	Common Core State Standards	Common Core State Standards	Next Generation	K-12 Computer Science	21st Century
	(ELA)	(Math)	Science Standards	Framework ¹	Competencies
			(NGSS)		• • • • • • • • •
Getting Started • BlocklyProp - client • EEPROM	 CCSS. ELA.Content.RI.4.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text. CCSS. ELA.Content.RI.4.2 Determine the main idea of a text and explain how it is supported by key details; summarize the text. CCSS. ELA.Content.RI.4.3 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text. CCSS. ELA.Content.RI.4.4 Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area. CCSS. ELA.Content.RI.4.6 Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided. CCSS. ELA.Content.RI.4.7 Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears. CCSS. ELA.Content.RI.4.9 		 4-PS4 Waves and their Applications in Technologies for Information Transfer 4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information. 	 Practices P1.Fostering and Inclusive Computing Culture.1 Include the unique perspectives of others and reflect on one's own perspectives when designing and developing computational products. P1.Fostering and Inclusive Computing Culture.2 Address the needs of diverse end users during the design process to produce artifacts with broad accessibility and usability. P4.Developing and Using Abstractions.2 Evaluate existing technological functionalities and incorporate them into new designs. P5.Creating Computational Artifacts.2 Create a computational artifact for practical intent, personal expression, or to address a societal issue. P5.Creating Computational Artifacts.3 Modify an existing artifact to improve or customize it. P6.Testing and Refining Computational Artifacts.3 Evaluate and refine a computational Artifacts.3 Evaluate and refine a computational Artifacts.3 Fo.Testing and Refining Computational Artifacts.3 P6.Testing and Refining Computational Artifacts.3 Evaluate and refine a computational artifact multiple times to enhance its performance, reliability, usability, and accessibility. P7.Communicating About Computing.2 Describe, justify, and document computational processes and solutions using appropriate terminology consistent with the intended audience and purpose. 	 Self-directed Innovative Revision Design-Thinking Use technology



 Integrate information from two texts on 			
the same topic in order to write or speak		Concepts	
about the subject knowledgeably.		6-8.Computing Systems.Hardware and	
CCSS. ELA.Content.RI.4.10		Software	
• By the end of year, read and comprehend		Hardware and software determine a	
informational texts including history/social		computing system's capability to store	
studies science and technical texts in the		and process information. The design or coloction of a computing system	
grades 4 E toyt complexity hand		involves multiple tradeoffs, such as	
grades 4-5 text complexity band		functionality cost size speed	
proficiently, with scarfolding as needed at		accessibility, and aesthetics.	
the high end of the range.		6-8.Computing Systems.Troubleshooting	
CCSS. ELA.Content.L.4.6		Comprehensive troubleshooting	
 Acquire and use accurately 		requires knowledge of how computing	
grade-appropriate general academic and		devices and components work and	
domain-specific words and phrases,		interact. A systematic process will	
including those that signal precise actions,		identify the source of a problem,	
emotions, or states of being (e.g., quizzed,		whether within a device or in a larger	
whined, stammered) and that are basic to		system of connected devices.	
a particular topic (e.g., wildlife,		6-8. Networks and the Internet. Network	
conservation, and endangered when		Communication and organization	
discussing animal preservation)		information based on a set of rules	
CCSS_ELA_Content_RL5_1		called protocols Protocols define how	
Oueto accurately from a text when		messages between computers are	
Qubie accurately norma text when		structured and sent. Considerations of	
explaining what the text says explicitly and		security, speed, and reliability are used	
when drawing inferences from the text.		to determine the best path to send and	
CCSS. ELA.Content.RI.5.2		receive data.	
 Determine two or more main ideas of a 		6-8.Data and Analysis.Storage	
text and explain how they are supported by		Applications store data as a	
key details; summarize the text.		representation. Representations occur	
CCSS. ELA.Content.RI.5.3		at multiple levels, from the	
 Explain the relationships or interactions 		arrangement of information into	
between two or more individuals, events,		organized jornials (such as tables in software) to the physical storage of	
ideas, or concepts in a historical, scientific,		hits The software tools used to access	
or technical text based on specific		information translate the low-level	
information in the text.		representation of bits into a form	
CCSS. ELA.Content.BI.5.4		understandable by people.	
Determine the meaning of general		6-8.Algorithms and	
academic and domain-specific words and		Programming.Modularity	
academic and domain-specific worlds and		Programs use procedures to organize	
prinases in a text relevant to a grade 5 topic		code, hide implementation details, and	
or subject area.		make code easier to reuse. Procedures	
CCSS. ELA.Content.RI.5.5		can be repurposed in new programs.	



