APPENDIX A

GRADE-SPECIFIC ALDS

MCAS Next-Generation Achievement Level Descriptors
English Language Arts

August 2017

Next-Generation Achievement Level Descriptors

Exceeding Expectations
A student who performed at this level exceeded grade-level expectations by demonstrating mastery of the subject matter.

Meeting Expectations
A student who performed at this level met grade-level expectations and is academically on track to succeed in the current grade in this subject.

Partially Meeting Expectations
A student who performed at this level partially met grade-level expectations in this subject. The school, in consultation with the student's parent/guardian, should consider whether the student needs additional academic assistance to succeed in this subject.

Not Meeting Expectations
A student who performed at this level did not meet grade-level expectations in this subject. The school, in consultation with the student's parent/guardian, should determine the coordinated academic assistance and/or additional instruction the student needs to succeed in this subject.

MCAS Next-Generation Achievement Level Descriptors
English Language Arts

General: All grades (grades 3-8 and 10)

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations,* and *Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students' work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
Reading	Demonstrates **partial** understanding of what a text implies and states explicitly; cites **limited** textual support for conclusions; **incompletely** summarizes key details and ideas; provides a **partial** analysis of a character, an event, or an idea in grade-appropriate texts Demonstrates **partial** understanding of words and phrases used in a text; provides **limited** understanding of how structural elements, point of view, or purpose affects the content and style in text(s) Makes **basic** comparisons between texts; shows **partial** understanding of content in diverse media; **partially** evaluates and analyzes claims and evidence in text(s)	Demonstrates **sufficient** understanding of what a text implies and states explicitly; cites **solid** textual support for conclusions; **appropriately** summarizes key details and ideas; provides a **mostly complete** analysis of a character, an event, or an idea in grade-appropriate texts Demonstrates **general** understanding of words and phrases used in a text; provides **general understanding** of how structural elements, point of view, or purpose affects the content and style in text(s) Makes **appropriate** comparisons between texts; shows **solid** understanding of content in diverse media; **appropriately** evaluates and analyzes claims and evidence in text(s)	Demonstrates **comprehensive** understanding of what a text implies and states explicitly; cites **in-depth** textual support for conclusions; **skillfully** summarizes key details and ideas; provides a **sophisticated** analysis of a character, an event, or an idea in grade-appropriate texts Demonstrates **in-depth** understanding of words and phrases used in a text; provides **sophisticated** understanding of how structural elements, point of view, or purpose affects the content and style in text(s) Makes **insightful** comparisons between texts; shows **sophisticated** understanding of content in diverse media; **insightfully** evaluates and analyzes claims and evidence in text(s)
Writing	Produces **basic** writing with **limited** selection and explanation of evidence and details related to grade-appropriate texts, topics, or subject areas Produces writing with **little** development of a central idea or sequenced events,	Produces **solid** writing with **appropriate** selection and explanation of evidence and details related to grade-appropriate texts, topics, or subject areas Produces writing with **appropriate** development of a central idea or sequenced	Produces **clear** writing with **skillful** selection and explanation of evidence and details related to grade-appropriate texts, topics, or subject areas Produces writing with **full** development of a central idea or sequenced events, **effective** organization, and **clear** expression of ideas

	Partially Meeting Expectations *On MCAS, a student at this level:*	Meeting Expectations *On MCAS, a student at this level:*	Exceeding Expectations *On MCAS, a student at this level:*
	limited organization, and **basic** expression of ideas Exhibits **partial** awareness of task, purpose, and audience	events, **moderate** organization, and **adequate** expression of ideas Exhibits **sufficient** awareness of task, purpose, and audience	Exhibits **full** awareness of task, purpose, and audience
Language	Demonstrates **limited** reading vocabulary of general academic and domain-specific words and phrases in grade-appropriate texts Demonstrates **limited** understanding of unfamiliar words in text and shows **partial** understanding of word parts and word relationships in word meanings Demonstrates **little** control of the standard English conventions of sentence structure, grammar, usage, and mechanics	Demonstrates **solid** reading vocabulary of general academic and domain-specific words and phrases in grade-appropriate texts Demonstrates **solid** understanding of unfamiliar words in text and shows **sufficient** understanding of word parts and word relationships in word meanings Demonstrates **mostly consistent** control of the standard English conventions of sentence structure, grammar, usage, and mechanics	Demonstrates **comprehensive** reading vocabulary of general academic and domain-specific words and phrases in grade-appropriate texts Demonstrates **comprehensive** understanding of unfamiliar words in text and shows **full** understanding of word parts and word relationships in word meanings Demonstrates **consistent** control of the standard English conventions of sentence structure, grammar, usage, and mechanics

MCAS Next-Generation Achievement Level Descriptors
English Language Arts

August 2017

Next-Generation Achievement Level Descriptors

Exceeding Expectations
A student who performed at this level exceeded grade-level expectations by demonstrating mastery of the subject matter.

Meeting Expectations
A student who performed at this level met grade-level expectations and is academically on track to succeed in the current grade in this subject.

Partially Meeting Expectations
A student who performed at this level partially met grade-level expectations in this subject. The school, in consultation with the student's parent/guardian, should consider whether the student needs additional academic assistance to succeed in this subject.

Not Meeting Expectations
A student who performed at this level did not meet grade-level expectations in this subject. The school, in consultation with the student's parent/guardian, should determine the coordinated academic assistance and/or additional instruction the student needs to succeed in this subject.

MCAS Next-Generation Achievement Level Descriptors
English Language Arts

Grade 3

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations,* and *Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students' work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
Reading	Demonstrates **partial** understanding of what a text states explicitly; cites **limited** textual support; demonstrates **incomplete** understanding of key details and how they support the main idea; provides a **partial** description of a character, an event, or an idea in grade 3 texts Demonstrates **partial** understanding of words and phrases (e.g., figurative language); demonstrates a **limited** understanding of structural elements and different points of view Makes **basic** comparisons between texts; shows **partial** understanding of information presented in illustrations; **partially** compares and contrasts important points in text(s)	Demonstrates **sufficient** understanding of what a text states explicitly; cites **solid** textual support; demonstrates **appropriate** understanding of key details and how they support the main idea; provides a **mostly complete** description of a character, an event, or an idea in grade 3 texts Demonstrates **general** understanding of words and phrases (e.g., figurative language); demonstrates a **general** understanding of structural elements and different points of view Makes **appropriate** comparisons between texts; shows **solid** understanding of information presented in illustrations; **appropriately** compares and contrasts important points in text(s)	Demonstrates **comprehensive** understanding of what a text states explicitly; cites **in-depth** textual support; demonstrates **in-depth** understanding of key details and how they support the main idea; provides a **comprehensive** description of a character, an event, or an idea in grade 3 texts Demonstrates **in-depth** understanding of words and phrases (e.g., figurative language); demonstrates a **clear** understanding of structural elements and different points of view Makes **effective** comparisons between texts; shows **clear** understanding of information presented in illustrations; **effectively** compares and contrasts important points in text(s)

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
Writing	Produces **basic** writing with **limited** selection and explanation of facts and details related to grade 3 texts, topics, or subject areas Produces writing with **little** development of a central idea or sequenced events, **limited** organization, and **basic** expression of ideas Exhibits **partial** awareness of task, purpose, and audience	Produces **solid** writing with **appropriate** selection and explanation of facts and details related to grade 3 texts, topics, or subject areas Produces writing with **appropriate** development of a central idea or sequenced events, **moderate** organization, and **adequate** expression of ideas Exhibits **sufficient** awareness of task, purpose, and audience	Produces **clear** writing with **effective** selection and explanation of facts and details related to grade 3 texts, topics, or subject areas Produces writing with **full** development of a central idea or sequenced events, **effective** organization, and **clear** expression of ideas Exhibits **full** awareness of task, purpose, and audience
Language	Demonstrates **limited** reading vocabulary of grade 3 academic and domain-specific words and phrases Demonstrates **limited** understanding of unfamiliar words in text; shows **partial** understanding of word parts and word relationships in word meanings Demonstrates **little** control of the standard English conventions of sentence structure, grammar, usage, and mechanics	Demonstrates **solid** reading vocabulary of grade 3 academic and domain-specific words and phrases Demonstrates **solid** understanding of unfamiliar words in text; shows **sufficient** understanding of word parts and word relationships in word meanings Demonstrates **mostly consistent** control of the standard English conventions of sentence structure, grammar, usage, and mechanics	Demonstrates **comprehensive** reading vocabulary of grade 3 academic and domain-specific words and phrases Demonstrates **comprehensive** understanding of unfamiliar words in text; shows **full** understanding of word parts and word relationships in word meanings Demonstrates **consistent** control of the standard English conventions of sentence structure, grammar, usage, and mechanics

MCAS Next-Generation Achievement Level Descriptors
English Language Arts

Grade 4

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations,* and *Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students' work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	Meeting Expectations *On MCAS, a student at this level:*	Exceeding Expectations *On MCAS, a student at this level:*
Reading	Demonstrates **partial** understanding of what a text implies and states explicitly; cites **limited** textual support; **incompletely summarizes** key details and main ideas; provides a **partial** description of a character, an event, or an idea in grade 4 texts Demonstrates **partial** understanding of words and phrases (e.g., figurative language); provides a **limited** understanding of structural elements and different points of view Makes **basic** comparisons between texts; shows **partial** understanding of information presented in media; **partially** explains important points and themes in text(s)	Demonstrates **sufficient** understanding of what a text implies and states explicitly; cites **solid** textual support; **appropriately** summarizes key details and main ideas; provides a **mostly complete** description of a character, an event, or an idea in grade 4 texts Demonstrates **general** understanding of words and phrases (e.g., figurative language); provides a **general** understanding of structural elements and different points of view Makes **appropriate** comparisons between texts; shows **solid** understanding of information present in media; **appropriately** explains important points and themes in text(s)	Demonstrates **comprehensive** understanding of what a text implies and states explicitly; cites **in-depth** textual support; **skillfully** summarizes key details and main ideas; provides a **comprehensive** description of a character, an event, or an idea in grade 4 texts Demonstrates **in-depth** understanding of words and phrases (e.g., figurative language); provides a **clear** understanding of structural elements and different points of view Makes **effective** comparisons between texts; shows **clear** understanding of information present in media; **effectively** explains important points and themes in text(s)

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
Writing	Produces **basic** writing with **limited** selection and explanation of facts and details related to grade 4 texts, topics, or subject areas Produces writing with **little** development of a central idea or sequenced events, **limited** organization, and **basic** expression of ideas Exhibits **partial** awareness of task, purpose, and audience	Produces **solid** writing with **appropriate** selection and explanation of facts and details related to grade 4 texts, topics, or subject areas Produces writing with **appropriate** development of a central idea or sequenced events, **moderate** organization, and **adequate** expression of ideas Exhibits **sufficient** awareness of task, purpose, and audience	Produces **clear** writing with **effective** selection and explanation of facts and details related to grade 4 texts, topics, or subject areas Produces writing with **full** development of a central idea or sequenced events, **effective** organization, and **clear** expression of ideas Exhibits **full** awareness of task, purpose, and audience
Language	Demonstrates **limited** reading vocabulary of grade 4 academic and domain-specific words and phrases Demonstrates **limited** understanding of unfamiliar words in text; shows **partial** understanding of word parts, word relationships, and nuances in word meanings Demonstrates **little** control of the standard English conventions of sentence structure, grammar, usage, and mechanics	Demonstrates **solid** reading vocabulary of grade 4 academic and domain-specific words and phrases Demonstrates **solid** understanding of unfamiliar words in text; shows **sufficient** understanding of word parts, word relationships, and nuances in word meanings Demonstrates **mostly consistent** control of the standard English conventions of sentence structure, grammar, usage, and mechanics	Demonstrates **comprehensive** reading vocabulary of grade 4 academic and domain-specific words and phrases Demonstrates **comprehensive** understanding of unfamiliar words in text; shows **full** understanding of word parts, word relationships, and nuances in word meanings Demonstrates **consistent** control of the standard English conventions of sentence structure, grammar, usage, and mechanics

MCAS Next-Generation Achievement Level Descriptors
English Language Arts

Grade 5

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations,* and *Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students' work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
Reading	Demonstrates **partial** understanding of what a text implies and states explicitly; provides **limited** textual support through the use of quotations or paraphrasing; **incompletely** summarizes key details and main ideas; provides a **partial** analysis of a character, an event, or an idea in grade 5 texts	Demonstrates **sufficient** understanding of what a text implies and states explicitly; provides **solid** textual support through the use of quotations or paraphrasing; **appropriately** summarizes key details and main ideas; provides a **mostly complete** analysis of a character, an event, or an idea in grade 5 texts	Demonstrates **comprehensive** understanding of what a text implies and states explicitly; provides **in-depth** textual support through the use of quotations or paraphrasing; **skillfully** summarizes key details and main ideas; provides a **comprehensive** analysis of a character, an event, or an idea in grade 5 texts
	Demonstrates **partial** understanding of words and phrases (e.g., figurative language); provides a **limited** explanation of how structural elements or points of view influence text(s)	Demonstrates **general** understanding of words and phrases (e.g., figurative language); provides a **general** explanation of how structural elements or points of view influence text(s)	Demonstrates **in-depth** understanding of words and phrases (e.g., figurative language); provides a **clear** explanation of how structural elements or points of view influence text(s)
	Makes **basic** comparisons between texts; shows **partial** understanding of information present in multiple sources or media; **partially** analyzes important points and themes in text(s)	Makes **appropriate** comparisons between texts; shows **solid** understanding of information present in multiple sources or media; **appropriately** analyzes important points and themes in text(s)	Makes **effective** comparisons between texts; shows **clear** understanding of information present in multiple sources or media; **effectively** analyzes important points and themes in text(s)

