Course Number: 2002040

Course Path: Section: Grades PreK to 12 Education
Courses > Grade Group: Grades 6 to 8 Education
Courses > Subject: Science > SubSubject: General
Sciences >
Abbreviated Title: M/J COMP SCI 1
Course Length: Year (Y)

Course Attributes:
- Class Size Core Required
Course Level: 2

Course Status: Course Approved

GENERAL NOTES

Laboratory investigations that include the use of scientific inquiry, research, measurement, problem solving, laboratory apparatus and technologies, experimental procedures, and safety procedures are an integral part of this course. The National Science Teachers Association (NSTA) recommends that at the middle school level, all students should have multiple opportunities every week to explore science laboratory investigations (labs). School laboratory investigations are defined by the National Research Council (NRC) as an experience in the laboratory, classroom, or the field that provides students with opportunities to interact directly with natural phenomena or with data collected by others using tools, materials, data collection techniques, and models (NRC, 2006, p. 3). Laboratory investigations in the middle school classroom should help all students develop a growing understanding of the complexity and ambiguity of empirical work, as well as the skills to calibrate and troubleshoot equipment used to make observations. Learners should understand measurement error and have the skills to aggregate, interpret, and present the resulting data (NRC 2006, p. 77; NSTA, 2007).

Special Notes:

Instructional Practices
Teaching from a range of complex text is optimized when teachers in all subject areas implement the following strategies on a routine basis:

1. Ensuring wide reading from complex text that varies in length.
2. Making close reading and rereading of texts central to lessons.
3. Emphasizing text-specific complex questions, and cognitively complex tasks, reinforce focus on the text and cultivate independence.
4. Emphasizing students supporting answers based upon evidence from the text.
5. Providing extensive research and writing opportunities (claims and evidence).

- Asking questions (for science) and defining problems (for engineering).
- Developing and using models.
- Planning and carrying out investigations.
- Analyzing and interpreting data.
- Using mathematics, information and computer technology, and computational thinking.
- Constructing explanations (for science) and designing solutions (for engineering).
- Engaging in argument from evidence.
- Obtaining, evaluating, and communicating information.

English Language Development ELD Standards Special Notes Section:
Teachers are required to provide listening, speaking, reading and writing instruction that allows English language learners (ELL) to communicate information, ideas and concepts for academic success in the content area of Science. For the given level of English language proficiency and with visual, graphic, or interactive support, students will interact with grade level words, expressions, sentences and discourse to process or produce language necessary for academic success The ELD standard should specify a relevant content area concept or topic of study chosen by curriculum developers and teachers which maximizes an ELL’s need for communication and social skills. To access an ELL supporting document which delineates performance definitions and descriptors, please click on the following link:

For additional information on the development and implementation of the ELD standards, please contact the Bureau of Student Achievement through Language Acquisition at sala@fldoe.org.

Additional Instructional Resources:

Course Standards
Integrate Florida Standards for Mathematical Practice (MP) as applicable.
- MAFS.K12.MP.1.1 Make sense of problems and persevere in solving them.
- MAFS.K12.MP.2.1 Reason abstractly and quantitatively.
### Table of Florida Standards

