| NGSS-SP 1. Asking Questions<br>Scientific questions lead to explanations of how the natural world works and can be empirically tested using evidence. | | | | |
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| **Science Learning Expectations** | **K-2**<br>Asking questions and defining problems in K–2 builds on prior experiences and progresses to simple descriptive questions that can be tested. | **3-5**<br>Asking questions and defining problems in 3–5 builds on K–2 experiences and progresses to specifying qualitative relationships. | **6-8**<br>Asking questions and defining problems in 6–8 builds on K–5 experiences and progresses to specifying relationships between variables, and clarifying arguments and models. | **9-12**<br>Asking questions and defining problems in 9–12 builds on K–8 experiences and progresses to formulating, refining, and evaluating empirically testable questions and design problems using models and simulations. |
| **Key SEL Competencies and Benchmarks** | **Self-Awareness** | | | |
| | **Self-Management** | | | |
| | **Social Awareness** | **Social Awareness 3A**<br>*Demonstrate awareness and consideration of other people's emotions, perspectives, and social cues.* | | |
| | **Relationship Skills** | **Relationship Skills 4A**<br>*Use positive communication and social skills to interact effectively with others.* | | |
| | **Responsible Decision-Making** | **Responsible Decision-Making 5B**<br>*Develop, implement, and model effective decision-making skills to deal responsibly with academic and social situations.* | | |
| **Example SEL Indicators** | (4A) Uses positive communication and behaviors | (4A) Uses active listening skills to foster better communication | (4A) Uses understanding of how and why others respond in a given situation (e.g., assertive, passive, or aggressive) in order to respond respectfully and effectively with others | (4A) Offers and accepts constructive feedback in order to help others and improve self<br><br>(5B) Demonstrates strategies for collaborating with peers, adults, and others in the community to support and move group efforts forward<br><br>(3A) Values and learns from the perspectives of others |
| **Career Readiness Skills** | 16. Prepare for and participate in a formal interview; ask questions that demonstrate an understanding of the employer's mission, products, and priorities; and send appropriate post-interview communication. | | | |

| NGSS-SP 2. Developing and Using Models<br>A model is an abstract representation of phenomena that is a tool used to predict or explain the world. Models can be represented as diagrams, 3-D objects, mathematical representations, analogies or computer simulations. | | | | |
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| **Science Learning Expectations** | **K-2** | **3-5**<br>Modeling 3-5 builds on K-2 experiences and progresses to building and revising simple models and | **6-8**<br>Modeling in 6-8 builds on K-5 experiences and progresses to developing, using, and revising models | **9-12**<br>Modeling in 9-12 builds on K-8 experiences and progresses to using, synthesizing, and developing models |

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| | Modeling in K-2 builds on prior experiences and progresses to include using and developing models that represent concrete events or design solutions. | using models to represent events and design solutions. | to describe, test, and predict more abstract phenomena and design systems. | to predict and show relationships among variables between systems and their components in the natural and design world. |
| **Key SEL Competencies and Benchmarks** | **Self-Awareness** | **Self-Awareness 1C**<br>*Demonstrates and awareness of one's own strengths and opportunities for growth.*<br><br>**Self-Awareness 1D**<br>*Demonstrate a sense of personal responsibility and advocacy.* | | |
| | **Self-Management** | | | |
| | **Social Awareness** | | | |
| | **Relationship Skills** | | | |
| | **Responsible Decision-Making** | **Responsible Decision-Making 5B**<br>*Develop, implement, and model effective decision-making skills to deal responsibly with academic and social situations.* | | |
| **Example SEL Indicators** | (1C) Identifies strengths and opportunities for growth with adult support.<br><br>(1C) Describes an activity/ task in which one may need help in order to improve.<br><br>(1D) Advocates for themselves by asking for help.<br><br>(5B) Engage in problem solving reflection with adult guidance. | (1C) Identifies strengths and opportunities for growth.<br><br>(1D) Demonstrates responsible behaviors.<br><br>(1D) Self-advocates to support responsible choices and avoid negative behaviors by reaching out to adults for assistance.<br><br>(5B) Reflects on the pros and cons of the decision made or the options considered. | (1C)Identifies personal strengths and opportunities for growth related to specific activities.<br><br>(1C) Applies self-reflection techniques to recognize potential strengths, and growth areas.<br><br>(1D) Plans and develops an action plan to set and achieve short- and long-term goals.<br><br>(5B) Analyzes how decision-making skills affect study habits and | (1C) Demonstrates confidence based on an accurate self-assessment of strengths.<br><br>(1D) Analyzes the effect that taking responsibility ro not taking responsibility can have on oneself and others.<br><br>(5B) Considers feedback from others on decision-making processes and incorporates constructive feedback in future decisions. |
| **Career Readiness Skills** | 2. Demonstrate professional behavior and proper etiquette in accordance with norms of the industry and workplace including: personal hygiene; dress; positive attitude; professional performance; and work attendance.<br><br>15. Submit targeted: cover letter, resume, application, and references to prospective employers.<br><br>17. Prepare for and participate in a formal interview; ask questions that demonstrate an understanding of the employer's mission, products, and priorities; and send appropriate post-interview communication.<br><br>22. Exhibit professional skills appropriate to the workplace setting including: problem-solving; conflict resolution; persistence and grit; and positive response to praise, setbacks, and constructive criticism. | | | |

