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.