	Partially Meeting Expectations *On MCAS, a student at this level:*	Meeting Expectations *On MCAS, a student at this level:*	Exceeding Expectations *On MCAS, a student at this level:*
Writing	Produces **basic** writing with **limited** selection and explanation of facts and details related to grade 5 texts, topics, or subject areas Produces writing with **little** development of a central idea or sequenced events, **limited** organization, and **basic** expression of ideas Exhibits **partial** awareness of task, purpose, and audience	Produces **solid** writing with **appropriate** selection and explanation of facts and details related to grade 5 texts, topics, or subject areas Produces writing with **appropriate** development of a central idea or sequenced events, **moderate** organization, and **adequate** expression of ideas Exhibits **sufficient** awareness of task, purpose, and audience	Produces **clear** writing with **effective** selection and explanation of facts and details related to grade 5 texts, topics, or subject areas Produces writing with **full** development of a central idea or sequenced events, **effective** organization, and **clear** expression of ideas Exhibits **full** awareness of task, purpose, and audience
Language	Demonstrates **limited** reading vocabulary of grade 5 academic and domain-specific words and phrases Demonstrates **limited** understanding of unfamiliar words in text; shows **partial** understanding of word parts, word relationships, and nuances in word meanings Demonstrates **little** control of the standard English conventions of sentence structure, grammar, usage, and mechanics	Demonstrates **solid** reading vocabulary of grade 5 academic and domain-specific words and phrases Demonstrates **solid** understanding of unfamiliar words in text; shows **sufficient** understanding of word parts, word relationships, and nuances in word meanings Demonstrates **mostly consistent** control of the standard English conventions of sentence structure, grammar, usage, and mechanics	Demonstrates **comprehensive** reading vocabulary of grade 5 academic and domain-specific words and phrases Demonstrates **comprehensive** understanding of unfamiliar words in text; shows **full** understanding of word parts, word relationships, and nuances in word meanings Demonstrates **consistent** control of the standard English conventions of sentence structure, grammar, usage, and mechanics

MCAS Next-Generation Achievement Level Descriptors
English Language Arts

Grade 6

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations,* and *Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students' work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
Reading	Demonstrates **partial** understanding of what a text implies and states explicitly; uses quotations and paraphrases to **partially** support conclusions; **incompletely** summarizes text; provides a **partial** analysis of a character, an event, or an idea in grade 6 texts Demonstrates **partial** understanding of meanings (e.g., figurative, connotative, technical) and effects (e.g., on mood) of words and phrases; demonstrates **limited** understanding of how structural elements and point of view contribute to the development of ideas Makes **basic** comparisons between texts; **partially** integrates information in different media or formats; **partially** analyzes important claims, arguments, or themes in text(s)	Demonstrates **sufficient** understanding of what a text implies and states explicitly; uses quotations and paraphrases to **generally** support conclusions; **appropriately** summarizes text; provides a **mostly complete** analysis of a character, an event, or an idea in grade 6 texts Demonstrates **general** understanding of meanings (e.g., figurative, connotative, technical) and effects (e.g., on mood) of words and phrases; demonstrates **general** understanding of how structural elements and point of view contribute to the development of ideas Makes **appropriate** comparisons between texts; **solidly** integrates information in different media or formats; **appropriately** analyzes important claims, arguments, or themes in text(s)	Demonstrates **comprehensive** understanding of what a text implies and states explicitly; uses quotations and paraphrases to **insightfully** support conclusions; **skillfully** summarizes text; provides a **sophisticated** analysis of a character, an event, or an idea in grade 6 texts Demonstrates **in-depth** understanding of meanings (e.g., figurative, connotative, technical) and effects (e.g., on mood) of words and phrases; demonstrates **sophisticated** understanding of how structural elements and point of view contribute to the development of ideas Makes **insightful** comparisons between texts; **skillfully** integrates information in different media or formats; **insightfully** analyzes important claims, arguments, or themes in text(s)
Writing	Produces **basic** writing with **limited** selection and explanation of evidence and details related to grade 6 texts, topics, or subject areas	Produces **solid** writing with **appropriate** selection and explanation of evidence and details related to grade 6 texts, topics, or subject areas	Produces **sophisticated** writing with **skillful** selection and explanation of evidence and details related to grade 6 texts, topics, or subject areas

	Partially Meeting Expectations *On MCAS, a student at this level:*	Meeting Expectations *On MCAS, a student at this level:*	Exceeding Expectations *On MCAS, a student at this level:*
	Produces writing with **little** development of a central idea, a claim, or sequenced events; **limited** organization; and **basic** expression of ideas Exhibits **partial** awareness of task, purpose, and audience	Produces writing with **appropriate** development of a central idea, a claim, or sequenced events; **moderate** organization; and **adequate** expression of ideas Exhibits **sufficient** awareness of task, purpose, and audience	Produces writing with **full** development of a central idea, a claim, or sequenced events; **skillful** organization; and **rich** expression of ideas Exhibits **full** awareness of task, purpose, and audience
Language	Demonstrates **limited** reading vocabulary of grade 6 academic and domain-specific words and phrases Demonstrates **limited** understanding of unfamiliar words in text and shows **partial** understanding of word parts, figurative language, word relationships, and nuances in word meanings Demonstrates **little** control of the standard English conventions of sentence structure, grammar, usage, and mechanics	Demonstrates **solid** reading vocabulary of grade 6 academic and domain-specific words and phrases Demonstrates **solid** understanding of unfamiliar words in text and shows **sufficient** understanding of word parts, figurative language, word relationships, and nuances in word meanings Demonstrates **mostly consistent** control of the standard English conventions of sentence structure, grammar, usage, and mechanics	Demonstrates **comprehensive** reading vocabulary of grade 6 academic and domain-specific words and phrases Demonstrates **comprehensive** understanding of unfamiliar words in text and shows **full** understanding of word parts, figurative language, word relationships, and nuances in word meanings Demonstrates **consistent** control of the standard English conventions of sentence structure, grammar, usage, and mechanics

MCAS Next-Generation Achievement Level Descriptors
English Language Arts

Grade 7

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations,* and *Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students' work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
Reading	Demonstrates **partial** understanding of what a text implies and states explicitly; uses quotations and paraphrases to **partially** support conclusions; incompletely summarizes text; provides a **partial** analysis of the interactions of characters, events, or ideas in grade 7 texts Demonstrates **partial** understanding of meanings (e.g., figurative, connotative, technical) and effects (e.g., on mood) of words and phrases; demonstrates **limited** understanding of how structural elements and point of view contribute to the development of ideas Makes **basic** comparisons between texts; **partially** integrates information in different media or formats; **partially** analyzes important claims, arguments, or themes in text(s)	Demonstrates **sufficient** understanding of what a text implies and states explicitly; uses quotations and paraphrases to **generally** support conclusions; **appropriately** summarizes text; provides a **mostly complete** analysis of the interactions of characters, events, or ideas in grade 7 texts Demonstrates **general** understanding of **meanings** (e.g., figurative, connotative, technical) and effects (e.g., on mood) of words and phrases; demonstrates **general** understanding of how structural elements and point of view contribute to the development of ideas Makes **appropriate** comparisons between texts; **solidly** integrates information in different media or formats; **appropriately** analyzes important claims, arguments, or themes in text(s)	Demonstrates **comprehensive** understanding of what a text implies and states explicitly; uses quotations and paraphrases to **insightfully** support conclusions; **skillfully** summarizes text; provides a **sophisticated** analysis of the interactions of characters, events, or ideas in grade 7 texts Demonstrates **in-depth** understanding of **meanings** (e.g., figurative, connotative, technical) and effects (e.g., on mood) of words and phrases; demonstrates **sophisticated** understanding of how structural elements and point of view contribute to the development of ideas Makes **insightful** comparisons between texts; **skillfully** integrates information in different media or formats; **insightfully** analyzes important claims, arguments, or themes in text(s)
Writing	Produces **basic** writing with **limited** selection and explanation of evidence and details related to grade 7 texts, topics, or subject areas	Produces **solid** writing with **appropriate** selection and explanation of evidence and details related to grade 7 texts, topics, or subject areas	Produces **sophisticated** writing with **skillful** selection and explanation of evidence and details related to grade 7 texts, topics, or subject areas

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
	Produces writing with **little** development of a central idea, a claim, or sequenced events; **limited** organization; and **basic** expression of ideas Exhibits **partial** awareness of task, purpose, and audience	Produces writing with **appropriate** development of a central idea, a claim, or sequenced events; **moderate** organization; and **adequate** expression of ideas Exhibits **sufficient** awareness of task, purpose, and audience	Produces writing with **full** development of a central idea, a claim, or sequenced events; **skillful** organization; and **rich** expression of ideas Exhibits **full** awareness of task, purpose, and audience
Language	Demonstrates **limited** reading vocabulary of grade 7 academic and domain-specific words and phrases Demonstrates **limited** understanding of unfamiliar words in text and shows **partial** understanding of word parts, figurative language, word relationships, and nuances in word meanings Demonstrates **little** control of the standard English conventions of sentence structure, grammar, usage, and mechanics	Demonstrates **solid** reading vocabulary of grade 7 academic and domain-specific words and phrases Demonstrates **solid** understanding of unfamiliar words in text and shows **sufficient** understanding of word parts, figurative language, word relationships, and nuances in word meanings Demonstrates **mostly consistent** control of the standard English conventions of sentence structure, grammar, usage, and mechanics	Demonstrates **comprehensive** reading vocabulary of grade 7 academic and domain-specific words and phrases Demonstrates **comprehensive** understanding of unfamiliar words in text and shows **full** understanding of word parts, figurative language, word relationships, and nuances in word meanings Demonstrates **consistent** control of the standard English conventions of sentence structure, grammar, usage, and mechanics

MCAS Next-Generation Achievement Level Descriptors
English Language Arts

Grade 8

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations,* and *Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students' work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
Reading	Demonstrates **partial** understanding of what a text implies and states explicitly; uses quotations and paraphrases to **partially** support conclusions; **incompletely** summarizes text; provides a **partial** analysis of connections among characters, events, or ideas in grade 8 texts Demonstrates **partial** understanding of meanings (e.g., figurative, ironic, allusive) and effects (e.g., on mood) of words and phrases; demonstrates **limited** understanding of how structural elements and point of view contribute to the development of ideas Provides a **basic** analysis between texts; **partially** integrates information from different media or formats; **partially** analyzes important claims, arguments, or themes in multiple texts	Demonstrates **sufficient** understanding of what a text implies and states explicitly; uses quotations and paraphrases to **generally** support conclusions; **appropriately** summarizes text; provides a **mostly complete** analysis of connections among characters, events, or ideas in grade 8 texts Demonstrates **general** understanding of meanings (e.g., figurative, ironic, allusive) and effects (e.g., on mood) of words and phrases; demonstrates **general** understanding of how structural elements and point of view contribute to the development of ideas Provides an **appropriate** analysis between texts; **solidly** integrates information from different media or formats; **appropriately** analyzes important claims, arguments, or themes in multiple texts	Demonstrates **comprehensive** understanding of what a text implies and states explicitly; uses quotations and paraphrases to **insightfully** support conclusions; **skillfully** summarizes text; provides a **sophisticated** analysis of connections among characters, events, or ideas in grade 8 texts Demonstrates **in-depth** understanding of meanings (e.g., figurative, ironic, allusive) and effects (e.g., on mood) of words and phrases; demonstrates **sophisticated** understanding of how structural elements and point of view contribute to the development of ideas Provides an **insightful** analysis between texts; skillfully integrates information from different media or formats; **insightfully** analyzes important claims, arguments, or themes in multiple texts
Writing	Produces **basic** writing with **limited** selection and explanation of evidence and details related to grade 8 texts, topics, or subject areas	Produces **solid** writing with **appropriate** selection and explanation of evidence and details related to grade 8 texts, topics, or subject areas	Produces **sophisticated** writing with **skillful** selection and explanation of evidence and details related to grade 8 texts, topics, or subject areas

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
	Produces writing with **little** development of a central idea, a claim, or sequenced events; **limited** organization; and **basic** expression of ideas Exhibits **partial** awareness of task, purpose, and audience	Produces writing with **appropriate** development of a central idea, a claim, or sequenced events; **moderate** organization; and **adequate** expression of ideas Exhibits **sufficient** awareness of task, purpose, and audience	Produces writing with **full** development of a central idea, a claim, or sequenced events; **skillful** organization; and **rich** expression of ideas Exhibits **full** awareness of task, purpose, and audience
Language	Demonstrates **limited** reading vocabulary of grade 8 academic and domain-specific words and phrases Demonstrates **limited** understanding of unfamiliar words in text and shows **partial** understanding of word parts, figurative language, word relationships, and nuances in word meanings Demonstrates **little** control of the standard English conventions of sentence structure, grammar, usage, and mechanics	Demonstrates **solid** reading vocabulary of grade 8 academic and domain-specific words and phrases Demonstrates **solid** understanding of unfamiliar words in text and shows **sufficient** understanding of word parts, figurative language, word relationships, and nuances in word meanings Demonstrates **mostly consistent** control of the standard English conventions of sentence structure, grammar, usage, and mechanics	Demonstrates **comprehensive** reading vocabulary of grade 8 academic and domain-specific words and phrases Demonstrates **comprehensive** understanding of unfamiliar words in text and shows **full** understanding of word parts, figurative language, word relationships, and nuances in word meanings Demonstrates **consistent** control of the standard English conventions of sentence structure, grammar, usage, and mechanics

MCAS Next-Generation Achievement Level Descriptors
English Language Arts

August 2017

Next-Generation Achievement Level Descriptors

Exceeding Expectations
A student who performed at this level exceeded grade-level expectations by demonstrating mastery of the subject matter.

