

# What is STEM?

**STEM** stands for **Science, Technology, Engineering, and Mathematics.**

Knowledge and skills in these areas are directly linked to current and predicted growth sectors in the economy. A 2010 report by the Educational Development Center (EDC) indicates that, "It is estimated that in the next decade one in seven new Maine jobs will be in STEM-related areas, and these jobs will produce wages that are 58 percent higher than wages for other occupations in Maine." Furthermore, "...at the national level, it is expected that the demand for employees to fill STEM-related jobs will grow by 22 percent in the next four years."



Science, technology, engineering and mathematics are the foundations of an advanced society. Federal and state leaders and the academic community view the strength of the STEM workforce as an indicator of our ability to sustain ourselves. If we wish to ensure equitable access to high wage, high growth employment for Maine students learning in these areas must also be part of the educational foundation for all Maine students.

The Statewide Strategic Plan for Science, Technology, Engineering, and Mathematics provides a course of action and outline of key partnerships that are necessary to strengthen STEM learning in Maine.



Maine Department of Education  
science technology engineering mathematics

## The Importance of Partnerships

The successful implementation of the Statewide Strategic Plan for STEM will require collaboration across agencies and organizations in the State.

## MDOE STEM Team

### Anita Bernhardt

Science and Technology Specialist  
(207) 624-6835  
anita.bernhardt@maine.gov

### Steve Garton

Coordinator of Educational Technology  
(207) 624-6631  
steven.garton@maine.gov

### Shawn Lagasse

Education Specialist, CTE  
(207) 624-6743  
shawn.lagasse@maine.gov

### Dwight Littlefield

Education Specialist, CTE  
(207) 624-6721  
dwight.littlefield@maine.gov

### Michele Mailhot

Mathematics Specialist  
(207) 624-6829  
michele.mailhot@maine.gov

### Doug Robertson

Agriculture and Natural Resources Specialist  
(207) 624-6744  
doug.robertson@maine.gov



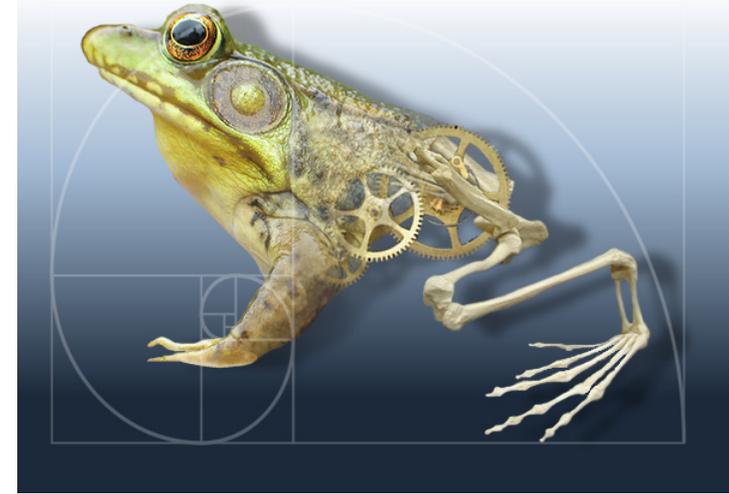
# The Vision for STEM Education in Maine

The Maine Department of Education (DOE) believes that greater access to quality STEM teaching and learning can positively impact student career options and personal and civic decision-making, and give students a vital role in strengthening Maine's economy. The Department believes that student understanding in the STEM areas is essential to being an informed citizen and a successful participant in the work place. Therefore the Department seeks to elevate the aspirations of Maine students to pursue STEM and STEM-related careers and develop among educators the leadership skills to support STEM programming in PreK-12 schools and Career and Technical Education (CTE) centers.

The Department supports professional development and the underlying technology that enhances teacher content knowledge in science, technology, engineering, and mathematics and effective instructional strategies in those learning areas. Effective professional development has been shown to increase student learning in the STEM areas. The Department recognizes that collaboration with governmental, non-governmental and higher education partners is essential to strengthening STEM education for Maine students.

***The Department of Education envisions an educational system in which all students:***

- ***Have equitable access to effective STEM instruction;***
- ***Receive instruction in which STEM concepts are applied and integrated; and***
- ***Understand the relevance of STEM to their communities and to their own career aspirations.***



## Goal #1

Overall student achievement in science, mathematics, engineering and technology demonstrates a gain of 15 percentage points within four years as measured by the combined percentage of students who “meet” and “exceed” expectations on State assessments of science and mathematics.

### Objectives:

1. Increase in-service teacher content knowledge, pedagogical knowledge, and pedagogical content knowledge in science, technology, engineering and mathematics
2. Increase teacher leadership in science, technology, engineering and mathematics
3. Increase pre-service teacher programming and recruitment
4. Continue to adopt rigorous core standards
5. Encourage innovative instructional practices to increase student achievement

## Goal #2

The number of students interested in pursuing STEM-related careers increases by 15 percentage points (from 33% to 48%) within four years, as reported on the PSAT and SAT student surveys; and the number of Maine students who graduate from two-year and four-year engineering and STEM-related programs statewide increases by 10%.

### Objectives:

1. Improve student awareness of and participation in STEM-related pathways
2. Increase after-school programming that supports STEM learning
3. Increase internship opportunities that provide awareness of STEM opportunities

## Goal #3

The STEM initiatives of the Department of Education and the STEM Collaborative, which includes governmental, non-profit and business partners, are coordinated and three million dollars in federal grants is secured by the Department of Education to support STEM learning and growth in the State.

### Objectives:

1. Increase Maine Department of Education STEM integration and grant awards
2. Develop common STEM goals
3. Identify and scale up promising and proven STEM programs
4. Collaborate with key stakeholders to assess STEM teaching and learning and the State's capacity to improve them

**To view the complete plan, go online to [www.maine.gov/education/maine\\_stem.htm](http://www.maine.gov/education/maine_stem.htm)**