| NGSS-SP 3. Planning and Carrying Out Investigations<br>An investigation is a systematic way to gather data about the natural world either in the field or in a laboratory setting | | | | |
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| **Science Learning Expectations** | **K-2**<br>Planning and carrying out investigations to answer questions or test solutions to problems in K-2 builds on prior experiences and progresses to simple investigations based on fair tests which provide data to support explanations or design solutions. | **3-5**<br>Planning and carrying out investigations to answer questions or test solutions to problems in 3-5 builds on K-2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions. | **6-8**<br>Planning and carrying out investigations in 6-8 builds on K-5 experiences and progresses to include investigations that use multiple variables and provide evidence to support explanations or solutions. | **9-12**<br>Planning and carrying out investigations in 9-12 builds on K-8 experiences and progresses to include investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models. |
| **Key SEL Competencies and Benchmarks** | **Self-Awareness** | **Self-Awareness (1A)**<br>*Demonstrates an awareness of one's own emotions.* | | |
| | **Self-Management** | **Self-Management (2A)**<br>*Understand and use strategies for managing one's own emotions and behavior constructively.* | | |
| | **Social Awareness** | | | |
| | **Relationship Skills** | **Relationship Skills 4A**<br>*Use positive communication and social skills to interact effectively with others.* | | |
| | **Responsible Decision-Making** | | | |
| **Example SEL Indicators** | (1A) Describes emotions and the situations that cause them.<br><br>(2A) Describes and practices using words to share their emotions about an interaction or situation.<br><br>(4A) Effectively communicates needs, wants, and ideas. | (1A) Recognizes how thoughts impact emotions and emotions impact behavior.<br><br>(2A)Demonstrates skills to respond effectively to pressure situations.<br><br>(4A) Demonstrates cooperative behaviors in a group. | (1A) Recognizes how emotional states affect ability to problem solve.<br><br>(2A) Recognizes and begins to apply the skills necessary to maintain confidence during stress, emotional responses, or changing emotions.<br><br>(4A) Demonstrates ability to perform different roles in a cooperative group to achieve group goals. | (1A) Describes an external event or thought that triggered an emotion.<br><br>(2A)Demonstrates the ability to reframe difficult situations into opportunities that promote resilience and optimism.<br><br>(4A)Demonstrates strategies for collaborating with peers, adults, and others in the community to support and move group efforts forward. |
| **Career Readiness Skills** | 2. Demonstrate professional behavior and proper etiquette in accordance with norms of the industry and workplace including: personal hygiene; dress; positive attitude; professional performance; and work attendance.<br><br>3. Exhibit appropriate workplace behavior through: interpersonal interactions (e.g., peer-to-peer, employee-to-supervisor, employee-to-customer); ethical workplace behavior (e.g., moral principles, honesty, integrity); and sound decision making (e.g., task prioritization, team member collaboration, conflict resolution).<br><br>14. Conduct research to understand the values, history, and organizational structure of prospective employers.<br><br>16. Prepare for and participate in a formal interview; ask questions that demonstrate an understanding of the employer's mission, products, and priorities; and send appropriate post-interview communication. | | | |

