



Iowa STEM Monitoring Project

Objective: Systematically observe a series of defined metrics and sources to examine changes regarding STEM education and economic development in Iowa centered on the activities of the Iowa Governor's STEM Advisory Council.




Iowa STEM Indicators System (ISIS)

System to track publicly available data at the state, regional, and national level

18 indicators in 4 areas:

1. K-12 STEM interest and achievement
2. K-12 student preparation
3. College completions
4. Employment

Data sources:

- Department of Education
- Iowa colleges and universities
- Census Bureau
- Iowa Workforce Development
- Iowa Testing Programs
- National Assessment of Educational Progress
- ACT



Statewide Survey of Public Attitudes Toward STEM

Annual survey of adult Iowans regarding attitudes toward and awareness of STEM education and economic development

Additional questions target perceptions of parents of K-12 children

Data collected from 2,000+ Iowans; results adjusted to reflect opinions of statewide population

Used as an indicator of STEM attitudes and awareness among the general population



Statewide Student Interest Inventory

Annual assessment of interest and achievement in STEM among Iowa's K-12 students on the Iowa Assessments

8 questions gauge interest across individual STEM topics and careers

Assessment of achievement scores and national percentile rank in math and science

Student interest and achievement compared across demographic and geographic lines



Scale-Up/Regional

Program level perspective on STEM Scale-Up programs

Scale-Up programs implemented in schools and organizations across Iowa's 6 STEM regions

Teacher survey about Scale-Up implementation

Student survey about interest in STEM after participating in a Scale-Up program

Comparison of Scale-Up student participants versus all students statewide on math and science scores on the Iowa Assessments

Purpose: Benchmark a variety of STEM topics in education and economic development by systematically measuring the progress and condition of the state's STEM landscape. The Iowa Indicators are focused on four primary areas: 1) STEM achievement and interest among K-12 students, 2) STEM preparation of K-12 students, 3) STEM college completions, and 4) STEM employment.

STEM Achievement and Interest among K-12 Students

A. STEM Achievement: Iowa Tests

Indicator 1: Iowa student achievement in mathematics and science (scores and AYP).

B. STEM Achievement: National Tests

Indicator 2: Iowa student achievement on NAEP mathematics and science tests

Indicator 3: Number of students taking the ACT and average scores in mathematics/science.

Indicator 4: Number of students taking advanced elective STEM courses in high school (AP/dual).

Indicator 5: Predicted ACT scores among 10th grade ACT-Plan test-takers

C. STEM Interest

Indicator 6: Percentage of ACT test-takers interested in majoring in a STEM area in college.

Indicator 7: Percentage of Iowa 8th graders interested in STEM careers and educational paths (IHAPI).

Indicator 8: Number/Percentage of K-12 students interested in STEM topic areas (as identified in ITBS interest inventory).

STEM Preparation of K-12 Students

A. STEM Teachers

Indicator 9: Number of current Iowa teachers with licensure in STEM-related subjects.

Indicator 10: Number of current Iowa teachers with endorsement to teach STEM-related subjects.

Indicator 11: Number of beginning teachers recommended for licensure/endorsement in STEM-related subjects

Indicator 12: Teacher retention in STEM-related subjects

B. STEM Educational Opportunities

Indicator 13: Enrollment in STEM-related courses in high school.

STEM College Completions

Indicator 14: Number of college students who complete degrees in individual STEM majors (AA, BA, other).

Indicator 15: Number of college students who complete graduate degrees in individual STEM majors.

STEM Employment

Indicator 16: Percent of Iowans in workforce employed in STEM occupations.

Indicator 17: Job vacancy rates in STEM occupational areas.

Indicator 18: STEM workforce readiness (NCRC test-taking/scores)