<table>
<thead>
<tr>
<th>SC.6.E.6.1</th>
<th>Describe and give examples of ways in which Earth’s surface is built up and torn down by physical and chemical weathering, erosion, and deposition.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC.6.E.6.2</td>
<td>Recognize that there are a variety of different landforms on Earth’s surface such as coastlines, dunes, rivers, mountains, glaciers, deltas, and lakes and relate these landforms as they apply to Florida.</td>
</tr>
<tr>
<td>SC.6.E.7.1</td>
<td>Investigate and apply how the cycling of water between the atmosphere and hydrosphere has an effect on weather patterns and climate. Remarks/Examples: Florida Standards Connections: MAFS.K12.MP.7: Look for and make use of structure.</td>
</tr>
<tr>
<td>SC.6.E.7.2</td>
<td>Describe how global patterns such as the jet stream and ocean currents influence local weather in measurable terms such as temperature, air pressure, wind direction and speed, and humidity and precipitation. Remarks/Examples: Florida Standards Connections: MAFS.K12.MP.5: Use appropriate tools strategically MAFS.K12.MP.6: Attend to precision and, MAFS.K12.MP.7: Look for and make use of structure.</td>
</tr>
<tr>
<td>SC.6.E.7.3</td>
<td>Differentiate and show interactions among the geosphere, hydrosphere, cryosphere, atmosphere, and biosphere.</td>
</tr>
<tr>
<td>SC.6.E.7.4</td>
<td>Explain how energy provided by the sun influences global patterns of atmospheric movement and the temperature differences between air, water, and land. Remarks/Examples: Florida Standards Connections: MAFS.K12.MP.7: Look for and make use of structure.</td>
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<tr>
<td>SC.6.E.7.5</td>
<td>Differentiate between weather and climate.</td>
</tr>
<tr>
<td>SC.6.E.7.6</td>
<td>Investigate how natural disasters have affected human life in Florida.</td>
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<tr>
<td>SC.6.E.7.7</td>
<td>Describe ways human beings protect themselves from hazardous weather and sun exposure.</td>
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<tr>
<td>SC.6.E.7.9</td>
<td>Describe and identify patterns in the hierarchical organization of organisms from atoms to molecules and cells to tissues to organs to organ systems to organisms. Remarks/Examples: Florida Standards Connections: MAFS.K12.MP.7: Look for and make use of structure.</td>
</tr>
<tr>
<td>SC.6.L.14.1</td>
<td>Investigate and explain the components of the scientific theory of cells (cell theory): all organisms are composed of cells (single-celled or multi-cellular), all cells come from pre-existing cells, and cells are the basic unit of life. Remarks/Examples: Florida Standards Connections: MAFS.K12.MP.7: Look for and make use of structure.</td>
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<tr>
<td>SC.6.L.14.3</td>
<td>Identify and investigate the general functions of the major systems of the human body (digestive, respiratory, circulatory, reproductive, excretory, immune, nervous, and musculoskeletal) and describe ways these systems interact with each other to maintain homeostasis. Remarks/Examples: Florida Standards Connections: MAFS.K12.MP.7: Look for and make use of structure.</td>
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<tr>
<td>SC.6.L.14.4</td>
<td>Analyze and describe how and why organisms are classified according to shared characteristics with emphasis on the Linnaean system combined with the concept of Domains. Remarks/Examples: Integrate HE.6.C.1.8. Explain how body systems are impacted by hereditary factors and infectious agents.</td>
</tr>
<tr>
<td>SC.6.L.14.5</td>
<td>Define a problem from the sixth grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions. Remarks/Examples: Florida Standards Connections: LAFS.68.RST.1.3. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.</td>
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<tr>
<td>SC.6.L.14.6</td>
<td>Explain why scientific investigations should be replicable. Remarks/Examples: Explain that an investigation is observing or studying the natural world, without interference or manipulation, and an experiment is an investigation that involves variables (independent/manipulated and dependent/ outcome) and establishes cause-and-effect relationships (Schwartz, 2007).</td>
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<tr>
<td>SC.6.L.14.7</td>
<td>Discuss, compare, and negotiate methods used, results obtained, and explanations among groups of students conducting the same investigation. Remarks/Examples: Florida Standards Connections: LAFS.68.RST.3.7 LAFS.68.WHST.1.2 and, LAFS.68.WHST.3.9</td>
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<tr>
<td>SC.6.L.14.8</td>
<td>Distinguish science from other activities involving thought. Remarks/Examples: Florida Standards Connections: LAFS.68.RST.3.7 LAFS.68.WHST.1.2 and, LAFS.68.WHST.3.9</td>
</tr>
</tbody>
</table>
### SC.6.N.2.1
**Remarks/Examples:**
Thought refers to any mental or intellectual activity involving an individual's subjective consciousness. Science is a systematic process that pursues, builds and organizes knowledge in the form of testable explanations and predictions about the natural world.

### SC.6.N.2.2
Explain that scientific knowledge is durable because it is open to change as new evidence or interpretations are encountered.

