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 “Maple Syrup Science.”

Grade Levels K-7:
Note: Can be adapted for preschool students
Note: No GLCE Standards are available for Grade 8

Michigan Grade Level Content Expectations: Science

- **Discipline 1: Science Processes**
  - **K-7 Standard: Inquiry Process (IP)**
  - **Grades K-4 Expectations:**
    - S.IP.00.11, S.IP.01.11, S.IP.02.11, S.IP.03.11 & S.IP.04.11
      Make purposeful observation of the natural world using the appropriate senses.
    - S.IP.00.12, S.IP.01.12, S.IP.02.12, S.IP.03.12 & S.IP.04.12
      Generate questions based on observations.
    - S.IP.00.13, S.IP.01.13, S.IP.02.13, S.IP.03.13 & S.IP.04.13
      Plan and conduct simple and fair investigations.
    - S.IP.00.14, S.IP.01.14, S.IP.02.14, S.IP.03.14 & 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.00.15, S.IP.01.15, S.IP.02.15, S.IP.03.15 & 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.00.16, S.IP.01.16, S.IP.02.16, S.IP.03.16 & S.IP.04.16
      Construct 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)
  - **Grades K-2 Expectation:**
    - S.IA.00.12, S.IA.01.12, S.IA.02.12 Share ideas about science through purposeful conversation.
    - S.IA.00.13, S.IA.01.13, S.IA.02.13 Communicate and present findings of observations.
    - S.IA.00.14, S.IA.01.14, S.IA.02.14 Develop strategies for information gathering (ask an expert, use a book, make observations, conduct simple investigations, and watch a video)
• **Grade 4** Expectation:
  - S.IA.04.11 Summarize information from charts and graphs to answer scientific questions.

• **Grades 5-7** Expectations:
  - S.IA.05.11, S.IA.06.11 & S.IA.07.11 Analyze information from data tables and graphs to answer scientific questions.
  - S.IA.05.13, S.IA.06.13 & S.IA.07.13 Communicate and defend findings of observations and investigations using evidence.

• **Discipline 3: Life Science**
  - **K-7 Standard:** Organization of Living Things (OL)
    - **Grade K** Expectation:
      - L.OL.00.12 Identify and compare living and nonliving things
    - **Grade 2** Expectation:
      - L.OL.02.14 Identify the needs of plants.
    - **Grade 3** Expectation:
      - L.OL.03.41 Classify plants on the basis of observable physical Characteristics (roots, leaves, stems, and flowers)
    - **Grade 4** Expectation:
      - L.OL.04.15 Determine that plants require air, water, light, and a source of energy and building material for growth and repair.
    - **Grade 5** Expectation: General Concepts of Above Statement Covered
    - **Grade 6** Expectation:
      - L.OL.06.51 Classify producers, consumers, and decomposers based on their source of food (the source of energy and building materials).
    - **Grade 7** Expectation:
      - L.OL.07.21 Recognize that all organisms are composed of cells (single cell organisms, multi-cellular organisms).
      - L.OL.07.23 Describe how cells in all multi-cellular organisms are specialized to take in nutrients, which they use to provide energy for the work that cells do and to make the materials that a cell or organism needs.
      - L.OL.07.63 Describe evidence that plants make, use and store food.
  - **K-7 Standard:** Ecosystems (EC)
    - **Grades 4-5, 7** General Concepts of Above Statement Covered
    - **Grade 6** Expectation:
      - L.EC.06.31 Identify the living (biotic) and nonliving (abiotic) components of an ecosystem.

• **Discipline 4: Earth Science**
  - **K-7 Standard:** Fluid Earth
    - **Grade K, 2-7 Expectations** General Concepts of Above Statement Covered
    - **Grade 1** Expectation:
      - E.ES.01.21 Compare daily changes in the weather related to temperature (cold, hot, warm, cool); cloud cover (cloudy, partly
cloudy, foggy); precipitation (rain, snow, hail, freezing rain); wind (breezy, windy, calm).

- **E.E.S.01.31** Identify the tools that might be used to measure temperature, precipitation, cloud cover, and wind.