Meeting Expectations
A student who performed at this level met grade-level expectations and is academically on-track to succeed in the current grade in this subject.

Partially Meeting Expectations
A student who performed at this level partially met grade-level expectations in this subject. The school, in consultation with the student's parent/guardian, should consider whether the student needs additional academic assistance to succeed in this subject.

Not Meeting Expectations
A student who performed at this level did not meet grade-level expectations in this subject. The school, in consultation with the student's parent/guardian, should determine the coordinated academic assistance and/or additional instruction the student needs to succeed in this subject.

MCAS Next-Generation Achievement Level Descriptors
English Language Arts

Grade 10

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations,* and *Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students' work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
Reading	**Partially** analyzes what a text implies and states explicitly; uses **little** evidence to support the analysis; **incompletely** identifies and analyzes the development of a central idea or theme of a text; provides a **limited** analysis of how characters, events or ideas are developed and interact across sufficiently complex texts **Partially** determines meanings (e.g., figurative, connotative, technical) of words and phrases and analyzes how they impact meaning and tone; demonstrates **limited** understanding of how structural elements and point of view contribute to the overall development of ideas or purpose Provides a **basic** analysis between texts; **partially** integrates information from different sources; **partially** analyzes and evaluates important claims, arguments, or themes in multiple texts	**Adequately** analyzes what a text implies and states explicitly; uses **sufficient** evidence to support the analysis; **appropriately** identifies and analyzes the development of a central idea or theme of a text; provides a **mostly complete** analysis of how characters, events or ideas are developed and interact across sufficiently complex texts **Appropriately** determines meanings (e.g., figurative, connotative, technical) of words and phrases and analyzes how they impact meaning and tone; demonstrates **general** understanding of how structural elements and point of view contribute to the overall development of ideas or purpose Provides an **appropriate** analysis between texts; **solidly** integrates information from different sources; **appropriately** analyzes and evaluates important claims, arguments, or themes in multiple texts	**Insightfully** analyzes what a text implies and states explicitly; uses **strong** and **thorough** evidence to support the analysis; **skillfully** identifies and analyzes the development of a central idea or theme of a text; provides a **sophisticated** analysis of how characters, events or ideas are developed and interact across sufficiently complex texts **Skillfully** determines meanings (e.g., figurative, connotative, technical) of words and phrases and analyzes how they impact meaning and tone; demonstrates **sophisticated** understanding of how structural elements and point of view contribute to the overall development of ideas or purpose Provides an **insightful** analysis between texts; **skillfully** integrates information from different sources; **insightfully** analyzes and evaluates important claims, arguments, or themes in multiple texts
Writing	Produces **basic** writing with **limited** selection and explanation of evidence and	Produces **solid** writing with **appropriate** selection and explanation of evidence and	Produces **clear** and **sophisticated** writing with **skillful** selection and explanation of

	Partially Meeting Expectations *On MCAS, a student at this level:*	Meeting Expectations *On MCAS, a student at this level:*	Exceeding Expectations *On MCAS, a student at this level:*
	details related to sufficiently complex texts, topics, or subject areas Produces writing with **little** development of a **basic** central idea, thesis, or sequenced events; **limited** organization; and **basic** expression of ideas Exhibits **partial** awareness of task, purpose, and audience	details related to sufficiently complex texts, topics, or subject areas Produces writing with **adequate** development of a **solid** central idea, thesis, or sequenced events; **moderate** organization; and **appropriate** expression of ideas Exhibits **sufficient** awareness of task, purpose, and audience	evidence and details related to sufficiently complex texts, topics, or subject areas Produces writing with **full** development of an **insightful** central idea, thesis, or sequenced events; **skillful** organization; and **rich** expression of ideas Exhibits **full** awareness of task, purpose, and audience
Language	Demonstrates **limited** reading vocabulary of sufficiently complex academic and domain-specific words and phrases **Partially** determines the meaning of unfamiliar words in text using a variety of strategies; shows **partial** understanding of various grammatical rules and literary devices in a text Demonstrates **little** control of the standard English conventions of sentence structure, grammar, usage, and mechanics	Demonstrates **solid** reading vocabulary of sufficiently complex academic and domain-specific words and phrases **Sufficiently** determines the meaning of unfamiliar words in text using a variety of strategies; shows **sufficient** understanding of various grammatical rules and literary devices in a text Demonstrates **mostly consistent** control of the standard English conventions of sentence structure, grammar, usage, and mechanics	Demonstrates **comprehensive** reading vocabulary of sufficiently complex academic and domain-specific words and phrases **Skillfully** determines the meaning of unfamiliar words in text using a variety of strategies; shows **full** understanding of various grammatical rules and literary devices in a text Demonstrates **consistent** control of the standard English conventions of sentence structure, grammar, usage, and mechanics

MCAS Next-Generation Achievement Level Descriptors
Mathematics

Next-Generation Achievement Level Descriptors

Exceeding Expectations
A student who performed at this level exceeded grade-level expectations by demonstrating mastery of the subject matter.

Meeting Expectations
A student who performed at this level met grade-level expectations and is academically on-track to succeed in the current grade in this subject.

Partially Meeting Expectations
A student who performed at this level partially met grade-level expectations in this subject. The school, in consultation with the student's parent/guardian, should consider whether the student needs additional academic assistance to succeed in this subject.

Not Meeting Expectations
A student who performed at this level did not meet grade-level expectations in this subject. The school, in consultation with the student's parent/guardian, should determine the coordinated academic assistance and/or additional instruction the student needs to succeed in this subject.

MCAS Next-Generation Achievement Level Descriptors
Mathematics

Grades 3 through 8 and 10

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations, and Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
Conceptual Understanding and Procedural Knowledge	• Demonstrates partial understanding of the grade appropriate numeration system • Performs some calculations and estimations • Identifies examples of basic math facts or mathematical concepts • Mostly reads and sometimes constructs graphs, tables and charts	• Applies understanding of the base-ten system and fractions to interpret numbers and solve problems • Performs most calculations and estimations • Describes mathematical concepts and generates examples and counterexamples of concepts • Represents data and mathematical relationships using equations, verbal descriptions, tables, and graphs	• Performs complex calculations and estimations • Selects the best representations for a given set of data • Explains relationships between models such as equations, verbal descriptions, tables, and graphs • Applies math facts and connects mathematical concepts from various areas of mathematics, and uses the concepts to develop generalizations • Recognizes and makes use of structure, discerning patterns by seeing complicated things as single objects
Problem Solving	• Applies learned procedures to solve routine problems • Uses concrete objects or pictures to help conceptualize and solve problems.	• Applies learned procedures and mathematical concepts to solve a variety of problems, including multi-step problems • Solves problems using multiple methods • Demonstrates the relationships between operations used to solve problems and the context of the problems	• Generates strategies and procedures to solve non-routine problems • Solves problems using multiple methods, evaluating reasonableness of intermediate steps leading to the standard algorithms • Draws connections between strategies • Analyzes givens, constraints, and relationships in problems, using multiple methods and appropriate tools
Mathematical Reasoning	• Applies some reasoning methods to solve routine problems	• Uses a variety of reasoning methods to solve routine and non-routine problems • Uses symbols to solve routine mathematical problems	• Reasons abstractly and quantitatively, using multiple reasoning methods to solve complex problems and provides justification for the reasoning

			• Decontextualizes situations and represents them symbolically
Mathematical Communication	• Identifies and uses basic terms	• Uses logical forms of representation (e.g., text, graphs, symbols) to illustrate steps to a solution	• Uses logical forms of representation (e.g., text, graphs, symbols) to justify solutions and solution strategies • Constructs viable arguments and critiques the reasoning of others, attending to precision

Next-Generation Achievement Level Descriptors

Exceeding Expectations
A student who performed at this level exceeded grade-level expectations by demonstrating mastery of the subject matter.

Meeting Expectations
A student who performed at this level met grade-level expectations and is academically on-track to succeed in the current grade in this subject.

Partially Meeting Expectations
A student who performed at this level partially met grade-level expectations in this subject. The school, in consultation with the student's parent/guardian, should consider whether the student needs additional academic assistance to succeed in this subject.

Not Meeting Expectations
A student who performed at this level did not meet grade-level expectations in this subject. The school, in consultation with the student's parent/guardian, should determine the coordinated academic assistance and/or additional instruction the student needs to succeed in this subject.

MCAS Next-Generation Achievement Level Descriptors
Mathematics

Grade 3

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations, and Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
Operation and Algebraic Thinking	• Determines products and quotients of whole numbers • Solves one-step word problems by multiplying and dividing within 100 with limited accuracy • Determines the unknown whole number in a multiplication or division equation • Recognizes simple arithmetic patterns	• Interprets products and quotients of whole numbers • Solves word problems by multiplying and dividing within 100 accurately • Solves two-step word problems with unknowns in equations involving all four operations • Applies the properties of multiplication • Recognizes arithmetic patterns • Recognizes products of two single-digit numbers • Uses equal groups and arrays to solve word problems involving multiplication and division within 100 • Consistently uses estimation strategies to assess the reasonableness of answers	• Creates and solves equations with unknown factors to solve word problems • Explains arithmetic patterns using the properties of operations • Uses area models to solve word problems involving multiplication and division within 100 • Recognizes products of two single-digit numbers and the related division facts
Number and Operations in Base Ten	• Uses place value to round two-digit numbers to the nearest 10 • Solves problems by adding and subtracting within 1000 using various strategies with limited accuracy	• Uses place value to round three digit numbers to the nearest 10 • Fluently adds and subtracts within 1000 using various strategies • Solves problems involving multiplication of a one-digit whole number by multiples of 10 in the range 10-90	• Uses algorithms to add and subtract within 1000 and multiply one-digit whole numbers by multiples of 10 in the range 10-90, and explain why they work • Recognizes the relationship between addition and subtraction

	Partially Meeting Expectations *On MCAS, a student at this level:*	Meeting Expectations *On MCAS, a student at this level:*	Exceeding Expectations *On MCAS, a student at this level:*
Number and Operations – Fractions	• Visually identifies fractional parts of a whole • Recognizes equivalent fractions • Compares two fractions with like numerators or like denominators	• Identifies fractional parts of a whole • Identifies and represents fractions on number lines or other visual fraction models that are already created • Generates equivalent fractions • Represents whole numbers as fractions • Compares fractions with like numerators and denominators by reasoning about their size using visual fraction models that are already created, and symbols <, > and =	• Explains fraction equivalence • Recognizes and explains fractional equivalence of whole numbers • Creates visual fraction models to justify the size comparison made about two fractions that refer to the same whole.
Measurement and Data	• Tells, writes and measures time to the nearest minute • Identifies appropriate tools and units of measurement to solve problems • Uses line plots to solve problems • Uses scaled picture graphs and bar graphs to solve problems • Finds area by using non-standard units • Solves mathematical problems involving perimeters of polygons, including finding the perimeter given the side length	• Solves word problems involving addition and subtraction of time intervals in minutes • Selects and uses appropriate tools and units of measure to solve problems • Draws simple scaled picture graphs and bar graphs and uses them to solve one-step problems • Generates measurement data using rulers marked with halves and fourths of an inch • Creates line plots with whole numbers, halves and fourths to record and show data to solve problems • Finds area by using standard units • Relates multiplication and addition to area • Determines area by decomposing shapes into non-overlapping rectangles and adding the areas of the non-overlapping parts • Solves mathematical problems involving perimeters of polygons,	• Uses estimation to solve word problems involving measurement • Draws scaled picture graphs and scaled bar graphs and uses them to solve two-step problems • Differentiates perimeter from area • Interprets scaled picture and bar graphs, and line plots • Solves mathematical and real-world problems involving perimeters of polygons, including finding an unknown side length and is able to reproduce rectangles with the same perimeter and different area

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
		including finding an unknown side length and identifies rectangles with the same perimeter and different area	
Geometry	• Identifies two-dimensional shapes based on their sides and angles • Partitions shapes into parts	• Describes two-dimensional shapes based their sides and angles • Partitions shapes into parts with equal areas and expresses the area as a unit fraction of the whole	• Compares and classifies two-dimensional shapes based on their sides and angles

MCAS Next-Generation Achievement Level Descriptors
Mathematics

Grade 4

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations, and Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	Meeting Expectations *On MCAS, a student at this level:*	Exceeding Expectations *On MCAS, a student at this level:*
Operation and Algebraic Thinking	• Interprets a multiplication equation as a comparison • Solves multiplication and division word problems • Solves two-step word problems using the four operations with whole numbers, including problems where remainders must be interpreted • Identifies multiplication facts through 12 x 12 • Identifies factor pairs in the 1-100 range • Identifies a pattern that follows a rule	• Recognizes verbal statements of multiplicative comparisons as multiplication equations. • Represents multiplication and division word problems using drawings and equations • Uses the four operations to solve multi-step word problems and represents the problems by equations • Identifies related multiplication and division facts through 12 x 12 • Finds factor pairs in the 1-100 range and recognizes that a whole number is a multiple of each of its factors • Distinguishes between prime and composite numbers in the range 1-100 • Identifies a pattern that follows a rule and, generates a pattern, given a rule	• Explains the difference between multiplicative and additive comparison • Uses equations to represent problems, and justifies solutions with estimation • Identifies multiples and their corresponding factors, and distinguishes between prime and composite numbers. • Generates patterns not explicit to the rule • Uses estimation to assess the reasonableness of answers
Number and Operations in Base Ten	• Reads and writes whole numbers using base-ten number names and expanded form • Uses place value understanding to round whole numbers to the thousands place • Solves problems involving multiplication of four digit numbers by a one-digit numbers • Solves problems involving quotients and remainders with up to three-digit dividends and one-	• Uses place value to recognize that in a multi-digit number, a digit in any place represents 10 times as much as it represents in the place to its right • Compares two multi-digit numbers based on place value position using <, > and = • Uses place value understanding to round whole numbers to the ten thousands place • Adds and subtracts whole numbers using the standard algorithm • Solves problems involving multiplication of two-digit numbers by two-digit numbers	• Uses place value understanding to round whole numbers up to one million • Uses understanding of structure to explain the standard algorithm for addition and subtraction. • Solves problems involving multiplication of four digit numbers by one-digit, and justifies solutions by using equations, rectangular arrays or area models.