### SC.6.N.2.3
Recognize that scientists who make contributions to scientific knowledge come from all kinds of backgrounds and possess varied talents, interests, and goals.

### SC.6.N.3.1
Recognize and explain that a scientific theory is a well-supported and widely accepted explanation of nature and is not simply a claim posed by an individual. Thus, the use of the term theory in science is very different than how it is used in everyday life.

### SC.6.N.3.2
Recognize and explain that a scientific law is a description of a specific relationship under given conditions in the natural world. Thus, scientific laws are different from societal laws.

### SC.6.N.3.3
Give several examples of scientific laws.

### SC.6.N.3.4
**Remarks/Examples:**

### SC.6.P.11.1
Explore the Law of Conservation of Energy by differentiating between potential and kinetic energy. Identify situations where kinetic energy is transformed into potential energy and vice versa.

### SC.6.P.12.1
**Remarks/Examples:**

### SC.6.P.13.1
Investigate and describe types of forces including contact forces and forces acting at a distance, such as electrical, magnetic, and gravitational.

### SC.6.P.13.2
Explore the Law of Gravity by recognizing that every object exerts gravitational force on every other object and that the force depends on how much mass the objects have and how far apart they are.

### SC.6.P.13.3
Investigate and describe that an unbalanced force acting on an object changes its speed, or direction of motion, or both.

### LAFS.6.SL.1.1
Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.

### LAFS.6.SL.1.2
Delineate a speaker's argument and specific claims, distinguishing claims that are supported by reasons and evidence from claims that are not.

### LAFS.6.SL.2.4
Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.

### LAFS.6.SL.2.5
Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.

### LAFS.6.RST.1.1
Cite specific textual evidence to support analysis of science and technical texts.

### LAFS.6.RST.1.2
Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

### LAFS.6.RST.1.3
Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

### LAFS.6.RST.2.4
Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.

### LAFS.6.RST.2.5
Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.

### LAFS.6.RST.2.6
Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.

### LAFS.6.RST.3.7
Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

### LAFS.6.RST.3.8
Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.

### LAFS.6.RST.3.9
Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

### LAFS.6.WHST.1.1
Write arguments focused on discipline-specific content.

### LAFS.6.WHST.1.2
Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

### LAFS.6.WHST.2.4
Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
### LAFS.68.WHST.2.5:
- With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.

### LAFS.68.WHST.2.6:
- Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

### LAFS.68.WHST.3.7:
- Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.

### LAFS.68.WHST.3.8:
- Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.

### LAFS.68.WHST.3.9:
- Draw evidence from informational texts to support analysis, reflection, and research.

### LAFS.68.WHST.4.10:
- Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

### MAFS.6.EE.3.9:
- Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation \( d = 65t \) to represent the relationship between distance and time.

### MAFS.6.SP.2.4:
- Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

### MAFS.6.SP.2.5:
- Summarize numerical data sets in relation to their context, such as by:
  - Reporting the number of observations.
  - Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.
  - Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.
  - Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

### ELD.K12.ELL.SC.1:
- English language learners communicate information, ideas, and concepts necessary for academic success in the content area of Science.

### ELD.K12.ELL.SI.1:
- English language learners communicate for social and instructional purposes within the school setting.

### HE.6.C.1.3:
- Identify environmental factors that affect personal health.
  - **Remarks/Examples:**
    - Air and water quality, availability of sidewalks, contaminated food, and road hazards.

### HE.6.C.1.5:
- Explain how body systems are impacted by hereditary factors and infectious agents.
  - **Remarks/Examples:**
    - Cystic fibrosis affects respiratory and a digestive system, sickle-cell anemia affects the circulatory system, and influenza affects the respiratory system.

### Related Certifications

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<td>Middle Grades General Science (Middle Grades 5-9)</td>
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<td>Elementary Education (Grades K-6)</td>
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There are more than 1021 related instructional/educational resources available for this on CPALMS. Click on the following link to access them: [http://www.cpalms.org/Public/PreviewCourse/Preview/13070](http://www.cpalms.org/Public/PreviewCourse/Preview/13070)