

**Science – Grade 8**

**Science, Technology, Society, Environment (STSE)**

<b>4 - Excelling</b>	<b>3 - Meeting</b>	<b>2 - Approaching</b>	<b>1 - Working Below</b>
Independently and consistently describes various processes used in science and technology to investigate the natural and constructed world (e.g., multiple trials, re-testing, variations in data)	Generally describes various processes used in science and technology to investigate the natural and constructed world (e.g., multiple trials, re-testing, variations in data)	Sometimes (or with support) describes various processes used in science and technology to investigate the natural and constructed world (e.g., multiple trials, re-testing, variations in data)	Has difficulty (even with support) describing various processes used in science and technology to investigate the natural and constructed world (e.g., multiple trials, re-testing, variations in data)
Independently and consistently describes the development of science and technology over time	Generally describes the development of science and technology over time	Sometimes (or with support) describes the development of science and technology over time	Has difficulty (even with support) describing the development of science and technology over time
Independently and consistently explains how science and technology interact with and advance one another	Generally explains how science and technology interact with and advance one another	Sometimes (or with support) explains how science and technology interact with and advance one another	Has difficulty (even with support) explaining how science and technology interact with and advance one another
Independently and consistently illustrates how the needs of individuals, society, and the environment influence and are influenced by scientific and technological endeavors (e.g., careers, industry, and special interest groups)	Generally illustrates how the needs of individuals, society, and the environment influence and are influenced by scientific and technological endeavors (e.g., careers, industry, and special interest groups)	Sometimes (or with support) illustrates how the needs of individuals, society, and the environment influence and are influenced by scientific and technological endeavors (e.g., careers, industry, and special interest groups)	Has difficulty (even with support) illustrating how the needs of individuals, society, and the environment influence and are influenced by scientific and technological endeavors (e.g., careers, industry, and special interest groups)
Independently and consistently analyzes social issues related to the applications and limitations of science and technology, and explains decisions in terms of advantages and disadvantages for sustainability, considering a few perspectives	Generally analyzes social issues related to the applications and limitations of science and technology, and explains decisions in terms of advantages and disadvantages for sustainability, considering a few perspectives	Sometimes (or with support) analyzes social issues related to the applications and limitations of science and technology, and explains decisions in terms of advantages and disadvantages for sustainability, considering a few perspectives	Has difficulty (even with support) analyzing social issues related to the applications and limitations of science and technology, and explaining decisions in terms of advantages and disadvantages for sustainability, considering a few perspectives
<u>Evidence:</u> (following “Knowledge” section)			

**Science – Grade 8**

**Skills: Plan, Perform**

<b>4 - Excelling</b>	<b>3 - Meeting</b>	<b>2 - Approaching</b>	<b>1 - Working Below</b>
Independently and consistently rephrases questions clearly in a testable form (includes two variables) identifying observable or measurable characteristics	Generally rephrases questions clearly in a testable form (includes two variables) identifying observable or measurable characteristics	Sometimes (or with support) rephrases questions in a testable form (includes two variables) identifying observable or measurable characteristics	Has difficulty (even with support) rephrasing questions in a testable form and identifying observable or measurable characteristics
Consistently selects all relevant variables to test, control, and measure	Generally selects relevant variables to test, control, and measure	Sometimes selects some variables to test, control, and measure	Has difficulty (even with support) identifying variables
Independently and consistently uses 'independent', 'dependent', and 'control' terminology. Student independently chooses proper units.	Generally uses 'independent', 'dependent', and 'control' terminology	Sometimes (or with support) uses 'independent', 'dependent', and 'control' terminology	Does not uses 'independent', 'dependent', and 'control' terminology
Independently and consistently makes plausible prediction or hypothesis supported by prior scientific learning and research, written in passive voice (3 <sup>rd</sup> person)	Generally makes plausible prediction or hypothesis supported by prior scientific learning written in passive voice (3 <sup>rd</sup> person)	Sometimes (or with support) makes prediction or hypothesis supported by prior scientific learning; written in first person (e.g., "I predict...")	Has difficulty (even with support) making a prediction or hypothesis
Independently and consistently designs experiments to collect intended evidence; steps are complete, concise and can be understood by others	Generally designs experiments to collect intended evidence; steps are complete and can be understood by others	Sometimes (or with support) designs experiments to collect intended evidence; some steps may be incomplete or missing	Has difficulty (even with support) designing a complete experiment
Independently and consistently conducts experiments that control all needed variables	Generally conducts experiments that control most variables	Sometimes (or with support) conducts experiments that controls some variables	Has difficulty (even with support) conducting an experiment that controls some variables
Independently and consistently uses materials, techniques and equipment effectively, accurately, and safely	Generally uses materials, techniques and equipment effectively, accurately, and safely	Sometimes (or with support) uses materials, techniques and equipment effectively and safely	Has difficulty (even with support) using materials, techniques and equipment effectively and safely
Independently and consistently observes and measures relevant evidence accurately	Generally observes and measures relevant evidence accurately	Sometimes (or with support) observes and measures evidence accurately	Has difficulty (even with support) observing and measuring evidence
Independently and consistently records evidence appropriately for the task (symbols, units, labels, readability)	Generally records evidence appropriately for the task (symbols, units, labels, readability)	Sometimes (or with support) records evidence appropriately (symbols, units, labels, readability)	Has difficulty (even with support) recording evidence (symbols, units, labels, readability)
<u>Evidence</u> : (following "Knowledge" section)			