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
	digit divisors based on place value and properties of operations	• Solves problems involving quotients and remainders with up to four-digit dividends and one-digit divisors, using p the relationship between multiplication and division understanding	• Justifies solutions using equations, rectangular arrays, and/or area models
Number and Operations – Fractions	• Recognizes equivalency in fractions • Compares fractions with different numerators and different denominators by using common denominators or common numerators • Decomposes fractions into a sum of fractions and uses visual fraction models to solve problems • Multiplies a fraction by a whole number	• Explains why fractions are equivalent using visual fraction models • Consistently compares two fractions when the two fractions refer to the same whole • Consistently compares two decimals when the two decimals refer to the same whole • Compares fractions with different numerators and different denominators by comparing to a benchmark fraction • Adds and subtracts fractions with like denominators • Decomposes fractions into a sum of fractions and uses equations to solve problems • Adds and subtracts mixed numbers with like denominators by replacing with equivalent fraction and by using properties of operations or the relationship of addition and subtraction • Uses visual fraction models and equations to solve word problems involving multiplication of a fraction by a whole number • Uses decimal notation to represent fractions with denominators of 10 and 100 • Compares decimals to hundredths by reasoning about their size	• Generates equivalent fractions including fractions greater than 1 • Decomposes fractions into a sum of fractions and justifies solutions to problems with visual fraction models and equations • Justifies the conversion of a fraction with denominator of 10 to an equivalent fraction with a denominator of 100 and expresses it as a decimal

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
Measurement and Data	• Solves measurement problems involving whole numbers using all four operations • Solves measurement problems involving perimeter and area • Interprets data presented in line plots (dot plots) and uses addition and subtraction of fractions to solve problems involving line plots • Identifies concepts of angles and angle measurement	• Solves problems involving converting measurements from larger units to smaller units • Creates line plots (dot plots) in fractions of a unit (1/2, ¼, 1/8), to display given data, and uses addition and subtraction of fractions solve problems involving line plots • Uses a protractor to measure , sketch or interpret an angle • Finds unknown angles in diagrams • Justifies solutions to perimeter and area problems	• Reasons about relative sizes of measurement units within one system of units • Sketches an angle without a protractor
Geometry	• Identifies right triangles, points, lines, line segments, rays, angles, perpendicular and parallel lines, lines of symmetry	• Identifies right triangles and draws points, lines, line segments, rays, angles, perpendicular and parallel lines, in two dimensional shapes • Classifies two-dimensional shapes based on their attributes, including the presence and absence of parallel or perpendicular lines or angles of a specified size. • Recognizes lines of symmetry in two-dimensional figures and identifies line-symmetric figures	• Draws two-dimensional shapes based on attributes.

MCAS Next-Generation Achievement Level Descriptors
Mathematics

Grade 5

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations, and Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	Meeting Expectations *On MCAS, a student at this level:*	Exceeding Expectations *On MCAS, a student at this level:*
Operation and Algebraic Thinking	• Recognizes when parentheses, brackets, or braces are appropriately used in numerical expressions • Given two rules, generates numerical patterns	• Uses parentheses, brackets, or braces to write, interpret and evaluate numerical expressions • Interprets numerical expressions without evaluating • Given two rules, identifies the relationship between corresponding terms	• Given two rules, forms and graphs ordered pairs and interprets the relationship between corresponding terms
Number and Operations in Base Ten	• Recognizes that in a multi-digit number, including a decimal, a digit in any place represents 10 times as much as it represents in the pace to its right or 1/10 of what it represents in the place to its left • Reads decimals to thousandths using base 10 numerals, number names, and expanded form • Identifies which comparison symbols to use when comparing decimals to hundredths • Uses various strategies to solve problems involving all operation with whole numbers including quotients with division limited to four digit dividends and 2 digit divisors • Solves problems involving addition and subtraction with decimals to tenths	• Uses whole number exponents to denote powers of 10 • Uses place value to round decimals to any place • Fluently multiplies multi-digit whole numbers • Writes decimals to thousandths using base ten numerals, number names, expanded form and comparison symbols • Compares decimals using base ten numerals, number names and comparison symbols <, > and = • Uses various strategies to solve problems involving all operation with whole numbers including quotients with division limited to four digit dividends and 2 digit divisors and explains using rectangular arrays and/or area models • Applies understandings of models for decimals, place value, and properties of operations to add, subtract, multiply and divide decimals to hundredths	• Uses place value understanding of multi-digit numbers including decimals to explain patterns in the number of zeros and the placement of the decimal point, when multiplying a number by powers of 10. • Compares decimals using expanded form • Makes reasonable estimates of decimal results • Explains understandings of models for decimals, decimal notation, and properties of operations to add, subtract, multiply and divide decimals to hundredths • Uses the relationship between decimals and fractions, as well as the relationship between finite decimals and whole numbers to understand and explain why the procedures for multiplying and dividing finite decimals make sense.

	Partially Meeting Expectations *On MCAS, a student at this level:*	Meeting Expectations *On MCAS, a student at this level:*	Exceeding Expectations *On MCAS, a student at this level:*
	• Identifies the quotient of whole numbers	• Solves mathematical and real-world problems involving multiplication of whole numbers and decimals to hundredths using the standard algorithm. • Uses models to find the quotients of whole numbers. • Solves problems involving all operations on decimals to hundredths.	
Number and Operations – Fractions	• Adds and subtracts fractions with like denominators (including mixed numbers) • Uses visual fraction models to multiply fractions or whole numbers by fractions • Finds areas or rectangles with fractional side lengths by tiling with unit squares • Recognizes multiplication as scaling by comparing the factors with computation	• Adds and subtracts fractions with unlike denominators (including mixed numbers) • Uses visual fraction models to solve real-world problems by multiplying fractions or whole numbers by fractions, and fractions by mixed numbers • Shows that the area of rectangles with fractional side lengths, found by tiling with unit squares, is the same as multiplying the side lengths • Recognizes multiplication as scaling by comparing the factors without computation • Interprets division of a unit fraction by a non-zero whole number and division of a whole number • Solves real-world and mathematical problems involving division of a unit fraction by a non-zero whole number and a whole number by a unit fraction	• Applies understanding of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators as equivalent calculations with like denominators in the context of solving word p problems. • Uses understanding of fraction equivalence to make sense of sums and differences of fractions, and makes reasonable estimates of them. • Uses the relationship between multiplication and division of fractions to solve and explain mathematical and real-world problems including finding the area of rectangles with fractional side lengths, finding quotients of division of non-zero whole number by unit fractions

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
Measurement and Data	• Converts among different-sized measurement units within a given measurement system • Interprets and represents data presented in line plots (dot plots) to solve problems • Recognizes volume as an attribute of solid figures and calculates volume of right rectangular prisms by packing it with unit cubes, counting unit cubes, and with standard and non-standard units	• Applies conversion among different-sized measurement units within a given measurement system to solve multi-step real-world problems • Uses a line plot (dot plot) to represent data and uses operations on fractions to solve problems involving the line plots • Recognizes volume as additive and calculates volume by finding the total number of same-size units of volume required to fill a space without gaps or overlaps. • Decomposes three-dimensional shapes and finds volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes	• Uses appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume with application of the volume formula • Decomposes three-dimensional shapes and finds volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes and relate to the volume formula • Solves real world application problems requiring the application of V =l wh and V=Bh
Geometry	• Represents mathematical and real-world problems by locating points in the first quadrant • Identifies two-dimensional figures based on properties	• Represents mathematical and real-world problems by locating and graphing in the first quadrant • Classifies two-dimensional figures in a hierarchy based on properties	• Solves mathematical and real-world problems by graphing in the first quadrant and interpreting the coordinate values of points based on the context of the situation • Applies knowledge of number and length to the order and distance relationships of a coordinate plane

MCAS Next-Generation Achievement Level Descriptors
Mathematics

Grade 6

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations, and Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
The Number System	• Interprets quotients of fractions to solve problems • Identifies greatest common factors or least common multiples • Uses positive and negative numbers to describe quantities having opposite directions or values • Solves mathematical problems by using all operations on multi-digit decimals • Graphs ordered pairs in all four quadrants to solve problems • Interprets statements of order for rational numbers	• Computes quotients of fractions to solve problems • Uses prime factorization to find the greatest common factors, least common multiples to solve problems • Represents quantities in real-world context on a number line, explaining the meaning of zero • Uses the understanding of structure to explain the standard algorithm to divide multi-digit numbers • Uses the standard algorithm to fluently operate on multi-digit decimals • Finds the absolute value of a rational number by recognizing its distance from zero on the number line • Uses the standard algorithm to divide multi-digit numbers • Computes all operations on multi-digit decimals • Solve problems by graphing in all four quadrants and finds distances between points with same first coordinate or same second coordinate • Interprets and writes statements of order for rational numbers	• Applies interpretation of quotients of fractions to solving word problems • Uses visual fraction models to solve word problems involving computing quotients of fractions • Applies number theory concepts to the solution of problems. • Solves problems involving order and absolute value of rational numbers

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
Ratios and Proportional Relationships	• Identifies part to part and part to whole relationships • Uses rate language in the context of a ratio relationship • Sometimes solves unit rate problems	• Solves problems requiring part to part ratios to be converted to part to whole ratios • Consistently solves unit rate problems • Uses rate reasoning to solve problems • Finds the percent of a quantity • Uses ratio reasoning to convert measurement units within measurement systems • Interprets and manipulates models with ratios such as tape diagrams, tables and double number lines to compare ratios	• Determines what percent of a quantity is a given amount • Explains when to use part to part ratios, and when to use part to whole ratios to solve problems • Uses ratio reasoning to convert measurement units between measurement systems • Creates models with ratios such as tape diagrams, tables and double number lines to compare ratios • Relates mass of an object to its volume to solve problems
Expressions and Equations	• Evaluates given expressions and equations involving whole-number exponents to solve problems • Identifies parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient)	• Interprets, evaluates and writes expressions and equations involving whole-number exponents • Views one or more parts of an expression as a single entity • Generate and identify equivalent expressions • Relates tables and graphs to equations • Writes and solves equations of the form $x + p = q$ and $px = q$ • Solves and graphs inequalities that represent a constraint or condition in a mathematical or real-world problem. • Analyzes the relationships between dependent and independent variables in real-world problems.	• Writes and graphs inequalities that represent a constraint or condition in a mathematical or real-world problem • Creates equations of the form $x + p = q$ and $px = q$ from a given situation • Uses equations to describe relationships between quantities
Geometry	• Solves mathematical problems involving areas of triangles, including right triangles and quadrilaterals • Solves mathematical problems involving volume of right rectangular prisms with whole number edge lengths	• Solves real-world problems involving areas of triangles, including right triangles and quadrilaterals by decomposing shapes, rearranging or removing pieces, and relating shapes to rectangles • Finds volume of right rectangular prisms with fractional edge lengths • Uses nets of three-dimensional figures to find the surface area	• Reasons about geometric shapes and their measurements • Develops, and justifies formulas to solve mathematical and real-world problems that involve areas of triangles, including right triangles, and quadrilaterals

	Partially Meeting Expectations *On MCAS, a student at this level:*	Meeting Expectations *On MCAS, a student at this level:*	Exceeding Expectations *On MCAS, a student at this level:*
	• Represents three-dimensional figures using nets • Given coordinates of a polygon, draws the polygon on a coordinate plane	• Given coordinates of a polygon on a coordinate plane, finds lengths of the sides of the polygon	• Applies the formula for volume of right rectangular prisms with fractional edge lengths • Applies knowledge of nets to solve mathematical and real-world problems involving surface area • Given coordinates of a polygon (without a coordinate plane), finds lengths of the sides of the polygon and applies these techniques to solve real-world problems
Statistics and Probability	• Recognizes a statistical question • Visually recognizes measures of center and variability • Interprets dot plots and histograms	• Solve problems involving finding the measures of center and variability • Constructs dot plots, histograms, box plots and circle graphs given real-world situations	• Recognizes that a data distribution may not have a definite center, and different ways to measure center can yield different values, and uses this understanding to interpret a situation • Describes and summarizes numerical data sets, identifying clusters, peaks, gaps, and symmetry in a real-world problem

MCAS Next-Generation Achievement Level Descriptors
Mathematics

Grade 7

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations, and Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
The Number System	• Represents addition and subtraction on a horizontal and vertical number line • Operates with rational numbers	• Recognizes situations in which opposite quantities combine to make zero • Operates with rational numbers in mathematical and real world problems • Translates between rational numbers and decimals	• Translates from repeating decimal form of a rational number to fraction form • Interprets quotient and remainder of rational numbers • Applies properties of operations as strategies to add, subtract, multiply and divide
Ratios and Proportional Relationships	• Recognizes a proportional relationship • Uses ratios and proportionality to solve simple mathematical problems, including percent problems	• Represents a proportional relationship by equations • Sometimes uses ratios and proportionality to solve multi-step mathematical and real world problems, including percent problems • Interprets the meaning of any point on a graph of a proportional relationship	• Consistently uses ratios and proportionality to solve multi-step mathematical and real world problems, including percent problems
Expressions and Equations	• Uses properties of operations to add and subtract linear expressions • Solves simple mathematical problems using numerical and algebraic expressions and equations • Identifies simple arithmetic and geometric sequences from tables, graphs, words and expressions. • Extends patterns in simple arithmetic and geometric sequences from tables, graphs, words and expressions.	• Uses properties of operations to expand linear expressions • Uses properties of operations to factor linear expressions • Given a real-world problem, rewrites expressions in different forms to show understanding of the problem • Interprets the solution of an inequality in a real-world problem • Solves multi-step mathematical and real-world problems using numerical and algebraic expressions and equations • Fluently converts between different forms	• Uses properties of operations to factor linear expressions and interprets the result in the context of a problem • Justifies solutions to multi-step problems • Analyzes patterns and determines expressions for simple arithmetic and geometric sequences using tables, graphs, words and expressions

