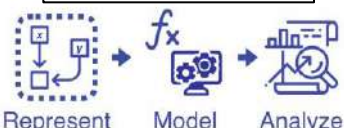



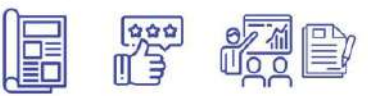


NTPS Next Generation Science Standards Grading Definitions

4th Grade Report Card Insert

SCIENCE AND ENGINEERING PRACTICES	Physical Science, Life Science, and Earth & Space Science Descriptions of what proficient students KNOW and DO
<p style="text-align: center;">Asking Questions (Science)</p> <p style="text-align: center;">and</p> <p style="text-align: center;">Defining Problems (Engineering)</p>	<p style="text-align: center;">Students can generate scientific questions about observations, investigations, and conclusions.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p style="border: 1px solid black; padding: 2px;">What do I wonder?</p> <p>Brainstorm Classify Improve</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>Example:</p> <p style="border: 1px solid black; padding: 2px;">E. Learn and Ask Questions</p> <p>Listen actively to the other groups' presentations. Ask questions, and take notes below or in your science notebook. Learn as much as you can about how people have affected the other three Earth systems.</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p style="border: 1px solid black; padding: 2px;">What is the problem?</p> <p>Problem Criteria Constraints</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>Example: <i>After investigating multiple sources of energy and each type's potential pros and cons, the student can recognize that the possible depletion of fuels is a problem. They use criteria and constraints for alternatives based on pros and cons investigated earlier.</i></p> </div> </div>
<p style="text-align: center;">Developing and Using Models</p>	<p style="text-align: center;">Students create models focused on describing, predicting or explaining the natural world and the relationships of its components (<i>parts</i>).</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p style="border: 1px solid black; padding: 2px;">What do I think?</p> <p>Explain</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>Example:</p> <p style="border: 1px solid black; padding: 2px;">A. Task</p> <p>Build a model. Find a way to show that:</p> <ul style="list-style-type: none"> • Energy has many different forms. • Energy can be converted into other forms. • Energy does work or changes something. </div> </div>
<p style="text-align: center;">Planning and Carrying Out Investigations</p>	<p style="text-align: center;">Students design or conduct investigations and gather data. Students make decisions about variables and procedures and refine their plans if necessary.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p style="border: 1px solid black; padding: 2px;">How can I test it?</p> <p>Constants Design Evidence</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>Example: <i>Students design an Energy Experiment based off a question they have. They also define criteria for success, constraints, and collect evidence to use evaluating the outcomes they achieve, and then to guide potential adjustments in the future.</i></p> </div> </div>
<p style="text-align: center;">Analyzing and Interpreting Data</p>	<p style="text-align: center;">Students organize and interpret data to recognize patterns and relationships in the natural and designed world.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p style="border: 1px solid black; padding: 2px;">What did I observe?</p> <p>Organize Analyze Interpret</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>Example:</p> <p style="border: 1px solid black; padding: 2px;">B. Predict</p> <p>You will graph and analyze data on the hours of daylight throughout the year. What do you think your data will show?</p> <p>I think _____</p> </div> </div>

<p>Using Mathematics & Computational Thinking</p>	<p>Students use mathematical skills, reasoning, and technology to answer a scientific question and support conclusions.</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>How can I prove it?</p>  <p>Represent Model Analyze</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>Example:</p> <p><i>Students build a graph with data collected from investigations, and use the graph to defend their conclusions.</i></p> </div>
<p>Constructing Explanations (Science)</p> <p>and</p> <p>Designing Solutions (Engineering)</p>	<p>Students can construct their own explanations of how a phenomenon occurs and design their own solutions to a problem.</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>How does it work?</p>  <p>Question Cause Mechanism</p> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>How can I fix the problem?</p>  <p>Solution Criteria Constraints Refine</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>Example:</p> <p><i>After investigating internal and external structures of plants and animals, the student is asked to explain how we are able to see an object using a paragraph or a drawn model.</i></p> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Example:</p> <p><i>When the student creates a wind turbine and it doesn't work correctly, they are able to make adjustments to meet the criteria and constraints of "What is successful?"</i></p> </div>
<p>Engaging in Argument from Evidence</p>	<p>Students use evidence and reasoning to defend and support their claims and explanations.</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>How do I know?</p>  <p>Claim Reasoning Evidence</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>Example:</p> <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <p>6. Construct an argument, using evidence from this reading, that squid have internal and external structures that help them survive, grow, and reproduce during their lifetime.</p> </div> </div>
<p>Obtaining, Evaluating, and Communicating Information</p>	<p>Students communicate information, evidence, and ideas in multiple ways.</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>What did I learn?</p>  <p>Obtain Evaluate Communicate</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>Example:</p> <p><i>After researching a different USA community and how it has worked to help protect the environment and its resources, the student creates a presentation to present their research to the class.</i></p> </div>

Each year, students should be able to demonstrate greater capacity for connecting knowledge across, and between, the physical sciences, life sciences, earth and space sciences, and engineering design.

During grades 3–5, your child will begin to form deeper connections between concepts and skills previously learned in grades K–2, such as evaluating methods for collecting data, revising models based on evidence, and analyzing data to make sense of phenomena. Upon completion of grades 3–5, your child should have a deeper understanding of: • the effects of chemical reactions, forces, and energy on the world around us; • the ways different organisms and the environment interact; • the ways the geosphere, biosphere, and hydrosphere interact; and • how engineering design can be a regular part of problem solving.