Compare and contrast the overall structure		Defining parameters for procedures	
(e.g., chronology, comparison,		can generalize behavior and increase	
cause/effect, problem/solution) of events,		reusability.	
ideas, concepts, or information in two or			
more texts.			
CCSS. ELA.Content.RI.5.6			
• Analyze multiple accounts of the same			
event or topic, noting important similarities			
and differences in the point of view they			
represent.			
CCSS. ELA.Content.RI.5.7			
• Draw on information from multiple print or			
digital sources, demonstrating the ability to			
locate an answer to a question quickly or			
to solve a problem efficiently.			
CCSS. ELA.Content.RI.5.9			
• Integrate information from several texts on			
the same topic in order to write or speak			
about the subject knowledgeably.			
CCSS. ELA.Content.RI.5.10			
• By the end of the year, read and			
comprehend informational texts, including			
history/social studies, science, and			
technical texts, at the high end of the			
grades 4-5 text complexity band			
independently and proficiently.			
CCSS. ELA.Content.L.5.6			
 Acquire and use accurately 			
grade-appropriate general academic and			
domain-specific words and phrases,			
including those that signal contrast,			
addition, and other logical relationships			
(e.g., however, although, nevertheless,			
similarly, moreover, in addition).			
CCSS. ELA.Content.RI.6.1			
• Cite textual evidence to support analysis of			
what the text says explicitly as well as			
inferences drawn from the text.			
CCSS. ELA.Content.RI.6.2			



	• Determine a central idea of a text and how				
	it is conveyed through particular details;				
	provide a summary of the text distinct from				
	personal opinions or judgments.				
	CCSS. ELA.Content.RI.6.3				
	• Analyze in detail how a key individual,				
	event, or idea is introduced, illustrated,				
	and elaborated in a text (e.g., through				
	examples or anecdotes).				
	CCSS. ELA.Content.RI.6.4				
	• Determine the meaning of words and				
	phrases as they are used in a text, including				
	figurative, connotative, and technical				
	meanings.				
	CCSS. ELA.Content.RI.6.5				
	• Analyze how a particular sentence,				
	paragraph, chapter, or section fits into the				
	overall structure of a text and contributes				
	to the development of the ideas.				
	CCSS. ELA.Content.RI.6.6				
	• Determine an author's point of view or				
	purpose in a text and explain how it is				
	conveyed in the text.				
	CCSS. ELA.Content.RI.6.7				
	 Integrate information presented in 				
	different media or formats (e.g., visually,				
	quantitatively) as well as in words to				
	develop a coherent understanding of a				
	topic or issue.				
	CCSS. ELA.Content.L.6.6				
	 Acquire and use accurately 				
	grade-appropriate general academic and				
	domain-specific words and phrases; gather				
	vocabulary knowledge when considering a				
	word or phrase important to				
	comprehension or expression.				
Lights and	CCSS. ELA.Content.RI.4.1	CCSS. Math.Content.OA.4.1	4-PS3 Energy	Practices	Self-directed
Sounds	Refer to details and examples in a text	 Interpret a multiplication equation as a 	• 4-PS3-2. Make observations	P4.Developing and Using Abstractions.4	 Innovative
 LEDs 	when explaining what the text says	comparison, e.g., interpret 35 = 5 × 7 as a	to provide evidence that		Critical-thinking
 Sounds 		statement that 35 is 5 times as many as 7	energy can be transferred		Reflection



Loope availability and when drawing informance and 7 times as many as 5. Depresent visibal from place to place by assist 4. Atodal - because	and processes and A Devision
Cliff C	o understand and
Our from the text. Statements of multiplicative comparisons Ingit field, and electric Simulate systems to evaluate notential	outcomes
Variables CCSS. ELA.Content.RI.4.2 as multiplication equations. CCSS. ELA.Content.RI.4.2 as multiplication equations. CCSS. ELA.Content.RI.4.2	Use technology ational Artifacts 1
Determine the main idea of a text and CCSS. Math.Content.OA.4.2 CCSS. Math.Content.OA.4.2 Determine the main idea of a text and CCSS. Math.Content.OA.4.2 Determine the main idea of a text and Determine the main idea Determine the main idea Determine the main idea Determine the main idea	ent of a
explain how it is supported by key details; • Multiply or divide to solve word problems device that converts energy computational arti	ifact using an
summarize the text. involving multiplicative comparison, e.g., from one form to another. iterative process the	nat includes
CCSS. ELA.Content.RI.4.3 by using drawings and equations with a 4-PS4 Waves and their reflection on and n	nodification of the
• Explain events, procedures, ideas, or symbol for the unknown number to Applications in Technologies for plan, taking into ad	ccount key features,
concepts in a historical, scientific, or represent the problem, distinguishing Information Transfer time and resource	constraints, and user
technical text, including what happened multiplicative comparison from additive • 4-PS4-3. Generate and expectations.	
and why, based on specific information in comparison compare multiple solutions P5.Creating Compute	ational Artifacts.2
the text CCSS Math Content OA 4.3	ional artifact for
CCSS ELA Contant PLA 4	ersonal expression, or
Determine the manning of general whole numbers and building whole surplus whole numbers and building in Technologies for a construction of general	al Issue.
Determine the meaning of general whole numbers and naving whole-number Applications in Technologies for P5.Creating Computation Andifuged evicting	a artifact to improve
academic and domain-specific words or answers using the four operations, Mouly und existing it	g untijuct to improve
phrases in a text relevant to a grade 4 topic including problems in which remainders model to describe that waves P6 Testing and Refini	ing Computational
or subject area. must be interpreted. Represent these are reflected, absorbed, or Artifacts.1	
CCSS. ELA.Content.RI.4.6 problems using equations with a letter transmitted through various Systematically test	computational
Compare and contrast a firsthand and standing for the unknown quantity. Assess materials. artifacts by considered artifac	ering all scenarios
secondhand account of the same event or the reasonableness of answers using • MS-PS4-3. Integrate and using test case	25.
topic; describe the differences in focus and mental computation and estimation qualitative scientific and P6.Testing and Refini	ing Computational
the information provided. strategies including rounding. technical information to Artifacts.2	
CCSS. ELA.Content.RI.4.7 CCSS. Math.Content.OA.4.5 support the claim that Identify and fix error	ors using a
Interpret information presented visually. Generate a number or shape pattern that digitized signals are a more systematic process	
orally, or guantitatively (e.g., in charts, follows a given rule, Identify apparent terrentiation about the follows a given rule, Identify apparent terrentiation about the follows a given rule is fo	ing Computational
grants diagrams time lines animations or features of the nation that were not consistent information than Artifacts.3	a a computational
groups, dispersion, tenter mediation of restores of the particular tent for example given 2.5.ETS1 Engineering Design artifact multiple til	mes to enhance its
$\frac{1}{2}$ and $\frac{1}{2}$ and the tracting pulses in the subscript $\frac{1}{2}$ and the tracting pulses $\frac{1}{2}$ and $\frac{1}{2}$ an	his to emance its bility, and
explain downed for of the total is used in the total time scaling and the second	
an understanding of the text in which it generate terms in the resulting sequence in each or a want that includes	
appears. and observe that the terms appear to specified criteria for success Concepts	
CCSS. ELA.Content.RI.4.9 alternate between odd and even numbers. and constraints on materials, 6-8.Computing Syste	ms.Devices
Integrate information from two texts on Explain informally why the numbers will time, or cost. The interaction bet	ween humans and
the same topic in order to write or speak continue to alternate in this way. • 3-5-ETS1-2. Generate and computing devices	presents
about the subject knowledgeably. CCSS. Math.Content.NBT.4.5 compare multiple possible advantages, disadv	vantages, and
CCSS. ELA.Content.RI.4.10 • Multiply a whole number of up to four solutions to a problem based unintended conseq	uences. The study of
By the end of year, read and comprehend digits by a one-digit whole number, and on how well each is likely to human-computer in in the desired of the second of the	nteraction can
informational texts, including history/social multiply two two-digit numbers, using meet the criteria and improve the design	of humans
studies, science, and technical texts, in the strategies based on place value and the 3-5-ETS1-2 plan and carry 6.8 Computing Syste	ms Troubleshooting
grades 4-5 text complexity band properties of operations. Illustrate and out fair tests in which Commentensive tro	ubleshooting
variables are controlled and requires knowledge	e of how computing