## Science – Grade 8

### Skills: Analyze, Explain

4 - Excelling	3 - Meeting	2 - Approaching	1 - Working Below
Consistently organizes evidence effectively and efficiently	Generally organizes evidence appropriately and effectively	Sometimes (or with support) organizes evidence appropriately	Has difficulty (even with support) organizing evidence appropriately
Consistently organizes evidence effectively and efficiently	Generally organizes evidence appropriately and effectively	Sometimes (or with support) organizes evidence appropriately	Has difficulty (even with support) organizing evidence appropriately
Independently and consistently makes predictions using data patterns and relationships	Generally makes predictions using data patterns and relationships	Sometimes (or with support) makes a prediction using data patterns	Has difficulty (even with support) making a prediction using data patterns
Independently and consistently states a conclusion based on data and explains how evidence supports or refutes an initial idea	Generally states a conclusion based on data and explains how evidence supports or refutes an initial idea	Sometimes (or with support) states a conclusion based on data	Has difficulty (even with support) stating a conclusion based on data
Independently and consistently identifies strengths and weaknesses of data collection and organization.	Generally identifies strengths and weaknesses of data collection and organization	Sometimes (or with support) identifies a strength or weakness of data collection and/or organization	Has difficulty identifying a strength or weakness of data collection and/or organization
Independently and consistently identifies and explains possible source(s) of error and discrepancies in data with suggestions for improved experimental design	Generally identifies possible source(s) of error and discrepancies in data	Sometimes (or with support) identifies some possible source(s) of error	Has difficulty (even with support) identifying a possible source of error
Independently and consistently identifies 2 or more new testable questions that arise from what was learned	Generally identifies 1-2 new questions that arise from what was learned (sometimes contains opinion)	Sometimes (or with support) identifies another question that arises from what was learned (often contains opinion)	Has difficulty (even with support) identifying another question that arises from what was learned (contain opinion)
Independently and consistently tests, evaluates and corrects problems of a constructed device and re-tests	Generally tests, evaluates and corrects problems of a constructed device	Sometimes (or with support) tests and identifies problems of a constructed device	Has difficulty (even with support) testing a constructed device
Consistently communicates questions, procedures, and results clearly, effectively and efficiently	Generally communicates questions, procedures, and results clearly and effectively	Sometimes (or with support) communicates questions, procedures, and results	Has difficulty (even with support) communicating questions, procedures, and results
Independently and consistently defends a position on an issue in a logical, reasoned way	Generally defends a position on an issue based on their findings	Sometimes (or with support) defends a position on an issue	Has difficulty (even with support) defending a position on an issue
Always uses specific science vocabulary appropriately	Generally uses specific science vocabulary appropriately	Sometimes uses science vocabulary appropriately	Rarely uses science vocabulary appropriately
Independently and consistently applies findings to other situations	Generally identifies and evaluates how findings can be applied to other situations	Sometimes (or with support) identifies how findings can be applied to another situation	Has difficulty (even with support) identifying how findings can be applied to another situation
<b>Evidence:</b> (following “Knowledge” section)			

## Science – Grade 8

### Knowledge:

<b>4 - Excelling</b>	<b>3 - Meeting</b>	<b>2 - Approaching</b>	<b>1 - Working Below</b>
Independently and consistently demonstrates understanding of concepts that goes beyond the curricular outcomes	Generally demonstrates understanding of most concepts (4 out of 5 opportunities)	Sometimes (or with support) demonstrates understanding of some concepts (3 out of 5 opportunities)	Has difficulty (even with support) understanding concepts (less than 3 out of 5 opportunities)
Independently, consistently and completely describes content and uses specific science vocabulary appropriately	Generally descriptions of content are mostly complete, using specific science vocabulary appropriately	Sometimes (or with support) describes content (sometimes incomplete); science vocabulary used at times	Has difficulty (even with support) describing content; science vocabulary used at times
Independently and consistently communicates knowledge efficiently and effectively (written, oral, and/or visual)	Generally communicates knowledge effectively (written, oral, and/or visual)	Sometimes (or with support) communicates knowledge with some difficulty (written, oral, and/or visual)	Has difficulty (even with support) communicating knowledge (written, oral, and/or visual)
Applies content to new situations			
<u>Evidence:</u> (following “Knowledge” section)			

**Evidence of Learning: Suggested Sources**

Observations:

- Observe students during “warm up” activities
- Observe students completing experiments
- Observe students during group work
- Observe student presentations and demonstrations
- Observe students during project planning; developing research questions
- “Gallery” walks

Conversations (oral/written):

- Conferences and interviews
- Whole class and group: questions and discussions
- Debates including scientific information, point of view, different perspectives
- Science journal entries and exit slips (written responses)
- Testable questions/predictions/hypothesis; series of steps based on a scenario
- Conclusions and predictions based on results; proposing follow-up investigations (experiment, research project)
- Critiques of lab set-up/scenario – suggests improvements
- Self- and peer assessment and reflection

Products:

- Quizzes (oral/written)
- Projects; research questions; Science Fair; STEAM Expo
- Tests
- Assignments
- Lab reports
- Work samples: tables and/or graphs; classification tree; diagrams
- Exit slips or other responses to questions
- Science journal entry
- Photos of student’s work
- Group problem solving records
- Design or construct a model/device; test prototypes; suggest improvements
- Portfolios
- Review of current events articles and other scientific literature
- Timelines (History of Science and Technology)