	Partially Meeting Expectations *On MCAS, a student at this level:*	Meeting Expectations *On MCAS, a student at this level:*	Exceeding Expectations *On MCAS, a student at this level:*
		• Create equations and inequalities to solve problems • Graphs the solutions of an inequality	
Geometry	• Draws triangles with given conditions • Applies the formulas to find the circumference of circles • Applies the formulas to find the area of two-dimensional figures, including circles • Recognizes attributes of angles (supplementary, complementary, vertical, adjacent)	• Constructs triangles with given conditions and describes some of their attributes • Describes the shape of the two-dimensional face of the figure that results from slicing three-dimensional figures. • Solves problems involving the relationship between area and circumference of circles • Solves problems involving the surface area and volume of three-dimensional shapes • Solves mathematical problems involving scale drawings • Solves multi-step problems using attributes of angles (supplementary, complementary, vertical, adjacent)	• Finds unknown supplementary, complementary, vertical, and adjacent angles by solving equations
Statistics and Probability	• Makes inferences about a population by examining the sample population • Visually compares two populations based on measures of center and variability • Differentiates between representative and non-representative samples • Identifies probability as a number between 0 and 1 • Finds probabilities of simple events	• Uses random sampling to draw inferences about a population • Recognizes the probabilities of 0 through 1 as likely, unlikely, or neither. • Develops probability models and uses it to find probabilities of events • Finds probabilities for compound events using organized lists, tables, and tree diagrams	• Evaluates probability models • Designs and uses a simulation to generate frequencies for compound events • Computes the differences of the centers as a multiple of the measure of variability for two populations

MCAS Next-Generation Achievement Level Descriptors
Mathematics

Grade 8

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations, and Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
The Number System	• Distinguishes between rational and irrational numbers	• Recognizes that rational and irrational numbers have decimal expansions • Uses rational approximations of irrational numbers to compare the size of irrational numbers • Finds approximate location of irrational numbers on the number line • Finds rational approximations of irrational numbers	• Estimates the values of expressions with irrational numbers • Converts a decimal expansion which repeats eventually to a rational number
Expressions and Equations	• Identifies the properties of integer exponents • Know that $\sqrt{2}$ is irrational • Uses and evaluates square root s of small squares • Graphs proportional relationships, and identifies the unit rate as the slope • Solves one-variable linear equations with one or many solutions • Recognizes that the point of intersection of two linear equations is the solution	• Applies the properties of integer exponents to generate equivalent expressions • Performs operations with decimals and scientific notation • Uses and evaluates cube roots of small cubes • Uses numbers in the form of a single digit times an integer power of 10 to estimate the magnitude and relationships of quantities • Uses scientific notation and chooses appropriate units of measurement for varying magnitudes • Uses linear equations and systems of linear equations to represent and solve problems. • Compares proportional relationships represented in different ways • Recognizes the difference between proportional and non-proportional in linear relationships	• Uses numbers in the form of a single digit times an integer power of 10 to estimate the magnitude and interpret relationships of quantities in word problems • Uses linear equations and systems of linear equations to represent, analyze, and solve problems. • Use similar triangles to explain why the slope is the same between any two distinct points on a non-vertical line in the coordinate plane • Derives the equation y=mx for a line through the origin and the equation y=mx + b for a line intercepting the vertical axis b • Estimates solutions to systems of two equations from a graph • Uses understanding of a proportional relationship and structure to interpret

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
		• Solves one-variable linear equations with rational coefficients • Solves systems of two linear equations algebraically or graphically in real-world and mathematical problems	the meaning of b, the vertical axis intercept
Functions	• Identifies a relationship as a function • Interprets the equation of a linear function	• Determines the rate of change and initial value of a function from a table or graph • Compares the properties of functions represented in different ways • Writes a function to model a linear relationship • Determines the rate of change of a function from a table, graph or description • Describes or sketches functional relationships represented graphically	• Identifies functions as linear and non-linear from graphs or equations • Interprets the rate of change of a function from a table, graph, equation or description
Geometry	• Identifies the properties of rotations, reflections and translations • Uses the relationship among the sides of a right triangle to solve problems • Translates and reflects two dimensional figures • Uses Pythagorean theorem to find the hypotenuse	• Describes the congruence relationship between two congruent figures • Describes the effect of transformations on two-dimensional figures using coordinates • Describes the similarity relationship between two similar figures • Rotates two-dimensional figures around the origin • Finds angle sum and exterior angle of triangles, angles created when parallel lines are cut by a transversal, and angle-angle criterion for similarity of triangles • Applies the Pythagorean theorem to find distances between points on the coordinate plane • Applies the Pythagorean theorem to determine the unknown side lengths in right triangles in mathematical and real-world problems • Solves mathematical and real-world problems involving volume of cones, cylinders, and spheres	• Use informal arguments to establish facts about the angle sum and exterior angle of triangles, angles created when parallel lines are cut by a transversal, and angle-angle criterion for similarity of triangles • Justifies Pythagorean theorem and its converse • Given the volume of a cone, finds unknown dimensions of the cone • Given the volume of a cylinder, finds unknown dimensions of the cylinder • Given the volume of a sphere, finds unknown dimensions of the sphere

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
Statistics and Probability	• Describes the patterns associated with bivariate data • Identifies and constructs a line of best fit	• Constructs and interprets scatter plots • Constructs and interprets two-way tables • Uses the equation of a linear model to solve problems	• Interprets the slope and intercept of linear models • Analyzes scatter plots • Analyzes relative frequencies in two-way tables

Next-Generation Achievement Level Descriptors

Exceeding Expectations
A student who performed at this level exceeded grade-level expectations by demonstrating mastery of the subject matter.

Meeting Expectations
A student who performed at this level met grade-level expectations and is academically on-track to succeed in the current grade in this subject.

Partially Meeting Expectations
A student who performed at this level partially met grade-level expectations in this subject. The school, in consultation with the student's parent/guardian, should consider whether the student needs additional academic assistance to succeed in this subject.

Not Meeting Expectations
A student who performed at this level did not meet grade-level expectations in this subject. The school, in consultation with the student's parent/guardian, should determine the coordinated academic assistance and/or additional instruction the student needs to succeed in this subject.

MCAS Next-Generation Achievement Level Descriptors
Mathematics

Grade 10

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations, and Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
Number and Quantity	• Rewrites expressions involving integer exponents using the properties of exponents • Uses units as a way to understand problems and chooses units consistently in formulas • Chooses the scale and the origin in graphs and data displays • Identifies significant figures in recorded measures and computed values based on the context given and the precision of the tools used to measure • Identifies appropriate quantities for the purpose of descriptive modeling	• Rewrites expressions involving radical and rational exponents using the properties of exponents • Performs operations on rational and irrational numbers • Determines whether the solution of operations on two numbers would be rational or irrational • Interprets units consistently in formulas and uses units to solve multi-step problems. • Interprets the scale and the origin in graphs and data displays • Defines appropriate quantities for the purpose of descriptive modeling • Chooses a level of accuracy appropriate to limitations on measurement when reporting quantities • Describes the effects of approximate error in measurement and rounding on measurements and on computed values from measurements	• Explains how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of radical exponents • Explains why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational
Algebra	• Usually interprets parts and structures of linear expressions • Chooses an equivalent form of an expression to reveal	• Consistently interprets parts of an expression based on real-world context • Usually interprets the structure of quadratic and exponential expressions with integer exponents	• Interprets complicated expressions by viewing one or more of their parts as a single entity • Chooses and produces an equivalent form of an expression to explain

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
	properties of the quantity represented by the expression • Identifies, combines and expands like terms when performing operations on polynomial expressions • Creates linear equations and inequalities in one variable and uses them to solve problems • Creates equations in two variables to represent relations between quantities • Graphs the equations on coordinate axes with labels and scales • Rearranges formulas to highlight a quantity of interest using the same reasoning as in solving equations • Solves and explains each step in solving linear equations and inequalities in one variable • Solves system of linear equations exactly and approximately • Knows that the graph of an equation in two variables is the set of all its solutions • Graphs the solutions of linear inequality in two variables	• Factors polynomial expressions • Creates quadratic and exponential equations in one variable and uses them to solve problems • Creates equations with more than two variables • Represents constraints by linear equations/ inequalities and by systems of linear equations/inequalities • Constructs viable arguments to justify or refute a solution method for linear equations/inequalities • Usually solves linear equation/inequalities in one variable involving absolute value • Solves a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically • Finds and is able to explain the solutions of linear equations y = f(x) and y = g(x) approximately, using technology to graph the functions and make tables of values • Graphs the solution set of a system of linear inequalities in two variables	properties of the quantity represented by the expression • Completes the square in a quadratic expression to reveal the maximum or minimum value of the function it defines • Recognizes that the system of polynomials is similar to the system of integers in that they are both closed under certain operations • Interprets solutions of linear equations or inequalities as viable or non-viable options in a modeling context • Uses the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions • Derives the quadratic formula • Recognizes when solutions of a quadratic equation results in non-real solutions and write them as a $\pm$ bi for real numbers a and b • Proves that, given a system of equations in two variables, replacing one equation by the sum of that equation and a multiple of the other to produces a system with the same solutions
Functions	• Knows the structure of a function and uses function notation to evaluate and interpret functions • Distinguishes between an arithmetic and a geometric sequence	• Interprets symmetries of graphs and tables in terms of the quantities • Relates the domain of a function to its graph • Estimates the rate of change from a graph.	• Recognizes that sequences are functions that are sometimes defined recursively • Interprets relative maximums and minimums and end behavior of graphs and tables in terms of the quantities

	Partially Meeting Expectations *On MCAS, a student at this level:*	Meeting Expectations *On MCAS, a student at this level:*	Exceeding Expectations *On MCAS, a student at this level:*
	• Interprets key features of graphs and tables for a function that models a relationship • Calculates and interprets the average rate of change of a function presented symbolically or as a table • Graphs linear functions to show intercepts • Compares properties of functions each represented algebraically, graphically, numerically in tables, or by verbal descriptions • Distinguishes between situations that model linear functions and exponential functions • Constructs linear functions given a graph, a description of a relationship, or input-output pairs • Draws comparisons between exponential and linear graphs	• Graphs functions and uses the properties of functions to create equivalent functions • Interprets zeros, maximum/minimum values, and symmetry of the graph • Writes quadratic and exponential functions to describe relationship between quantities • Determines an explicit expression or steps for calculation from a context • Writes arithmetic and geometric sequences both recursively and with an explicit formula • Identifies the effect on a graph of a function by replacing $f(x)$ with $f(x) + k$, $kf(x)$, $f(kx)$, and $f(x + k)$ for specific values of k • Finds the inverse of a linear function • Constructs exponential functions given a graph, a description of a relationship, or input-output pairs • Draws comparisons between exponential and quadratic graphs • Interprets the parameters in a linear function	• Uses graphs to show relative maximums and minimums; symmetries; and end behavior • Graphs piecewise-defined functions, including step functions • Creates equivalent functions to explain different properties of the function • Uses process of completing the square in a quadratic function to show zeros, maximum/minimum values, and symmetry of the graph • Determines a recursive process, or steps for calculation from a context • Uses recursive and explicit formulas to model situations, and translates between the two forms • Utilizes technology to experiment with cases and illustrates an explanation of the effects on the graph of linear, quadratic, exponential, or absolute value functions • Interprets the parameters in an exponential function

Geometry	• Knows precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc
	• Represents rigid transformations in the plane
	• Compares transformations that preserve distance and angle to those that do not and identifies
		• Uses geometric descriptions of rigid motions to solve problems
		• Applies properties of polygons to the solutions of problems
		• Verifies experimentally the properties of dilations given by a center and a scale factor
		• Uses congruence and similarity criteria for triangles to prove relationships in geometric figures
		• Knows that by similarity, side ratios in right triangles are properties of the
			• Develops definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments
			• Explains how the criteria for triangle congruence follow from the definition of congruence in terms of rigid motions
			• Makes formal geometric constructions
			• Proves theorems about:
			   o triangles
			   o parallelograms
			   o circles

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
	a sequence of transformations that will carry a given figure onto another • Finds angle sum and exterior angle of triangles, angles created when parallel lines are cut by a transversal, and angle-angle criterion for similarity of triangles • Uses congruence and similarity criteria for triangles to solve problems • Uses Pythagorean Theorem to solve right triangles • Uses coordinates to compute perimeters of polygons and areas of triangles and rectangles • Uses volume formulas for cylinders, cones, and spheres to solve problems	angles in the triangle, leading to definitions of trigonometric ratios for acute angles • Uses Pythagorean Theorem to solve right triangles in applied problems • Identifies relationships among inscribed angles, radii, and chords • Uses the fact that the length of the arc intercepted by an angle is proportional to the radius to solve problems • Uses the slope criteria for parallel and perpendicular lines to solve geometric problems • Finds the point on a directed line segment between two given points that partitions the segment in a given ratio • Uses volume formulas for pyramids to solve problems	○ polygons • Proves the Pythagorean Theorem using triangle similarity • Explains the relationship between the sine and cosine of complementary angles. • Uses trigonometric ratios to solve right triangles in applied problems • Uses relationships among inscribed angles, radii, and chords to solve problems • Derives the formula for the area of a sector. • Derives the equation of a circle to find the center and the radius • Derives the equation of a parabola given a focus and directrix • Uses coordinates to prove simple geometric theorems algebraically, including the distance formula and its relationship to the Pythagorean Theorem • Proves the slope criteria for parallel and perpendicular lines • Uses dissection arguments, Cavalieri's principle, and informal limit arguments to give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone
Statistics and Probability	• Represents data with plots on the real number line • Usually uses statistics appropriate to the shape of the data distribution to compare center and spread of two or more different data sets	• Consistently uses statistics appropriate to the shape of the data distribution to compare center and spread of two or more different data sets • Consistently interprets differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers)	• Applies the addition rule and interprets the answer in terms of the model • Distinguishes between correlation and causation • Knows that the conditional probability of A given B is P(A and B)/P(B) and uses it to solve problems