 proficiently, with scaffolding as needed at the high end of the range. CCSS. ELA.Content.L.4.6 Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, stammered) and that are basic to a particular topic (e.g., wildlife, conservation, and endangered when discussing animal preservation). CCSS. ELA.Content.W.4.7 Conduct short research projects that build knowledge through investigation of different aspects of a topic. CCSS. ELA.Content.W.4.9 Draw evidence from literary or informational texts to support analysis, reflection, and research. CCSS. ELA.Content.SL.4.2 Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally. CCSS. ELA.Content.RL5.1 Identify the reasons and evidence a speaker provides to support particular points. CCSS. ELA.Content.RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. CCSS. ELA.Content.RI.5.2 Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text. CCSS. ELA.Content.RI.5.3 Explain the relationships or interactions 	 explain the calculation by using equations, rectangular arrays, and/or area models. CCSS. Math.Content.NBT.4.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. CCSS. Math.Content.MD.4.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), CCSS. Math.Content.MD. 4.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. CCSS. Math.Content.MD.4.4 Make a line plot to display a data set of 	 failure points are considered to identify aspects of a model or prototype that can be improved. MS-ETS1 Engineering Design MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success. MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved. 	devices and components work and interact. A systematic process will identify the source of a problem, whether within a device or in a larger system of connected devices. 6-8.Algorithms and Programming.Variables Programmers create variables to store data values of selected types. A meaningful identifier is assigned to each variable to access and perform operations on the value by name. Variables enable the flexibility to represent different situations, process different sets of data, and produce varying outputs. 6-8.Algorithms and Programming.Control Programmers select and combine control structures, such as loops, event handlers, and conditionals, to create more complex program behavior. 6-8.Impacts of Computing.Culture Advancements in computing technology change people's everyday activities. Society is faced with trade-offs due to the increasing globalization and automation that computing brings.	
between two or more individuals, events,	measurements in fractions of a unit (1/2,			



