state standards

| GRADE       | CODE         | STANDARD                                                                                                                                                                                                                                                                                  |
|-------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>8</b>    | 7.L1U1.10    | Develop and use a model to explain how cells, tissues, and organ systems maintain life (animals).                                                                                                                                                                                         |
| <b>8</b>    | 7.P3U1.4     | Use non-algebraic mathematics and computational thinking to explain Newton's laws of motion.                                                                                                                                                                                              |
| <b>9–12</b> | HS.P3U1.6    | Collect, analyze, and interpret data regarding the change in motion of an object or system in one dimension, to construct an explanation using Newton's Laws.                                                                                                                             |
| <b>9–12</b> | HS+B.L1U1.7  | Develop and use models to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms (plant and animal).                                                                                                              |
| <b>9–12</b> | HS.L1U1.20   | Ask questions and/or make predictions based on observations and evidence to demonstrate how cellular organization, structure, and function allow organisms to maintain homeostasis.                                                                                                       |
| <b>9–12</b> | HS+E.E1U3.10 | Ask questions, define problems, and evaluate a solution to a complex problem, based on prioritized criteria and tradeoffs, that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts. |

**COMPUTER SCIENCE**

7 STANDARDS

Based on the Arizona state standards

| GRADE       | CODE             | STANDARD                                                                                                                   |
|-------------|------------------|----------------------------------------------------------------------------------------------------------------------------|
| <b>8</b>    | <b>8.AP.A.1</b>  | Develop planning strategies, such as flowcharts or pseudocode, to develop algorithms to address complex problems.          |
| <b>8</b>    | <b>8.AP.V.1</b>  | Create named variables that represent different data types and perform operations on their values.                         |
| <b>8</b>    | <b>8.AP.C.1</b>  | Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals. |
| <b>8</b>    | <b>8.CS.HS.1</b> | Design and evaluate projects that combine hardware and software components to collect and exchange data.                   |
| <b>9–12</b> | <b>HS.AP.A.1</b> | Create prototypes that use algorithms for practical intent, personal expression, or to address a societal issue            |
| <b>9–12</b> | <b>HS.AP.M.1</b> | Decompose problems into smaller components using constructs such as procedures, modules, and/or objects.                   |
| <b>9–12</b> | <b>HS.IC.C.1</b> | Evaluate the ways access to computing impacts personal, ethical, social, economic, and cultural practices.                 |

**SOURCES & NOTES**

- The official science and computer science standards for Arizona, as published by the Arizona 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](mailto:info@truerobotics.org).