Tennessee STEM

Grades K, 1, 2, 3, 4, 5

Adopted 2019

Problem-Resolution Skills	1. **Investigate real-world problems or challenges requiring the synthesis of multiple sources of information** PR.1 2. **Use content-specific and precise vocabulary when communicating ideas related to STEM content** PR.2 3. **Develop collaboration skills in problem solving in order to construct explanations, design solutions, or achieve common goals** PR.3 4. **Explore and use models of engineering design to develop solutions to engineering problems** PR.4 5. **Identify and understand technologies needed to develop solutions to problems** PR.5 6. **Understand and use technology in a responsible and ethical manner** PR.6 7. **Understand and use appropriate safety procedures for conducting STEM investigations** PR.7
Critical Thinking in Context	1. **Engage in critical reading and communicating of technical information** CT.1 2. **Develop claims and use evidence to form arguments** CT.2 3. **Engage in investigations through science and engineering practices to identify and define global issues, challenges, and real-world problems** CT.3 4. **Use research data to refine existing questions, problems, models, and arguments and/or to develop new questions, problems, models, and arguments** CT.4 5. **Discuss grade appropriate systemic methodology (e.g. scientific or engineering design practices, etc.) to investigate global challenges and real-world problems** CT.5 6. **Analyze the limitations, risks, and impacts of technology** CT.6
Cause and Effect Relationships between STEM Disciplines	1. **Analyze interdisciplinary connections that exist within the STEM disciplines as appropriate to the grade level to answer complex questions and to investigate/develop solutions to real-world problems** CE.1

2. **Identify and analyze the impact of emerging global STEM trends and real-world challenges with local, state, national, and international implications** CE.2

3. **Explore, develop, test, and refine models used by scientists and engineers to solve problems** CE.3

4. **Identify community challenges and apply STEM content and practices to construct creative and innovative responses and solutions** CE.4

STEM Fields Exploration

1. **Investigate real-world problems or challenges that exist in different STEM fields synthesizing multiple sources of information** FE.1

2. **Analyze career opportunities and occupations that exist in a variety of STEM fields** FE.2

3. **Explore how technology is integrated into different career fields and occupations** FE.3

   a. Use Geographic Information Systems (GIS) tools to capture, store, manipulate, analyze, manage, and present spatial or geographic data. FE.3.A

   b. Explore coding fundamentals and concepts with engaging opportunities and applications. FE.3.B

   c. Use bioinformatics tools to capture, store, manipulate, analyze, manage, and present biological data. FE.3.C