ideas, or concepts in a historical, scientific,	1/4, 1/8). Solve problems involving		
or technical text based on specific	addition and subtraction of fractions by		
information in the text.	using information presented in line plots.		
CCSS. ELA.Content.RI.5.4	For example, from a line plot find and		
 Determine the meaning of general 	interpret the difference in length between		
academic and domain-specific words and	the longest and shortest specimens in an		
phrases in a text relevant to a grade 5 topic	insect collection.		
or subject area.	CCSS. Math.Content.NF.4.1		
CCSS. ELA.Content.RI.5.5	• Explain why a fraction <i>a/b</i> is equivalent to		
• Compare and contrast the overall structure	a fraction $(n \times a)/(n \times b)$ by using visual		
(e.g., chronology, comparison,	fraction models, with attention to how the		
cause/effect, problem/solution) of events,	number and size of the parts differ even		
ideas, concepts, or information in two or	though the two fractions themselves are		
more texts.	the same size. Use this principle to		
CCSS. ELA.Content.RI.5.6	recognize and generate equivalent		
 Analyze multiple accounts of the same 	fractions.		
event or topic, noting important similarities	CCSS. Math.Content.NF.4.2		
and differences in the point of view they	Compare two fractions with different		
represent.	numerators and different denominators,		
CCSS. ELA.Content.RI.5.7	e.g., by creating common denominators or		
• Draw on information from multiple print or	numerators, or by comparing to a		
digital sources, demonstrating the ability to	benchmark fraction such as 1/2. Recognize		
locate an answer to a question quickly or	that comparisons are valid only when the		
to solve a problem efficiently.	two fractions refer to the same whole.		
CCSS. ELA.Content.RI.5.9	Record the results of comparisons with		
 Integrate information from several texts on 	symbols >, =, or <, and justify the		
the same topic in order to write or speak	conclusions, e.g., by using a visual fraction		
about the subject knowledgeably.	model.		
CCSS. ELA.Content.RI.5.10	CCSS. Math.Content.NF.4.3		
 By the end of the year, read and 	• Understand a fraction <i>a/b</i> with <i>a</i> > 1 as a		
comprehend informational texts, including	sum of fractions 1/b.		
history/social studies, science, and	CCSS. Math.Content.NF.4.4		
technical texts, at the high end of the	• Apply and extend previous understandings		
grades 4-5 text complexity band	of multiplication to multiply a fraction by a		
independently and proficiently.	whole number.		
CCSS. ELA.Content.L.5.6	CCSS. Math.Content.NF.4.5		
 Acquire and use accurately 	• Express a fraction with denominator 10 as		
grade-appropriate general academic and	an equivalent fraction with denominator		
domain-specific words and phrases	100, and use this technique to add two		



 addition, and other logical relationships	and 100.2For example, express 3/10 as		
(e.g., however, although, nevertheless,	30/100, and add 3/10 + 4/100 = 34/100.		
similarly, moreover, in addition).	CCSS. Math.Content.NF.4.6		
CCSS. ELA.Content.W.5.7	 Use decimal notation for fractions with 		
 Conduct short research projects that use 	denominators 10 or 100. For example,		
several sources to build knowledge through	rewrite 0.62 as 62/100; describe a length as		
investigation of different aspects of a topic.	0.62 meters; locate 0.62 on a number line		
CCSS. ELA.Content.W.5.9	diagram.		
Draw evidence from literary or	CCSS. Math.Content.NF.4.7		
informational texts to support analysis,	 Compare two decimals to hundredths by 		
reflection, and research.	reasoning about their size. Recognize that		
CCSS. ELA.Content.SL.5.2	comparisons are valid only when the two		
 Summarize a written text read aloud or 	decimals refer to the same whole. Record		
information presented in diverse media	the results of comparisons with the		
and formats, including visually,	symbols >, =, or <, and justify the		
quantitatively, and orally.	conclusions, e.g., by using a visual model.		
CCSS. ELA.Content.SL.5.3	CCSS. Math.Content.OA.5.1		
• Summarize the points a speaker makes and	 Use parentheses, brackets, or braces in 		
explain how each claim is supported by	numerical expressions, and evaluate		
reasons and evidence.	expressions with these symbols.		
CCSS.ELA.Content.RI.6.1	CCSS. Math.Content.OA.5.2		
• Cite textual evidence to support analysis of	 Write simple expressions that record 		
what the text says explicitly as well as	calculations with numbers, and interpret		
inferences drawn from the text.	numerical expressions without evaluating		
CCSS.ELA.Content.RI.6.2	them. For example, express the calculation		
• Determine a central idea of a text and how	"add 8 and 7, then multiply by 2" as 2 × (8 +		
it is conveyed through particular details;	7). Recognize that 3 × (18932 + 921) is		
provide a summary of the text distinct from	three times as large as 18932 + 921,		
personal opinions or judgments.	without having to calculate the indicated		
CCSS.ELA.Content.RI.6.3	sum or product.		
• Analyze in detail how a key individual,	CCSS. Math.Content.OA.5.3		
event, or idea is introduced, illustrated,	• Generate two numerical patterns using two		
and elaborated in a text (e.g., through	given rules. Identify apparent relationships		
examples or anecdotes).	between corresponding terms. Form		
CCSS.ELA.Content.RI.6.4	ordered pairs consisting of corresponding		
• Determine the meaning of words and	terms from the two patterns, and graph		
phrases as they are used in a text, including	the ordered pairs on a coordinate plane.		
figurative, connotative, and technical	For example, given the rule "Add 3" and the		
meanings.	starting number 0, and given the rule "Add		
CCSS.ELA.Content.RI.6.5	6" and the starting number 0, generate		