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| | 20. Complete a complex project related to the immersive experience requiring the following: incorporation of deadlines to allow for draft submissions and feedback prior to final product submission; demonstration of attention to detail, precision, and accuracy; and submission of finalized product.<br><br>22. Exhibit professional skills appropriate to the workplace setting including: problem-solving; conflict resolution; persistence and grit; and positive response to praise, setbacks, and constructive criticism. |

| NGSS-SP 4. Analyzing and Interpreting Data<br>Analyzing and interpreting data includes making sense of the data produced during investigations. Because patterns are not always obvious, this includes using a range of tools such as tables, graphs and other visualization techniques. | | | | |
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| **Science Learning Expectations** | **K-2**<br>Analyzing data in K-2 builds on prior experiences and progresses to collecting, recording, and sharing observations. | **3-5**<br>Analyzing data in 3-5 builds on K-2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. | **6-8**<br>Analyzing data in 6-8 builds on K-5 experiences and progresses to extending quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data, and error analysis. | **9-12**<br>Analyzing data in 9-12 builds on K-8 experiences and progresses to introducing more detailed statistical analysis, the comparison of data sets for consistency, and the use of models to generate and analyze data |
| **Key SEL Competencies and Benchmarks** | **Self-Awareness** | | | |
| | **Self-Management** | **Self-Management 2A**<br>*Understand and use strategies for managing one's own emotions and behaviors constructively.*<br><br>**Self-Management 2B**<br>*Get, monitor, adapt, and evaluate one's own goals to achieve success in school and life.* | | |
| | **Social Awareness** | | | |
| | **Relationship Skills** | | | |
| | **Responsible Decision-Making** | | | |
| **Example SEL Indicators** | (2A) Identifies sources of common stress.<br><br>(2B) Identifies the steps needed to accomplish a short-term goal. | (2A) Demonstrates skills to respond effectively to pressure situations.<br><br>(2B) Identifies ability to meet the goal independently or with support. | (2A) Recognizes and begins to apply the skills necessary to maintain confidence during stress, emotional responses, or changing emotions.<br><br>(2B) Identifies and utilizes potential resources for achieving goals. | (2A) Demonstrates the ability to reframe difficult situations into opportunities that promote resilience and optimism.<br><br>(2B) Identifies academic goals and employs self-monitoring strategies. |
| **Career Readiness Skills** | 12. Demonstrate proficiency in task management and career specific applications, resources, technology, and equipment as exhibited through assignments and work deliverables.<br><br>18. Develop a work-learning plan in partnership with employer, student, and school staff to address short-term career goals. The plan should allow for flexibility based upon changing circumstances, employer feedback, and unplanned assignments.<br><br>20. Complete a complex project related to the immersive experience requiring the following: incorporation of deadlines to allow for draft submissions and feedback prior to final product submission; demonstration of attention to detail, precision, and accuracy; and submission of finalized product.<br><br>22. Exhibit professional skills appropriate to the workplace setting including: problem-solving; conflict resolution; persistence and grit; and positive response to praise, setbacks, and constructive criticism. | | | |