	Partially Meeting Expectations *On MCAS, a student at this level:*	Meeting Expectations *On MCAS, a student at this level:*	Exceeding Expectations *On MCAS, a student at this level:*
	• Usually interprets differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers) • Interprets relative frequencies in the context of the data • Represents data on two quantitative variables on a scatter plot and describes how the data are related • Fits a linear function for a scatter plot that suggests a linear association and interprets the slope and the intercept of the model • Informally assesses the fit of a function by plotting and analyzing residuals • Describes events as subsets of a sample space using characteristics of the outcomes, or as unions, intersections, or complements of other events • Constructs and interprets two-way frequency tables of data when two categories are associated with each object being classified	• Recognizes possible associations and trends in the data contained in a two-way frequency table • Fits a linear function to the data and uses the fitted function to solve problems in the context of the data • Computes and interprets the correlation coefficient of a linear fit • Distinguish between dependent and independent events • Uses a two-way table to approximate conditional probabilities • Recognizes the concepts of conditional probability and independence in everyday language and everyday situations • Applies the addition rule to calculate probabilities	• Explains the concepts of conditional probability and independence in everyday language and everyday situations

Next-Generation Achievement Level Descriptors

Exceeding Expectations
A student who performed at this level exceeded grade-level expectations by demonstrating mastery of the subject matter.

Meeting Expectations
A student who performed at this level met grade-level expectations and is academically on-track to succeed in the current grade in this subject.

Partially Meeting Expectations
A student who performed at this level partially met grade-level expectations in this subject. The school, in consultation with the student's parent/guardian, should consider whether the student needs additional academic assistance to succeed in this subject.

Not Meeting Expectations
A student who performed at this level did not meet grade-level expectations in this subject. The school, in consultation with the student's parent/guardian, should determine the coordinated academic assistance and/or additional instruction the student needs to succeed in this subject.

MCAS Next-Generation Achievement Level Descriptors
Science and Technology/Engineering (STE)
Grade 5

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations,* and *Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
Understanding and Application of Disciplinary Core Ideas	Demonstrates a partial understanding of some scientific concepts and processes by identifying and sometimes describing or providing evidence for these concepts and processes. Uses some basic scientific terms in common scientific examples.	Demonstrates a solid understanding of many scientific concepts and processes by mostly describing, explaining, and providing evidence for these concepts and processes. Mostly applies appropriate scientific terms in a variety of applications, including common science examples and some novel situations.	Demonstrates a comprehensive, in-depth understanding of many scientific concepts and processes by consistently describing, explaining, and providing evidence for these concepts and processes. Consistently applies scientific terms in appropriate contexts in both common science examples and many novel situations.
Understanding and Application of Scientific and Engineering Practices	Identifies a testable, scientific question for an investigation. Completes a simple, commonly used model. Uses simple graphs or data to draw general conclusions about a familiar scientific investigation or phenomena. Identifies evidence to support a claim. Describes a benefit or drawback of simple design features given a familiar device or prototype.	Develops some testable, scientific questions for an investigation. Completes or uses a model and describes some strengths and weaknesses of the model. Analyzes multiple sources of data, including graphs and tables, to draw conclusions about a familiar scientific investigation or phenomena. Provides some evidence to support a claim and constructs basic explanations for scientific phenomena or results from an investigation. Analyzes design features of a familiar device or prototype and describes a benefit or drawback of the design.	Consistently develops testable, scientific questions for an investigation. Creates a model, consistently describes the strengths and weaknesses of the model, and provides information for how to improve the model. Analyzes multiple sources of data, including graphs and tables, to draw conclusions about a novel or complex scientific investigation or phenomena. Provides several pieces of evidence to support a claim and constructs thorough explanations for scientific phenomena or results from an investigation. Analyzes design features of a novel device or prototype and constructs an explanation for how the design features meet criteria for success or are limited by constraints.

MCAS Next-Generation Achievement Level Descriptors
Science and Technology/Engineering (STE)

Earth and Space Science

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations,* and *Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations On MCAS, a student at this level:	Meeting Expectations On MCAS, a student at this level:	Exceeding Expectations On MCAS, a student at this level:
ESS1. Earth's Place in the Universe	Identifies the Sun, the Moon, and Earth in a model. Recognizes that the Sun is a star. Recognizes that people at different locations on Earth may experience day and night at the same time. Given a pattern of moon phases, selects the Moon phase that completes the pattern. Recognizes that shadows change over the course of a day because of the apparent movement of the Sun. Supports a claim with evidence that an environment has changed over time, such as a forested area that was once covered by water. Classifies whether geologic structures were formed by erosion or deposition.	Completes a model of the Sun, the Moon, and Earth and mostly describes the movements of each. Recognizes that the Sun is the only star in our solar system. Constructs an explanation for why people on Earth experience day and night. Describes how the Moon reflects the Sun's light and makes a pattern over approximately one month. Uses a model to show the pattern of the Moon over a week or a month. Completes a model showing the relationship between a shadow's length and the position of the Sun in the sky. Generally describes the processes of erosion or deposition. Identifies the relative age of rock layers based on the position of the rock layers.	Develops a model of the Sun, the Moon, and Earth and consistently describes the movements of each. Explains why the Sun appears brighter than other stars. Constructs an explanation with evidence for why people at one location on Earth are experiencing day while people at another location on Earth are experiencing night. Explains how the Moon's reflection of the Sun's light and the orbit of the Moon are responsible for the phases of the Moon. Constructs an explanation for why the length and direction of a shadow changes during a day. Constructs an explanation with evidence of how erosion and deposition can change geologic structures or an area over time.

	Partially Meeting Expectations On MCAS, a student at this level:	**Meeting Expectations** On MCAS, a student at this level:	**Exceeding Expectations** On MCAS, a student at this level:
ESS2. Earth's Systems	Uses weather data tables or simple graphs to describe one of the following: precipitation, wind speed, or temperature for an area. Differentiates between two different types of climate. Completes a simple model of the water cycle. Identifies on a map where a volcano or earthquake is likely to occur. Recognizes evidence of weathering or erosion in a diagram or simple description. Interprets simple graphs to draw general conclusions about the relative amounts of fresh and saltwater on Earth.	Analyzes simple weather data patterns to describe expected weather for an area. Analyzes climate data for several different regions and describes differences in weather patterns. Recognizes that different regions can have different climate types. Completes a model of the water cycle and describes what is happening in most of the water cycle stages. Analyzes a map to locate where mountain ranges, ocean trenches, volcanoes, and earthquakes are likely to occur. Describes the processes of weathering and erosion and applies them to common examples, such as landslides, canyons, valleys, etc. Analyzes a map to identify water sources as fresh or saltwater, including fresh water stored in glaciers and polar ice caps.	Analyzes and interprets graphs and tables to draw conclusions about various weather patterns. Explains the difference between weather and climate and uses climate data to draw conclusions about the expected weather patterns of different climate types (e.g., desert, tropical, tundra). Develops a model of the water cycle, including absorption and surface runoff, and describe how heat energy is needed for water to cycle. Explains why mountain ranges, ocean trenches, volcanoes, and earthquakes occur at plate boundaries. Explains how landscapes change due to weathering and erosion and provides examples of each process. Describes different sources of fresh water and saltwater and explains why it is important to understand the relative amounts of these types of water on Earth.
ESS3. Earth and Human Activity	Categorizes some common examples of renewable and nonrenewable energy resources. Identifies one way to reduce human impact on the environment for a given situation. Identifies one design solution to reduce the impact of a weather event, such as a hurricane, or other natural event, such as an earthquake, on humans.	Explains why some sources of energy are considered renewable and others are not. Consistently categorizes energy sources as either renewable or nonrenewable. Describes different ways to reduce human impact on the environment for a given situation.	Explains how humans have impacted the environment in different ways and constructs explanations for how to reduce those impacts on the environment. Identifies multiple design solutions to reduce the impact of a weather event or other natural event on humans and explains how each design solution could reduce the impact.

	Partially Meeting Expectations On MCAS, a student at this level:	Meeting Expectations On MCAS, a student at this level:	Exceeding Expectations On MCAS, a student at this level:
	Identifies a testable question about a filter to determine how well the filter will work.	Identifies multiple design solutions to reduce the impact of a weather event or other natural event on humans. Develops a testable question about how to improve the design of a filtering system and provides information about how to answer the question.	Develops testable questions about how to make several improvements to the design of a filtering system and provides evidence for how the improvements will better filter the water.

MCAS Next-Generation Achievement Level Descriptors
Science and Technology/Engineering (STE)

Life Science

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations,* and *Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	Meeting Expectations *On MCAS, a student at this level:*	Exceeding Expectations *On MCAS, a student at this level:*
LS1. From Molecules to Organisms: Structures and Processes	Completes a model of an organism's life cycle and describes the importance of one stage of the life cycle. Supports a claim with evidence about how the function of an animal or plant structure helps it to survive. Recognizes that photosynthesis is important for the survival of a plant.	Compares the life cycles of two organisms and describes similarities between the two life cycles, including the importance of some of the stages. Supports claims with evidence about how different functions of animal or plant structures helps the animal or plant to survive. Completes a model showing some of the inputs (sunlight, air, water) or outputs (sugars) of photosynthesis.	Constructs an explanation for why each stage of the life cycle is important, using example of both plants and animals. Supports claims with evidence about how several structures of animals and plants allow for the survival, growth, and reproduction of different organisms. Develops a model showing the inputs and outputs of photosynthesis and explains the importance of photosynthesis for the survival and growth of a plant.
LS2. Ecosystems: Interactions, Energy, and Dynamics	Analyzes a simple food web or other model and identifies the ecological role of some of the organisms. Recognizes that the energy organisms depend on originates from the Sun. Describes one way animals and plants use energy. Identifies the function of a composter and one design element of a composter.	Analyzes a food web or other model, identifies the ecological roles of several of the organisms, and describes some of the roles of the organisms. Analyzes a model and describes the flow of energy through a simple food web. Analyzes several composter designs and describes some advantages and disadvantages of each design. Describes the importance of decomposers in recycling matter back to the soil.	Analyzes food webs and other models and consistently describes the ecological roles of the organisms. Completes a model to show energy transfer through a food web and describes how energy is transferred from one organism to another. Analyzes several composter designs, describes several advantages and disadvantages of each, and explains which composter is best to use. Explains what would happen to an ecosystem without decomposers, and

	Partially Meeting Expectations *On MCAS, a student at this level:*	Meeting Expectations *On MCAS, a student at this level:*	Exceeding Expectations *On MCAS, a student at this level:*
	Identifies a type of organism (bacteria or fungi) that breaks down dead organisms.		explains how decomposers recycle matter back into both the soil and air.
LS3. Heredity: Inheritance and Variation of Traits	Provides observable evidence that traits are inherited from a parent. Recognizes that some basic characteristics are inherited, while others are a result of the environment.	Analyzes data and draws some conclusions about familiar traits that are inherited and characteristics that are a result of the environment.	Analyzes novel data and draws conclusions about traits that are inherited and characteristics that are a result of the environment.
LS4. Biological Evolution: Unity and Diversity	Identifies the type of environment where an organism once lived based on fossilized remains. Supports a claim with one piece of evidence for how some individuals within a population may have a survival advantage over other individuals in the population. Uses evidence, such as an organism's structure, to describe how an organism is well adapted to its environment. Recognizes what may happen to an organism if its environment changes and it is unable to move away or adapt to the changing environment.	Classifies fossils based on their physical characteristics, including the type of environment where the fossilized organism once lived. Supports a claim with several pieces of evidence for how some individuals within a population may have a survival advantage over other individuals in the population. Identifies an example of how an organism is well adapted to its environment. Describes what will happen to a population if individuals within that population are unable to reproduce.	Constructs an explanation for why the fossil record is incomplete due to many organisms not being fossilized. Given data about the characteristics of a novel organism, draws conclusions and explains how the organism is well adapted to its environment. Explains, with evidence, if an organism is likely to survive environmental changes. Explains why reproduction is critical to the survival of a species.