 Analyze how a particular sentence, 	terms in the resulting sequences, and		
paragraph, chapter, or section fits into the	observe that the terms in one sequence are		
overall structure of a text and contributes	twice the corresponding terms in the other		
to the development of the ideas.	sequence. Explain informally why this is so.		
CCSS.ELA.Content.RI.6.6	CCSS. Math.Content.NBT.5.1		
• Determine an author's point of view or	• Recognize that in a multi-digit number, a		
purpose in a text and explain how it is	digit in one place represents 10 times as		
conveyed in the text.	much as it represents in the place to its		
CCSS. ELA.Content.L.6.6	right and 1/10 of what it represents in the		
• Acquire and use accurately	place to its left.		
grade-appropriate general academic and	CCSS. Math.Content.NBT.5.2		
domain-specific words and phrases; gathe	• Explain patterns in the number of zeros of		
vocabulary knowledge when considering a	the product when multiplying a number by		
word or phrase important to	powers of 10, and explain patterns in the		
comprehension or expression.	placement of the decimal point when a		
CCSS.ELA.Content.W.6.7	decimal is multiplied or divided by a power		
• Conduct short research projects to answe	of 10. Use whole-number exponents to		
a question, drawing on several sources an	d denote powers of 10.		
refocusing the inquiry when appropriate.	CCSS. Math.Content.NBT.5.3		
CCSS.ELA.Content.W.6.9	• Read, write, and compare decimals to		
 Draw evidence from literary or 	thousandths.		
informational texts to support analysis,	CCSS. Math.Content.NBT.5.6		
reflection, and research.	• Find whole-number quotients of whole		
CCSS. ELA.Content.SL.6.2	numbers with up to four-digit dividends		
 Interpret information presented in diverse 	and two-digit divisors, using strategies		
media and formats (e.g., visually,	based on place value, the properties of		
quantitatively, orally) and explain how it	operations, and/or the relationship		
contributes to a topic, text, or issue under	between multiplication and division.		
study.	Illustrate and explain the calculation by		
CCSS. ELA.Content.SL.6.3	using equations, rectangular arrays, and/or		
 Delineate a speaker's argument and 	area models.		
specific claims, distinguishing claims that	CCSS. Math.Content.NBT.5.7		
are supported by reasons and evidence	• Add, subtract, multiply, and divide		
from claims that are not.	decimals to hundredths, using concrete		
	models or drawings and strategies based		
	on place value, properties of operations,		
	and/or the relationship between addition		
	and subtractions relate the strategy to a		
	written method and explain the reasoning		



CCSS. Math.Content.MD.5.1	
 Convert among different-sized standard 	
measurement units within a given	
measurement system (e.g., convert 5 cm to	
0.05 m), and use these conversions in	
solving multi-step, real world problems.	
CCSS. Math.Content.MD.5.2	
 Make a line plot to display a data set of 	
measurements in fractions of a unit (1/2,	
1/4, 1/8). Use operations on fractions for	
this grade to solve problems involving	
information presented in line plots. For	
example, given different measurements of	
liquid in identical beakers, find the amount	
of liquid each beaker would contain if the	
total amount in all the beakers were	
redistributed equally.	
CCSS. Math.Content.NF.5.1	
 Add and subtract fractions with unlike 	
denominators (including mixed numbers)	
by replacing given fractions with equivalent	
fractions in such a way as to produce an	
equivalent sum or difference of fractions	
with like denominators. For example, 2/3 +	
5/4 = 8/12 + 15/12 = 23/12. (In general, a/b	
+ c/d = (ad + bc)/bd.)	
CCSS. Math.Content.NF.5.2	
 Solve word problems involving addition 	
and subtraction of fractions referring to the	
same whole, including cases of unlike	
denominators, e.g., by using visual fraction	
models or equations to represent the	
problem. Use benchmark fractions and	
number sense of fractions to estimate	
mentally and assess the reasonableness of	
answers. For example, recognize an	
incorrect result 2/5 + 1/2 = 3/7, by	
observing that 3/7 < 1/2.	
CCSS. Math.Content.NS.6.2	



 Fluently divide multi-digit numbers using 		
the standard algorithm.		
CCSS. Math.Content.NS.6.3		
Fluently add, subtract, multiply, and divide		
multi-digit decimals using the standard		
algorithm for each operation.		
CCSS. Math.Content.NS.6.6		
 Understand a rational number as a point 		
on the number line. Extend number line		
diagrams and coordinate axes familiar from		
previous grades to represent points on the		
line and in the plane with negative number		
coordinates.		
CCSS. Math.Content.NS.6.8		
 Solve real-world and mathematical 		
problems by graphing points in all four		
quadrants of the coordinate plane. Include		
use of coordinates and absolute value to		
find distances between points with the		
same first coordinate or the same second		
coordinate.		
CCSS. Math.Content.EE.6.2		
• Write, read, and evaluate expressions in		
which letters stand for numbers.		
CCSS. Math.Content.EE.6.3		
 Apply the properties of operations to 		
generate equivalent expressions. For		
example, apply the distributive property to		
the expression 3 $(2 + x)$ to produce the		
equivalent expression 6 + 3x; apply the		
distributive property to the expression 24x		
+ 18y to produce the equivalent expression		
6(4x + 3y); apply properties of operations		
to <i>y</i> + <i>y</i> + <i>y</i> to produce the equivalent		
expression 3y.		
CCSS. Math.Content.EE.6.4		
 Identify when two expressions are 		
equivalent (i.e., when the two expressions		
name the same number regardless of		
which value is substituted into them). For		



