

## Applicable State of Michigan Grade Level Content Expectations (GLCEs)

Below is a list of content standards, statements, and grade level expectations applicable to the program “**The Scientific Method, Outdoors.**”

### Grade Levels 4-7:

Note: No GLCE Science Standards available for Grade 8

### Michigan Grade Level Content Expectations: Science

- Discipline 1: Science Processes
  - K-7 Standard: Inquiry Process (IP)
    - **Grade 4** Expectations:
      - **S.IP.04.11** Make purposeful observation of the natural world using the appropriate senses.
      - **S.IP.04.12** Generate questions based on observations.
      - **S.IP.04.13** Plan and conduct simple and fair investigations.
      - **S.IP.04.14** Manipulate simple tools that aid observation and data collection (for example: hand lens, balance, ruler, meter stick, measuring cup, thermometer, spring scale, stop watch/timer, graduated cylinder/beaker).
      - **S.IP.04.15** Make accurate measurements with appropriate units (millimeters centimeters, meters, milliliters, liters, Celsius, grams, seconds, minutes) for the measurement tool.
      - **S.IP.04.16** Construct simple charts and graphs from data and observations.
    - **Grades 5-7** Expectations:
      - **S.IP.05.11, S.IP.06.11 & S.IP.07.11** Generate scientific questions based on observations, investigations, and research.
      - **S.IP.05.12, S.IP.06.12 & S.IP.07.12** Design and conduct scientific investigations.
      - **S.IP.05.13, S.IP.06.13 & S.IP.07.13** Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations.
      - **S.IP.05.14, S.IP.06.14 & S.IP.07.14** Use metric measurement devices in an investigation.
      - **S.IP.05.15, S.IP.06.15 & S.IP.07.15** Construct charts and graphs from data and observations.
      - **S.IP.05.16, S.IP.06.16 & S.IP.07.16** Identify patterns in data.
  - K-7 Standard: Inquiry Analysis and Communication (IA)
    - **Grade 4** Expectations:
      - **S.IA.04.12** Share ideas about science through purposeful conversation in collaborative groups.
      - **S.IA.04.13** Communicate and present findings of observations and investigations.

- **S.IA.04.14** Develop research strategies and skills for information gathering and problem solving.
  - **S.IA.04.15** Compare and contrast sets of data from multiple trials of a science investigation to explain reasons for differences.
- **Grades 5-7 Expectations:**
  - **S.IA.05.13, S.IA.06.13 & S.IA.07.13** Communicate and defend findings of observations and investigations using evidence.
  - **S.IA.05.14** Draw conclusions from sets of data from multiple trials of a scientific investigation.
- K-7 Standard: Reflections and Social Implications (RS)
  - **Grade 4 Expectations:**
    - **S.RS.04.11** Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.
    - **S.RS.04.14** Use data/samples as evidence to separate fact from opinion.
    - **S.RS.04.15** Use evidence when communicating scientific ideas.
  - **Grades 5-7 Expectations:**
    - **S.RS.05.11, S.RS.06.11 & S.RS.07.11** Evaluate the strengths and weaknesses of claims, arguments, and data.
    - **S.RS.05.12, S.RS.06.12 & S.RS.07.12** Describe limitations in personal and scientific knowledge.
    - **S.RS.05.13, S.RS.06.13 & S.RS.07.13** Identify the need for evidence in making scientific decisions.
    - **S.RS.05.15, S.RS.06.15 & S.RS.07.15** Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.