MCAS Next-Generation Achievement Level Descriptors
Science and Technology/Engineering (STE)

Physical Science

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations,* and *Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
PS1. Matter and Its Interactions	Analyzes a simple particle model of matter and identifies the phase of the substance. Completes a graph to show the masses of substances after a phase change or after a chemical reaction. Analyzes a simple set of data to determine the best material to use in a common situation, based on the material's characteristic properties. Determines if a chemical reaction occurred or if a mixture was formed during an investigation and provides one piece of evidence to support the claim.	Analyzes a particle model of a substance before and after a phase change to determine phases of the substance and the phase change that occurred. Constructs an explanation about how mass is conserved during a phase change or a chemical reaction. Analyzes a set of data about materials, identifies the best material to use in a given situation, and provides evidence for the reasoning. Develops a question to determine if a chemical reaction occurred or if a mixture was formed during an investigation and provides possible answers to the question with pieces of evidence to support the answers.	Analyzes particle models of substances before and after phase changes to determine the phase change that occurred and describes whether heat was added or removed. Describes an investigation that could be used to show that mass is conserved during a phase change or chemical reaction. Analyzes multiple sets of data to determine the best materials to use in a variety of different situations, based on the material's characteristic properties. Supports the conclusions with evidence from the data. Describes an investigation that could be used to determine if a chemical reaction will occur or if a mixture will be formed when two substances are combined and includes information about evidence that would be needed to make the determination.
PS2. Motion and Stability: Forces and Interactions	Interprets a diagram to determine if balanced forces are acting on an object.	Determines if the motion of an object will change, based on a diagram showing the forces acting on the object.	Completes a diagram of the forces acting on an object based on whether the object is at rest, moving at a constant speed, or changing speed and explains the reasoning.

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
	Labels a model showing the direction of the gravitational force on an object on Earth. Identifies if two magnets will be attracted to each other or repelled from each other based on the magnets' orientations. Recognizes that either an attractive or a repulsive force exists between two magnets.	Describes how friction affects the motion of an object. Completes a model showing the direction of the gravitational force on multiple objects that are on or near the surface of Earth. Completes a model of the poles on several magnets based on whether the magnets attract each other or repel each other.	Describes how different surface textures affect friction. Constructs an explanation about the gravitational force exerted by Earth on objects always being toward the center of Earth. Describes an investigation that could be used to determine the poles of magnets and explains what evidence could be used to make this determination.
PS3. Energy	Interprets a graph that shows the relationship between speed and kinetic energy. Identifies one type of energy that is produced when a collision occurs. Describes one way that energy can be moved from one place to another. Interprets a familiar situation to describe one way that stored energy is converted to another type of energy.	Describes the relationship between the speed of an object and the kinetic energy of that object. Describes the energy conversions that take place when two objects collide. Interprets a given scenario and describe one way that energy is transferred in the scenario. Describes two energy conversions in a given situation including kinetic energy being converted to electrical energy and/or stored energy being converted into another type of energy.	Completes a graph showing the kinetic energy of object as the speed of the object changes and explains why the graph should be completed in that way. Constructs an explanation about the energy conversions that take place when two objects collide and supports the explanation with evidence. Analyzes a novel scenario and describes multiple ways that energy is transferred from place to place and how energy is converted in multiple ways.

	Partially Meeting Expectations *On MCAS, a student at this level:*	Meeting Expectations *On MCAS, a student at this level:*	Exceeding Expectations *On MCAS, a student at this level:*
PS4. Waves and Their Applications in Technologies for Information Transfer	Recognizes that waves can cause an object to move. Uses a simple model of a wave to show that the wave has a regular pattern. Recognizes that light must be reflected off an object and enter the eye for the object to be seen. Given a communication system, identifies one component (encoder, decoder, receiver, sender) of the system.	Generally describes that waves carry energy and can cause objects to move. Completes a model showing that a wave has a regular pattern of motion. Develops a model to show how light reflects off an object and enters the eye so the object can be seen. Describes at least two components of a given communication system.	Constructs an explanation about how an object can be moved by the energy of a wave. Explains how objects are seen by the eye, using evidence from a given scenario. Consistently describes the components of a communication system for a given scenario.

MCAS Next-Generation Achievement Level Descriptors
Science and Technology/Engineering (STE)

Technology and Engineering

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations,* and *Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
ETS1. Engineering Design and ETS3. Technological Systems	Identifies a criterion for success and a constraint when given a simple design problem. Identifies one solution to a simple engineering design problem. Analyzes different representations of a simple design solution and chooses the most appropriate one for a given situation. Identifies the importance of a prototype. Identifies the difference between an innovation and an invention.	Describes several criteria for success and constraints when given a design problem. Generates a solution to an engineering design problem and generally explains how the solution could be successful based on evidence. Analyzes different representations of a design solution, chooses the most appropriate representation for the given situation, and explains the reasoning. Identifies several design features of a prototype and explains how these features are important to the design of the prototype. Analyzes a design feature of a prototype and explains the importance of a prototype. Describes one innovation to an existing technology. Provides an example of an invention, including common examples and some novel examples.	Explains how certain criteria for success and constraints will impact the solution to a design problem. Generates two or more solutions to an engineering design problem and explains in detail how the solutions could be successful, and identifies possible failure points for each solution. Describes an appropriate representation for a design solution and explains the reasoning. Describes several design features of prototypes and explains the benefits and possible limitations of each. Explains why prototypes are constructed and explains the importance of redesigning a prototype. Explains why a novel technology is an innovation or an invention, given a description of the technology.

MCAS Next-Generation Achievement Level Descriptors
Science and Technology/Engineering (STE)

Next-Generation Achievement Level Descriptors

Exceeding Expectations
A student who performed at this level exceeded grade-level expectations by demonstrating mastery of the subject matter.

Meeting Expectations
A student who performed at this level met grade-level expectations and is academically on-track to succeed in the current grade in this subject.

Partially Meeting Expectations
A student who performed at this level partially met grade-level expectations in this subject. The school, in consultation with the student's parent/guardian, should consider whether the student needs additional academic assistance to succeed in this subject.

Not Meeting Expectations
A student who performed at this level did not meet grade-level expectations in this subject. The school, in consultation with the student's parent/guardian, should determine the coordinated academic assistance and/or additional instruction the student needs to succeed in this subject.

MCAS Next-Generation Achievement Level Descriptors
Science and Technology/Engineering (STE)
Grade 8

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations,* and *Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
Understanding and Application of Disciplinary Core Ideas	Demonstrates a partial understanding of some scientific concepts and processes by identifying and sometimes describing or providing evidence for these concepts and processes. Uses some basic scientific terms in common scientific examples.	Demonstrates a solid understanding of many scientific concepts and processes by mostly describing, explaining, and providing evidence for these concepts and processes. Mostly applies appropriate scientific terms in a variety of applications, including common science examples and some novel situations.	Demonstrates a comprehensive, in-depth understanding of many scientific concepts and processes by consistently describing, explaining, and providing evidence for these concepts and processes. Consistently applies scientific terms in appropriate contexts in both common science examples and many novel situations.
Understanding and Application of Scientific and Engineering Practices	Identifies a testable, scientific question for an investigation. Completes a simple, commonly used model. Uses simple graphs or data to draw general conclusions about a familiar scientific investigation or phenomena. Identifies evidence to support a claim. Describes a benefit or drawback of simple design features given a familiar device or prototype.	Develops some testable, scientific questions for an investigation. Completes or uses a model and describes some strengths and weaknesses of the model. Analyzes multiple sources of data, including graphs and tables, to draw conclusions about a familiar scientific investigation or phenomena. Provides some evidence to support a claim and constructs basic explanations for scientific phenomena or results from an investigation. Analyzes design features of a familiar device or prototype and describes a benefit or drawback of the design.	Consistently develops testable, scientific questions for an investigation. Creates a model, consistently describes the strengths and weaknesses of the model, and provides information for how to improve the model. Analyzes multiple sources of data, including graphs and tables, to draw conclusions about a novel or complex scientific investigation or phenomena. Provides several pieces of evidence to support a claim and constructs thorough explanations for scientific phenomena or results from an investigation. Analyzes design features of a novel device or prototype and constructs an explanation for how the design features meet criteria for success or are limited by constraints.

MCAS Next-Generation Achievement Level Descriptors
Science and Technology/Engineering (STE)

Earth and Space Science

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations,* and *Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
ESS1. Earth's Place in the Universe	Completes a model of the Earth-Sun-Moon system to show either a solar or a lunar eclipse. Identifies the basic pattern of the moon phases. Recognizes that the tilt of Earth's axis causes the seasons. Recognizes that gravity affects high and low tides, Earth's orbit, and the Moon's orbit. Recognizes that the Milky Way galaxy contains many solar systems and that Earth is one planet within our solar system. Identifies the bottom layer of rock as the oldest and the top layer of rock as the youngest. Identifies some of the processes that play a role in the formation of rock.	Develops a model showing the positions of the Sun, the Moon, and Earth during a solar or a lunar eclipse. Completes a model of the moon phases. Compares the intensity of sunlight at different locations on Earth during different seasons of the year. Analyzes models to determine where high and low tides occur based on the position of the Moon. Describes the role that gravity plays in orbital motions. Orders the planets, our solar system, the Milky Way galaxy, and the universe by their relative sizes. Analyzes a model showing several layers of rock and draws conclusions about the relative ages of the fossils found in the rock layers. Uses rock layers and fossil evidence to describe how the geology of a particular area has changed over time, such as from a sea floor to a forest.	Constructs an explanation for why people see solar and lunar eclipses on Earth. Constructs an explanation for why people on Earth observe the phases of the Moon. Analyzes a graph to describe how changes in the duration and intensity of sunlight during a year determines the seasons. Supports conclusions with evidence from the graph. Completes models showing where high and low tides occur and explains why there are high and low tides in these locations. Compares and draws conclusions about the force of gravity on planets, moons, asteroids, comets, etc. in our solar system. Analyzes a model showing several layers of rock containing a fault to draw a conclusion about the relative age of the fault. Constructs an explanation for how rock layers and geologic structures, such as canyons, volcanoes, mountains, and beaches, are formed through weathering, erosion, heat, pressure, and/or deposition.

	Partially Meeting Expectations *On MCAS, a student at this level:*	Meeting Expectations *On MCAS, a student at this level:*	Exceeding Expectations *On MCAS, a student at this level:*
ESS2. Earth's Systems	Uses a model to show that geologic structures, such as volcanoes and mountain ranges, are formed where plates are pushed together. Recognizes that surface structures continue to change over time due to geologic processes, such as weathering, erosion, glaciation, and the movement of Earth's plates. Completes a model showing the primary steps of the water cycle. Analyzes weather data and draws simple conclusions about the precipitation and temperature of an area. Recognizes that temperatures near the ocean are more stable than temperatures of inland locations.	Uses a model to describe the role of convection currents in the movement of Earth's plates and identifies where convection currents occur. Describes how geologic processes form and shape geologic structures, such as mid-ocean ridges, mountains, and volcanoes, and cause geologic events, including earthquakes, landslides, and volcanic eruptions. Analyzes maps and other evidence to draw conclusions about the movement of Earth's plates. Describes the role of solar energy and gravity in the water cycle. Describes the weather conditions that typically occur when cool and warm air masses collide.	Constructs an explanation for how the movement of Earth's plates causes various geologic events, such as earthquakes, volcanic eruptions, and tsunamis. Uses data to explain the relative time scales different geologic structures form over. Supports a claim about the movement of Earth's plates using several pieces of evidence, such as the shapes of continents and the locations of specific fossils and types of rock. Describes evidence that glaciers were once present in an area. Constructs an explanation for how each stage of the water cycle is dependent upon energy from the Sun and/or the Earth's gravity. Describes how air masses move and how the movement of air masses affects the weather in an area.
ESS3. Earth and Human Activity	Analyzes a basic map to draw general conclusions about the distribution of minerals or fossil fuels on Earth. Identifies one way that humans can mitigate the impact of increases in human population on natural resources and the environment.	Provides a partial explanation for why some resources, such as fossil fuels, water, and mineral/ores, are unevenly distributed on Earth. Describes various ways that humans can mitigate the overuse of Earth's resources, such as using renewable energy sources, recycling, using public transportation, etc.	Explains why natural resources are unevenly distributed on Earth. Analyzes data, including graphs and maps, to draw conclusions about how humans use natural resources and identifies some ways human can mitigate the overuse of these resources. Constructs an explanation using evidence that human activities, such as fossil fuel

	Partially Meeting Expectations *On MCAS, a student at this level:*	Meeting Expectations *On MCAS, a student at this level:*	Exceeding Expectations *On MCAS, a student at this level:*
	Analyzes a simple graph or data table to draw conclusions about how climate change is affecting an area.	Analyzes data to describe how climate change is affecting an ecosystem and describes one way that humans can reduce the effects of climate change on the ecosystem.	combustion, agriculture, and deforestation, have played a role in rising global temperatures over the past century. Describes several ways humans can mitigate the effects of climate change.

MCAS Next-Generation Achievement Level Descriptors
Science and Technology/Engineering (STE)

Life Science

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	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
LS1. From Molecules to Organisms: Structures and Processes	Recognizes that animal, plant, and bacterial cells have some shared characteristics and some different characteristics. Recognizes some parts of a cell and the function of some cell parts. Describes two body systems and how they work together. Identifies some behaviors and structures of plants and animals that enables them to survive and successfully reproduce. Identifies a characteristic that is inherited and a characteristic that is mostly a result of the environment. Recognizes that all organisms need an energy source and nutrients to survive.	Uses the characteristics of cells to categorize an organism as an animal, plant, or bacteria. Given a diagram of a cell, identifies the cell parts and describes most functions of the cell parts. Generally describes how different body systems work together. Provides evidence for how some organisms are able survive and reproduce more than other organisms. Analyzes information about an organism to determine which characteristics are inherited and which characteristics are mostly a result of the environment. Describes how carbohydrates, proteins, and fats are broken down to support cell growth and to release energy (cellular respiration).	Compares animal, plant, and bacterial cells and identifies both similarities and differences between them. Consistently describes the functions of cell parts. Describes how the interactions between body systems can be affected by a condition or disease based on the functions of the body systems. Explains how various structures and behaviors can provide survival and reproductive advantages to plants and animals. Uses evidence to explain why some characteristics are inherited and other characteristics are a result of both inheritance and the environment. Using a model, explains how food molecules are broken down and rearranged to provide nutrients for cell growth and energy for cellular processes.