г			
	example, the expressions $y + y + y$ and $3y$		
	are equivalent because they name the		
	same number regardless of which number y		
	stands for.		
	CCSS. Math.Content.EE.6.5		
	 Understand solving an equation or 		
	inequality as a process of answering a		
	question: which values from a specified set,		
	if any, make the equation or inequality		
	true? Use substitution to determine		
	whether a given number in a specified set		
	makes an equation or inequality true.		
	CCSS. Math.Content.EE.6.6		
	 Use variables to represent numbers and 		
	write expressions when solving a		
	real-world or mathematical problem;		
	understand that a variable can represent		
	an unknown number, or, depending on the		
	purpose at hand, any number in a specified		
	set.		
	CCSS. Math.Content.EE.6.7		
	 Solve real-world and mathematical 		
	problems by writing and solving equations		
	of the form $x + p = q$ and $px = q$ for cases in		
	which <i>p</i> , <i>q</i> and <i>x</i> are all nonnegative		
	rational numbers.		
	CCSS. Math.Content.EE.6.8		
	 Solve real-world and mathematical 		
	problems by writing and solving equations		
	of the form $x + p = q$ and $px = q$ for cases in		
	which p , q and x are all nonnegative		
	rational numbers.		
	CCSS. Math.Content.EE.6.9		
	 Use variables to represent two quantities 		
	in a real-world problem that change in		
	relationship to one another; write an		
	equation to express one quantity, thought		
	of as the dependent variable, in terms of		
	the other quantity, thought of as the		
	independent variable. Analyze the		



relationship between the dependent and		
independent variables using graphs and		
tables, and relate these to the equation.		
For example, in a problem involving motion		
at constant speed, list and graph ordered		
pairs of distances and times, and write the		
equation d = 65t to represent the		
relationship between distance and time.		
CCSS. Math.Content.SP.6.1		
 Recognize a statistical question as one that 		
anticipates variability in the data related to		
the question and accounts for it in the		
answers. For example, "How old am I?" is		
not a statistical question, but "How old are		
the students in my school?" is a statistical		
question because one anticipates variability		
in students' ages.		
CCSS. Math.Content.SP.6.2		
 Understand that a set of data collected to 		
answer a statistical question has a		
distribution which can be described by its		
center, spread, and overall shape.		
CCSS. Math.Content.SP.6.3		
 Recognize that a measure of center for a 		
numerical data set summarizes all of its		
values with a single number, while a		
measure of variation describes how its		
values vary with a single number.		
CCSS. Math.Content.SP.6.4		
 Display numerical data in plots on a 		
number line, including dot plots,		
histograms, and box plots.		
CCSS. Math.Content.SP.6.5		
 Summarize numerical data sets in relation 		
to their context, such as by		
CCSS. Math.Content.RP.6.1		
 Understand the concept of a ratio and use 		
ratio language to describe a ratio		
relationship between two quantities. For		
example, "The ratio of wings to beaks in the		



bird house at the zoo was 2:1, because for		
every 2 wings there was 1 beak." "For every		l
vote candidate A received, candidate C		l
received nearly three votes."		l
CCSS. Math.Content.RP.6.2		l
 Understand the concept of a unit rate a/b 		l
associated with a ratio a:b with b \neq 0, and		l
use rate language in the context of a ratio		l
relationship. For example, "This recipe has		1
a ratio of 3 cups of flour to 4 cups of sugar,		l
so there is 3/4 cup of flour for each cup of		l
sugar." "We paid \$75 for 15 hamburgers,		l
which is a rate of \$5 per hamburger."		l
CCSS. Math.Content.RP.6.3		l
 Use ratio and rate reasoning to solve 		l
real-world and mathematical problems,		l
e.g., by reasoning about tables of		l
equivalent ratios, tape diagrams, double		l
number line diagrams, or equations.		