| NGSS-SP 5. Using Mathematics and Computational Thinking<br>Mathematical and computational thinking involves using tools and mathematical concepts to address a scientific question. | | | | |
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| **Science Learning Expectations** | **K-2**<br>Builds on prior experiences and progresses to recognizing that mathematics can be used to describe the natural and designed worlds. | **3-5**<br>Builds on K-2 experiences and progresses to extending quantitative measurements to a variety of physical properties and using computation and mathematics to analyze data and compare alternative design solutions | **6-8**<br>Builds on K-5 experiences and progresses to identifying patterns in large data sets and using mathematical concepts to support explanations and arguments. | **9-12**<br>Buildings on K-8 experiences and progresses to using algebraic thinking and analysis, a range of linear and nonlinear functions including trigonometric functions, exponentials and logarithms, and computational tools for statistical analysis to analyze, represent, and model data. Simple computational simulations are created and used based on mathematical models of basic assumptions. |
| **Key SEL Competencies and Benchmarks** | **Self-Awareness** | | | |
| | **Self-Management** | **Self-Management (2A)**<br>Understand and use strategies for managing one's own emotions and behaviors constructively. | | |
| | **Social Awareness** | | | |
| | **Relationship Skills** | **Relationship Skills (4A)**<br>*Use positive communication and social skills to interact effectively with others.* | | |
| | **Responsible Decision-Making** | **Responsible Decision-Making (5B)**<br>*Develop, implement, and model effective decision-making skills to deal responsibly with academic and social situations.* | | |
| **Example SEL Indicators** | (5B) Engage in problem solving reflection with adult guidance | (5B) Describes steps of a decision making model | (4A) Uses understanding of how and why others respond in a given situation (e.g., assertive, passive, or aggressive) in order to respond respectfully and effectively with others | (2A) Demonstrates the ability to reframe difficult situations into opportunities that promote resilience and optimism |
| **Career Readiness Skills** | 7. Identify how math is applied in a business setting (e.g., financial calculations, physical forms of measurement, statistical analysis) and how economic principles impact global and local business operations.<br><br>16. Prepare for and participate in a formal interview; ask questions that demonstrate an understanding of the employer's mission, products, and priorities; and send appropriate post-interview communication. | | | |

**NGSS-SP 6. Constructing Explanations**

**A scientific explanation is an explanatory account that articulates how or why a natural phenomenon occurs that is supported by evidence and scientific ideas.**

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| **Science Learning Expectations** | **K-2**<br>Constructing explanations and designing solutions in K–2 **builds on prior experiences and progresses to the use of evidence and ideas** in constructing evidence-based accounts of natural phenomenon and designing solutions. | **3-5**<br>Constructing explanations and designing solutions in 3–5 **builds on K–2 experiences and progresses** to the use of evidence in **constructing explanations** that specify variables that describe and predict phenomena and in designing multiple solutions to design problems | **6-8**<br>Constructing explanations and designing solutions in 6–8 **builds on K–5 experiences and progresses** to include **constructing explanations** and **designing solutions** supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. | **9-12**<br>Constructing explanations and designing solutions in 9–12 **builds on K–8 experiences and progresses to explanations and designs** that are supported by multiple and independent **student-generated sources** of evidence consistent with scientific ideas, principles, and theories. |
| **Key SEL Competencies and Benchmarks** | **Self-Awareness** | **Self-Awareness 1B**<br>*Demonstrate an awareness of personal qualities and interests*<br><br>**Self-Awareness 1C**<br>*Demonstrate and awareness of one's own strengths and opportunities for growth* | | |
| | **Self-Management** | | | |
| | **Social Awareness** | | | |
| | **Relationship Skills** | | | |
| | **Responsible Decision-Making** | | | |
| **Example SEL Indicators** | (1B) Identifies and describes personal likes and dislikes (this will help to support building teams/groups that work together in science)<br><br>(1C) Identifies strengths and opportunities for growth with adult support<br><br>Describes things one does well or the knowledge they have<br>Describes an activity/task in which one may need help in order to improve | (1B) Demonstrates an awareness of personal qualities and interests of self and others<br><br>(1C) Identifies strengths and opportunities for growth<br><br>Describes and prioritizes strengths and interests that one wants to develop | (1B) Accommodates and plans for the likes and dislikes of a group.<br><br>Utilizes interest to gain additional experiences toward mastery of a skill or concept<br><br>(1C) Identifies personal strengths and opportunities for growth related to specific activities<br>Applies self-reflection techniques to recognize potential, strengths, and growth areas<br><br>Implements a plan to build on strengths or address opportunities for growth | (1B) Recognizes the importance of personal qualities and interests in decision making.<br><br>(1C) Identifies the skills and credentials required to enter a particular career and begins to prepare accordingly (This could be in the field of science where the student is passionate about science/STEM.) |