	Partially Meeting Expectations *On MCAS, a student at this level:*	Meeting Expectations *On MCAS, a student at this level:*	Exceeding Expectations *On MCAS, a student at this level:*
LS2. Ecosystems: Interactions, Energy, and Dynamics	Interprets graphs to determine whether the size of a population increased, decreased, or stayed the same.

Identifies one ecological relationship (competitive, predator-prey, parasitic, or mutually beneficial) when given a description of the interaction of two organisms.

Recognizes that the biodiversity of a population is positively correlated with its size.

Identifies how an ecosystem and how an organism living in the ecosystem can be helped by a human action. | Analyzes population data, including graphs, to describe changes in the size a particular population over time.

Identifies several ecological relationships when given the interactions of organisms in an environment (including analyzing a food web).

Completes models to show the cycling of matter through photosynthesis, cellular respiration, and decomposition.

Uses a model of an ecosystem to describe how a disruption to the ecosystem can have an effect on an organism in the ecosystem.

Describes multiple ways how the biodiversity of a population can be increased.

Describes several ways an ecosystem and the organisms living in the ecosystem can be helped by human actions. | Constructs an explanation for the reasons why populations grow versus decline over time.

Analyzes a complex food web and describes the ecological roles of the organisms. Consistently describes the roles of producers, primary, secondary, tertiary consumers, and decomposers in a model.

Develops a model to show the cycling of matter and energy through an ecosystem, including the role of photosynthesis, cellular respiration, and decomposition.

Uses a model of an ecosystem to construct an explanation with evidence for how a natural or manmade disruption to the environment can affect multiple populations in the ecosystem.

Evaluates competing designs for protecting an ecosystem and its inhabitants from threats such as climate change, habitat loss, pollution, or overharvesting of resources. |
| LS3. Heredity: Inheritance and Variation of Traits | Uses a model to show that chromosomes are made up of genetic information.

Identifies one benefit of sexual reproduction or one benefit of asexual reproduction.

Recognizes that offspring from sexual reproduction inherit genes and characteristics from two parents. | Completes a model to show that chromosomes hold genes and genes hold the instructions for proteins.

Describes mutations as changes to genes. Identifies examples of mutations that are harmful, beneficial, or neutral to changes in traits of an organism.

Describes some of the benefits and drawbacks of sexual versus asexual reproduction. | Develops a model to show that chromosomes are made up of genes and that genes contain the instructions for proteins, which determine the inherited characteristics of an organism.

Describes how a mutation may be harmful, neutral, or beneficial to an organism depending on its interactions with the environment. |

	Partially Meeting Expectations *On MCAS, a student at this level:*	Meeting Expectations *On MCAS, a student at this level:*	Exceeding Expectations *On MCAS, a student at this level:*
	Analyzes a simple Punnett square to determine the expected percentage of offspring with a certain trait.	Completes a Punnett square to determine the expected percentage of offspring that will inherit certain genotypes (allele pairs) and phenotypes (traits).	Constructs an explanation for why some organisms benefit from asexual reproduction while other organisms benefit from sexual reproduction. Develops a model to show that sexual reproduction results in sets of chromosomes (found in the nucleus) from each parent, and therefore an allele for each gene is inherited from each parent.
LS4. Biological Evolution: Unity and Diversity	Analyzes fossil evidence to draw conclusions about different organisms living at different times. Compares a structure in a living organism to a structure from a fossilized organism and draws a conclusion about their similarity. Recognizes that individuals with certain inherited characteristics have a higher probability of surviving than individuals without those characteristics. Identifies one difference between natural selection and artificial selection.	Analyzes fossil evidence to describe how the environment in an area has changed over geologic time. Explains how living and fossilized organisms can have similar body structures with similar or different functions. Identifies examples of natural selection and generally explains why they are examples of natural selection. Compares examples of natural selection and artificial selection.	Constructs an explanation using fossil evidence for how similar structures can be used to infer whether two types of organism share a recent common ancestor. Constructs an explanation for how a trait can become more common in a population over time due to natural selection. Describes advantages and disadvantages of both natural and artificial selection.

MCAS Next-Generation Achievement Level Descriptors
Science and Technology/Engineering (STE)

Physical Science

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	Partially Meeting Expectations *On MCAS, a student at this level:*	Meeting Expectations *On MCAS, a student at this level:*	Exceeding Expectations *On MCAS, a student at this level:*
PS1. Matter and Its Interactions	Identifies that all living and non-living things are made-up of atoms. Identifies that mixtures can be separated by physical means. Using data, identifies one piece of evidence that a chemical reaction or a physical change occurred. Interprets a particle model to determine the three states of matter shown in the model. Recognizes that a new substance is formed when a chemical reaction occurs. Given data, determines if energy is being absorbed or released in a chemical reaction. Calculates the density of an object given its mass and volume.	Completes a model showing how atoms form compounds and molecules. Describes how mixtures are made up of pure substances that can be separated by physical means. Using data, identifies multiple pieces of evidence that a chemical reaction or a physical change occurred. Partially describes how particle motion, spatial arrangement, or temperature of a substance change when thermal energy is added to or removed from the substance. Completes a bar graph to show the conservation of mass in a chemical reaction or a physical change. Given a chemical reaction, identifies if it is exothermic and endothermic based on whether or not thermal energy is released or absorbed. Describes, compares, and calculates the densities of different materials.	Analyzes a chemical formula to determine the number of each type of atom that makes up a given molecule. Analyzes data to determine which substances are pure substances. Explains the difference between a chemical reaction and a physical change and provides multiple pieces of evidence to support the explanation. Consistently describes how particle motion, spatial arrangement, and temperature of a substance change when thermal energy is added to or removed from the substance. Relates temperature to a measure of average kinetic energy and recognizes that temperature/kinetic energy does not change as a substance is changing state. Supports a claim that matter is not created or destroyed during a chemical reaction or a physical change, using evidence from an investigation. Describes the difference between an endothermic and exothermic reaction.

	Partially Meeting Expectations *On MCAS, a student at this level:*	Meeting Expectations *On MCAS, a student at this level:*	Exceeding Expectations *On MCAS, a student at this level:*
			Supports the description with evidence from a chemical reaction. Determines whether an object would float or sink in water due its density and supports the answer with evidence.
PS2. Motion and Stability: Forces and Interactions	Given a model, recognizes that an object that applies a force to another object will also experience a force acting on it. Recognizes that the speed of an object will change if the mass of the object changes and the forces acting on the object are constant. Recognizes that the speed of an object will change if the forces acting on the object are not balanced. Recognizes that two positive charges or two negative charges will repel each other, and a negative charge and a positive charge will attract each other. Completes a model, to show that gravitational forces are always attractive. Using a model, describes how an object can exert forces on another object, even when the objects are not in contact with each other.	Analyzes models to draw conclusions about the forces acting on objects during a collision. Completes a graph to show how the change in speed of an object, with a constant net force acting on it, depends on the mass of the object. Completes a model to show whether the speed of an object will increase, decrease, or remain constant based on the forces acting on an object. Completes a model to show how the distance between two electric charges or the magnitudes of the charges affects the strength of the forces between the charges. Describes how the mass of objects affects the gravitational forces on the objects. Completes a model of the electric, magnetic, or gravitational field around an object.	Develops models to show the forces acting on objects before, during, and after a collision. Develops a model to show how the change in speed of an object depends on the mass of the object and the net force acting on the object. Uses data to construct an explanation about how the distance between two electric charges or the magnitudes of the charges affects the strength of the force between the charges. Develops a model showing the relative magnitudes of gravitational forces acting between two objects. Completes a model of the electric, magnetic, or gravitational field between two objects.
PS3. Energy	Interprets a graph to show how the kinetic energy of an object relates to the speed of the object, or vice versa. Interprets data to describe what will happen to an object's kinetic energy as its potential energy decreases.	Completes a graph to show how the kinetic energy of an object relates to the speed of the object, or vice versa. Analyzes information, including graphics and data, and generally describes how the kinetic and potential energies of an	Uses a graph to show how the kinetic energy of an object relates to the speed of the object, or vice versa, and explains the reasoning. Analyzes information, including graphics and data, and consistently describes how

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
	Identifies the flow of thermal energy from hot to cold. Identifies an example of conduction, radiation, or convection. Describes how it takes more time to heat an object that has more mass than an object (of the same material) with less mass. Using a graph, determines how an increase in average kinetic energy of an object results in an increase in temperature.	object compare at different heights, when energy is conserved. Analyzes the conversions of different types of potential energy into kinetic energy and vice versa to draw conclusions about energy conservation. Generally describes how thermal energy is transferred through conduction, radiation, and convection and generally describes ways this heat flow can be increased or decreased in a given situation. Analyzes data and draws conclusions to describe how certain materials will better conduct thermal energy compared to others. Describes how average kinetic energy is related to temperature.	the kinetic and potential energies of an object compare at different heights, and is able to explain that energy is conserved. Explains how different types of potential energies are converted to kinetic energy and vice versa. Explains how thermal energy is transferred through conduction, radiation, and convection and fully describes ways the rate of this heat flow can be increased or decreased in a given situation. Constructs an explanation to show the relationships among the amount of energy transferred between objects, how well materials of the objects retain or radiate heat, the masses of the objects, and the changes in the average kinetic energies of the object's materials.
PS4. Waves and Their Applications in Technologies for Information Transfer	Completes a model of a wave to show its frequency, amplitude, or wavelength. Given a model, sometimes identifies where waves are reflected, absorbed, or transmitted through a material. Identifies when a signal is either encoded or transmitted.	Compares two waves' frequencies, amplitudes, and wavelengths, and sometimes describes how these characteristics will affect the waves. Completes a model showing reflection, absorption, and transmission of a wave, including how waves are refracted. Describes the processes of encoding and transmitting.	Compares two or more waves' frequencies, amplitudes, and wavelengths, and consistently describes how these characteristics will affect the pattern of a wave. Develops a model to explain how waves are reflected, absorbed, or transmitted in a given situation, including how waves are refracted.

MCAS Next-Generation Achievement Level Descriptors
Science and Technology/Engineering (STE)

Technology and Engineering

Student results on the MCAS tests are reported according to four achievement levels: *Exceeding Expectations, Meeting Expectations, Partially Meeting Expectations,* and *Not Meeting Expectations.* The descriptors below illustrate the knowledge and skills students demonstrate on MCAS at each level. Knowledge and skills are cumulative at each level. No descriptors are provided for the *Not Meeting Expectations* achievement level because students work at this level, by definition, does not meet the criteria of the *Partially Meeting Expectations* level.

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
ETS1. Engineering Design	Identifies criteria and constraints of a design problem. Identifies one solution to a simple problem. Uses a simple design matrix to determine the best solution. Sometimes solves simple scale problems, given the actual measurement or the scaled measurement. Analyzes a design feature of a prototype and identifies the importance of a prototype.	Describes some criteria and constraints of a design problem. Describes a solution to a problem and explains how it could be successful based on evidence. Uses a design matrix to draw conclusions about possible solutions. Solves scale problems, given the actual measurement or the scaled measurement. Generally describes appropriate design features of a prototype and describes the importance of a prototype.	Describes several criteria and constraints of a design problem. Describes several solutions to a problem and explains their limitations and benefits based on evidence. Uses a design matrix to draw conclusions about possible solutions and explains the reasoning. Explains when a scale drawing should be used, and determines an appropriate scale for a given situation. Consistently describes appropriate design features of prototypes for a given situation.
ETS2. Materials, Tools, and Manufacturing	Recognizes basic properties of common materials (such as wood, metal, and plastic). Given data, chooses a material for a design problem given its characteristics. Given a set of tools, chooses the best tool for a given task. Identifies and describes some of the manufacturing processes (forming,	Describes properties (such as flexibility, ductility, hardness, thermal conductivity, electrical conductivity, and melting point) of common materials and generally uses the materials for appropriate design solutions. Describes the best tools to use for a given situation. Generally describes a few steps of the manufacturing process in a given situation.	Evaluates different materials and determines the best materials to use for a given design problem. Explains the reasoning, giving both drawbacks and benefits of the materials. Consistently describes several steps of the manufacturing process in a given situation. Provides multiple advantages and/or disadvantages of using a computer or a human for a given task.

	Partially Meeting Expectations *On MCAS, a student at this level:*	**Meeting Expectations** *On MCAS, a student at this level:*	**Exceeding Expectations** *On MCAS, a student at this level:*
	separating, conditioning, assembling, finishing, quality control, and safety). Identifies an advantage or a disadvantage of using a computer or a human for a given task.	Provides an advantage and a disadvantage of using a computer or a human for a given task.	
ETS3. Technological Systems	Identifies and describes the functions of some components of a communication system (source, encoder, transmitter, receiver, decoder, and storage). Given a diagram, identifies and describes some of the functions of some components of a vehicle (structural, propulsion, guidance, suspension, and control subsystems). Given a diagram, identifies and describes some of the parts of a structural system (foundation, decking, wall, and roofing). Given a diagram, identifies a force (tension, torsion, compression, and shear) acting on a structure. Given a transportation, structural, or communication system, identifies some of the components of an engineering system: inputs, processes, outputs, and feedback.	Completes a model and describes the functions of several components of a communication system. Completes a model and describes most of the functions of some components of a vehicle. Identifies and describes most of the parts of a given structural system. Identifies and describes two forces acting on a shown structure. Identifies live and dead loads for a given scenario. Given a transportation, structural, or communication system, identifies and describes several components of an engineering system.	Develops a model and describes the functions of the components of a communication system. Develops a model and describes most of the functions of the components of a transportation system. Consistently identifies and describes the parts of a given structural system. Consistently identifies and describes forces acting on a shown structure. Describes live and dead loads for a given scenario. Given a transportation, structural, or communication system, consistently identifies and describes components of an engineering system.