Simplo	CCSS_ELA Contant PL 4 1	CCSS_Math Contont OA 4.1	MS BS2 Motion and Stability:	Practices	 Solf directed
Motion	Befor to details and examples in a text	Interpret a multiplication equation as a	Forces and Interactions	P3 Recognizing and Defining	 Jen-unected Innovative
Drive and	Refer to details and examples in a text	Interpret a multiplication equation as a	MS-PS2-2 Plan an	Computational Problems 1	Critical thinking
Drive and Potato	when explaining what the text says	comparison, e.g., interpret 35 = 5 × 7 as a	investigation to provide	Identify complex. interdisciplinary.	Pofloction
- Spood	explicitly and when drawing inferences	statement that 35 is 5 times as many as 7	evidence that the change in	real-world problems that can be solved	Reflection
 Speeu Control 	from the text.	and 7 times as many as 5. Represent verbal	an object's motion depends	computationally.	 Revision Design thinking
Draw	CCSS. ELA.Content.RI.4.2	statements of multiplicative comparisons	on the sum of the forces on	P3.Recognizing and Defining	 Design-thinking Use technology
Draw Shapped	 Determine the main idea of a text and 	as multiplication equations.	the object and the mass of	Computational Problems.2	 Ose technology
Shapes	explain how it is supported by key details;	CCSS. Math.Content.OA.4.2	the object.	Decompose complex real-world	
	summarize the text.	Multiply or divide to solve word problems	4-PS3 Energy	problems into manageable	
	CCSS. ELA.Content.RI.4.3	involving multiplicative comparison, e.g., by	 4-PS3-3. Ask questions and 	subproblems that could integrate	
	 Explain events, procedures, ideas, or 	using drawings and equations with a	predicts outcomes about the	existing solutions or procedures.	
	concepts in a historical, scientific, or	symbol for the unknown number to	when objects collide	P3.Recognizing and Defining	
	technical text, including what happened	represent the problem, distinguishing	MS-PS3 Energy	Evaluate whether it is appropriate and	
	and why, based on specific information in	multiplicative comparison from additive	 MS-PS3-5, Construct, use. 	feasible to solve a problem	
	the text	comparison	and present arguments to	computationally.	
	CCSS_ELA_Content_BL4_4	CCSS Math Content OA 4 3	support the claim that when	P4.Developing and Using Abstractions.1	
	Determine the meaning of general	 Solve multisten word problems posed with 	the kinetic energy of an	Extract common features from a set of	
	academic and domain-specific words or	whole numbers and baying whole number	object changes, energy is	interrelated processes or complex	
	academic and domain-specific words of	answers using the four energians	transferred to or from the	phenomena.	
	phrases in a text relevant to a grude 4 topic	answers using the four operations,	object.	P4.Developing and Using Abstractions.2	
	or subject area.	including problems in which remainders	3-5-EISI Engineering Design	Evaluate existing technological	
	CCSS. ELA.Content.RI.4.6	must be interpreted. Represent these	 3-5-ETST-1. Define a simple dosign problem reflecting a 	junctionalities and incorporate them	
	 Compare and contrast a firsthand and 	problems using equations with a letter	need or a want that includes	P5 Creating Computational Artifacts 1	
	secondhand account of the same event or	standing for the unknown quantity. Assess	specified criteria for success	Plan the development of a	
	topic; describe the differences in focus and	the reasonableness of answers using	and constraints on materials,	computational artifact using an	
	the information provided.	mental computation and estimation	time, or cost.	iterative process that includes	
	CCSS. ELA.Content.RI.4.7	strategies including rounding.	• 3-5-ETS1-2. Generate and	reflection on and modification of the	
	 Interpret information presented visually, 	CCSS. Math.Content.NBT.4.1	compare multiple possible	plan, taking into account key features,	
	orally, or quantitatively (e.g., in charts,	 Recognize that in a multi-digit whole 	solutions to a problem based	time and resource constraints, and user	
	graphs, diagrams, time lines, animations, or	number, a digit in one place represents ten	on how well each is likely to	expectations.	
	interactive elements on Web pages) and	times what it represents in the place to its	meet the criteria and	P5.Creating Computational Artifacts.2	
	explain how the information contributes to	right. For example, recognize that 700 ÷ 70	constraints of the problem.	Create a computational artifact for	
	an understanding of the text in which it	= 10 by applying concepts of place value	• 3-5-ETST-3. Plan and Carry	to address a societal issue	
	appears.	and division.	variables are controlled and	P5 Creating Computational Artifacts 3	
	CCSS, FLA Content RI 4.9	CCSS, Math Content, NBT 4.3	failure points are considered	Modify an existing artifact to improve	
	 Integrate information from two texts on 	 Use place value understanding to round 	to identify aspects of a model	or customize it.	
	the same tonic in order to write or speak	multi-digit whole numbers to any place	or prototype that can be	P6.Testing and Refining Computational	
	about the subject knowledgeably	CCSS Math Content NPT 4.5	improved.	Artifacts.1	
	CCCC FLA Content PLA 10	Multiply a whole number of up to four	MS-ETS1 Engineering Design	Systematically test computational	
	• Dutho and of yoor read and comprehend	Initipity a whole number of up to four	MS-ETS1-2. Evaluate	artifacts by considering all scenarios	
	• By the end of year, read and comprehend	digits by a one-digit whole number, and	competing design solutions	and using test cases.	
	informational texts, including history/social	multiply two two-digit numbers, using	using a systematic process to		
		Dage 15		www. parallax .con	
1	1	rage 13	1		



Quote accurately from a text when	Recognize angles as geometric shapes that
explaining what the text says explicitly and	are formed wherever two rays share a
when drawing inferences from the text.	common endpoint, and understand
CCSS. ELA.Content.RI.5.2	concepts of angle measurement.
• Determine two or more main ideas of a	CCSS. Math.Content.MD.4.6
text and explain how they are supported by	Measure angles in whole-number degrees
key details; summarize the text.	using a protractor. Sketch angles of
CCSS. ELA.Content.RI.5.3	specified measure.
• Explain the relationships or interactions	CCSS. Math.Content.MD.4.7
between two or more individuals, events,	• Recognize angle measure as additive. When
ideas, or concepts in a historical, scientific,	an angle is decomposed into
or technical text based on specific	non-overlapping parts, the angle measure
information in the text.	of the whole is the sum of the angle
CCSS. ELA.Content.RI.5.4	measures of the parts. Solve addition and
 Determine the meaning of general 	subtraction problems to find unknown
academic and domain-specific words and	angles on a diagram in real world and
phrases in a text relevant to a grade 5 topic	mathematical problems, e.g., by using an
or subject area.	equation with a symbol for the unknown
CCSS. ELA.Content.RI.5.5	angle measure.
• Compare and contrast the overall structure	CCSS. Math.Content.NF.4.4
(e.g., chronology, comparison,	• Apply and extend previous understandings
cause/effect, problem/solution) of events,	of multiplication to multiply a fraction by a
ideas, concepts, or information in two or	whole number.
more texts.	CCSS. Math.Content.NF.4.6
CCSS. ELA.Content.RI.5.6	• Use decimal notation for fractions with
• Analyze multiple accounts of the same	denominators 10 or 100. For example,
event or topic, noting important similarities	rewrite 0.62 as 62/100; describe a length as
and differences in the point of view they	0.62 meters; locate 0.62 on a number line
represent.	diagram.
CCSS. ELA.Content.RI.5.7	CCSS. Math.Content.NF.4.7
• Draw on information from multiple print or	• Compare two decimals to hundredths by
digital sources, demonstrating the ability to	reasoning about their size. Recognize that
locate an answer to a question quickly or	comparisons are valid only when the two
to solve a problem efficiently.	decimals refer to the same whole. Record
CCSS. ELA.Content.RI.5.9	the results of comparisons with the
• Integrate information from several texts on	symbols >, =, or <, and justify the
the same topic in order to write or speak	conclusions, e.g., by using a visual model.
about the subject knowledgeably.	CCSS. Math.Content.G.4.1
CCSS. ELA.Content.RI.5.10	• Draw points, lines, line segments, rays,
	angles (right, acute, obtuse), and