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| **Career Readiness Skills** | 3 Exhibit appropriate workplace behavior through; interpersonal interactions (e.g.,peer-to-peer, employee-to-supervisor, employee-to-customer); ethical workplace behavior (e.g.,moral principles, honest, integrity); and sound decision-making (e.g.,task prioritization, team member collaboration, conflict resolution.<br><br>12 Demonstrate proficiency in task management and career specific applications, resources, technology, and equipment as exhibited through assignments and work deliverables.<br>16. Prepare for and participate in a formal interview; ask questions that demonstrate an understanding of the employer's mission, products, and priorities; and send appropriate post-interview communication.<br><br>19 Communicate with coworkers, supervisors and individuals of diverse backgrounds, perspectives, and cultures by demonstrating effective listening, written, and verbal communication skills. |

| NGSS-SP 7. Engaging in Argument from Evidence<br>Scientific argumentation is a process that occurs when there are multiple ideas or claims (e.g. explanations, models) to discuss and reconcile. An argument includes a claim supported by evidence and reasoning, and students engage in debates to evaluate and critique competing arguments. | | | | |
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| **Science Learning Expectations** | **K-2**<br>Engaging in argument from evidence in K–2 builds on prior experiences and progresses to comparing ideas and representations about the natural and designed world(s).<br><br>Listen actively to arguments to indicate agreement or disagreement based on evidence, and/or to retell the main points of the argument. | **3-5**<br>Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s).<br><br>Respectfully provide and receive critiques from peers about a proposed procedure, explanation or model.by citing relevant evidence and posing specific questions. | **6-8**<br>Engaging in argument from evidence in 6–8 builds on K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world(s).<br><br>Respectfully provide and receive critiques about one's explanations, procedures, models and questions by citing relevant evidence and posing and responding to questions that elicit pertinent elaboration and detail. | **9-12**<br>Engaging in argument from evidence in 9–12 builds on K–8 experiences and progresses to using appropriate and sufficient evidence and scientific reasoning to defend and critique claims and explanations about the natural and designed world(s). Arguments may also come from current scientific or historical episodes in science.<br><br>Make and defend a claim based on evidence about the natural world or the effectiveness of a design solution that reflects scientific knowledge, and student-generated evidence |
| **Key SEL Competencies and Benchmarks** | **Self-Awareness** | **Self-Awareness 3A**<br>*Demonstrate awareness and consideration of other people's emotions, perspectives, and social cues.* | | |
| | **Self-Management** | | | |
| | **Social Awareness** | . | | |
| | **Relationship Skills** | **Relationship Skills 4A**<br>*Use positive communication and social skills to interact effectively with others* | | |
| | **Responsible Decision-Making** | **Responsible Decision-Making 5B**<br>*Develop, implement, and model effective decision-making skills to deal responsibly with academic and social situations.* | | |
| **Example SEL Indicators** | (3A) Recognizes the emotions/feelings of others by using attention and/or listening skills to assess facial expressions, body language, and tone of voice<br><br>(4A) Uses positive communication and behaviors | 3A) Recognizes multiple points of view or perspectives in a situation<br><br>(4A) Demonstrates cooperative behaviors in a group (e.g., listens, encourages, acknowledges opinions, compromises, and reaches consensus) | 3A) Recognizes multiple points of view or perspectives in a situation<br><br>(4A) Demonstrates cooperative behaviors in a group (e.g., listens, encourages, acknowledges opinions, compromises, and reaches consensus) | (3A) Values and learns from the perspectives of others<br><br>(4A) Offers and accepts constructive feedback in order to help others and improve self<br><br>(5B) Considers feedback from others on decision-making process and incorporates constructive feedback in future decisions |
| **Career Readiness Skills** | 16. Prepare for and participate in a formal interview; ask questions that demonstrate an understanding of the employer's mission, products, and priorities; and send appropriate post-interview communication.<br><br>20. Complete a complex project related to the immersive experience requiring the following: incorporation of deadlines to allow for draft submissions and feedback prior to final product submission; demonstration of attention to detail, precision, and accuracy; and submission of finalized product. | | | |

| NGSS-SP 8. Obtaining, Evaluating, and Communicating Information<br><br>Obtaining, evaluating and communicating information occurs through reading and writing texts as well as communicating orally.<br>Scientific information needs to be critically evaluated and persuasively communicated as it supports the engagement in the other science practices. | | | | |
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| **Science Learning Expectations** | **K-2**<br>Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information | **3-5**<br>Obtaining, evaluating, and communicating information in 3–5 builds on K–2 experiences and progresses to evaluating the merit and accuracy of ideas and methods. | **6-8**<br>Obtaining, evaluating, and communicating information in 6–8 builds on K–5 experiences and progresses to evaluating the merit and validity of ideas and methods. | **9-12**<br>Obtaining, evaluating, and communicating information in 9–12 builds on K–8 experiences and progresses to evaluating the validity and reliability of the claims, methods, and designs. |
| **Key SEL Competencies and Benchmarks** | **Self-Awareness** | | | |
| | **Self-Management** | **Self Management 2A**<br>*Understand and use strategies for managing one's own emotions and behaviors constructively.* | | |
| | **Social Awareness** | | | |
| | **Relationship Skills** | **Relationship Skills 4A**<br>*Use positive communication skills and social skills to interact effectively with others.* | | |
| | **Responsible Decision-Making** | | | |
| **Example SEL Indicators** | (2A) Demonstrates the ability to manage emotions<br><br>(4A) Uses positive communication and behaviors | (2A) Uses self-monitoring strategies (i.e., self-talk) to manage stress and regulate emotions<br><br>(4A) Uses active listening skills to foster better communication<br><br>(4A) Demonstrates cooperative behaviors in a group (e.g., listens, encourages, acknowledges opinions, compromises, and reaches consensus) | (2A) Recognizes and begins to apply the skills necessary to maintain confidence during stress, emotional responses, or changing emotions<br><br>(4A) Uses understanding of how and why others respond in a given situation (e.g., assertive, passive, or aggressive) in order to respond respectfully and effectively with others | (2A) Demonstrates the ability to reframe difficult situations into opportunities that promote resilience and optimism<br><br>(4A) Demonstrates strategies for collaborating with peers, adults, and others in the community to support and move group efforts forward |
| **Career Readiness Skills** | 3. Exhibit appropriate workplace behavior through: interpersonal interactions (e.g., peer-to-peer, employee-to-supervisor, employee-to-customer); ethical workplace behavior (e.g., moral principles, honesty, integrity); and sound decision-making (e.g., task prioritization, team member collaboration, conflict resolution).<br><br>4. Present professional written and oral communication through: electronic communication (e.g., email, text, allowable social media); telephone etiquette (e.g., incoming and outgoing phone calls, voicemail messages); and other professional written communication (e.g., cover letter, resume, application, follow-up correspondence). | | | |

## Snapshot of the Crosswalk

| | NGSS-SP 1 | NGSS-SP 2 | NGSS-SP 3 | NGSS-SP 4 | NGSS-SP 5 | NGSS-SP 6 | NGSS-SP 7 | NGSS-SP 8 |
|---|---|---|---|---|---|---|---|---|
| **Self Awareness** | | | | | | | | |
| 1A | | | ✔ | | | | | |
| 1B | | | | | | ✔ | | |
| 1C | | ✔ | | | | ✔ | | |
| 1D | | ✔ | | | | | | |
| 1E | | | | | | | | |
| **Self Management** | | | | | | | | |
| 2A | | | ✔ | ✔ | ✔ | | | ✔ |
| 2B | | | | ✔ | | | | |
| **Social Awareness** | | | | | | | | |
| 3A | ✔ | | | | | | ✔ | |
| 3B | | | | | | | | |
| 3C | | | | | | | | |
| **Relationship Skills** | | | | | | | | |
| 4A | ✔ | | ✔ | | ✔ | | ✔ | ✔ |
| 4B | | | | | | | | |
| 4C | | | | | | | | |

| Responsible Decision Making | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **5A** | | | | | | | | |
| **5B** | ✔ | ✔ | | | ✔ | | ✔ | |
| **CTE Bridge** | | | | | | | | |
| | 16 | 2,15, 17 | 2, 3, 14, 16, 20, 22 | 12, 18, 20, 22 | 7, 16 | 3, 12, 19 | 16, 20 | 3, 4 |