 By the end of the year, read and 	perpendicular and parallel lines. Identify	
comprehend informational texts, including	these in two-dimensional figures.	
history/social studies, science, and	CCSS. Math.Content.OA.5.2	
technical texts, at the high end of the	Write simple expressions that record	
grades 4-5 text complexity band	calculations with numbers, and interpret	
independently and proficiently.	numerical expressions without evaluating	
CCSS. ELA.Content.L.5.4	them. For example, express the calculation	
 Determine or clarify the meaning of 	"add 8 and 7, then multiply by 2" as 2 × (8 +	
unknown and multiple-meaning words and	7). Recognize that 3 × (18932 + 921) is three	
phrases based on grade 5 reading and	times as large as 18932 + 921, without	
content, choosing flexibly from a range of	having to calculate the indicated sum or	
strategies.	product.	
CCSS. ELA.Content.L.5.6	CCSS. Math.Content.NBT.5.1	
 Acquire and use accurately 	• Recognize that in a multi-digit number, a	
grade-appropriate general academic and	digit in one place represents 10 times as	
domain-specific words and phrases,	much as it represents in the place to its	
including those that signal contrast,	right and 1/10 of what it represents in the	
addition, and other logical relationships	place to its left.	
(e.g., however, although, nevertheless,	CCSS. Math.Content.NBT.5.2	
similarly, moreover, in addition).	• Explain patterns in the number of zeros of	
CCSS. ELA.Content.W.5.8	the product when multiplying a number by	
 Recall relevant information from 	powers of 10, and explain patterns in the	
experiences or gather relevant information	placement of the decimal point when a	
from print and digital sources; summarize	decimal is multiplied or divided by a power	
or paraphrase information in notes and	of 10. Use whole-number exponents to	
finished work, and provide a list of sources.	denote powers of 10.	
CCSS. ELA.Content.W.5.9	CCSS. Math.Content.NBT.5.3	
 Draw evidence from literary or 	Read, write, and compare decimals to	
informational texts to support analysis,	thousand ths.	
reflection, and research.	CCSS. Math.Content.NBT.5.4	
CCSS. ELA.Content.W.5.10	Use place value understanding to round	
• Write routinely over extended time frames	decimals to any place.	
(time for research, reflection, and revision)	CCSS. Math.Content.NBT.5.5	
and shorter time frames (a single sitting or	Fluently multiply multi-digit whole numbers	
a day or two) for a range of	using the standard algorithm.	
discipline-specific tasks, purposes, and	CCSS. Math.Content.NBT.5.6	
audiences.	Find whole-number quotients of whole	
CCSS. ELA.Content.RI.6.1	numbers with up to four-digit dividends	
	and two-digit divisors, using strategies	
	based on place value, the properties of	



Cite textual evidence to support analysis of	operations, and/or the relationship		
what the text says explicitly as well as	between multiplication and division.		
inferences drawn from the text.	Illustrate and explain the calculation by		
CCSS. ELA.Content.RI.6.2	using equations, rectangular arrays, and/or		
• Determine a central idea of a text and how	area models.		
it is conveyed through particular details;	CCSS. Math.Content.NBT.5.7		
provide a summary of the text distinct from	• Add, subtract, multiply, and divide decimals		
personal opinions or judgments.	to hundredths, using concrete models or		
CCSS. ELA.Content.RI.6.3	drawings and strategies based on place		
• Analyze in detail how a key individual,	value, properties of operations, and/or the		
event, or idea is introduced, illustrated,	relationship between addition and		
and elaborated in a text (e.g., through	subtraction; relate the strategy to a written		
examples or anecdotes).	method and explain the reasoning used.		
CCSS. ELA.Content.RI.6.4	CCSS. Math.Content.MD.5.1		
• Determine the meaning of words and	• Convert among different-sized standard		
phrases as they are used in a text, including	measurement units within a given		
figurative, connotative, and technical	measurement system (e.g., convert 5 cm to		
meanings.	0.05 m), and use these conversions in		
CCSS. ELA.Content.RI.6.5	solving multi-step, real world problems.		
 Analyze how a particular sentence, 	CCSS. Math.Content.MD.5.2		
paragraph, chapter, or section fits into the	• Make a line plot to display a data set of		
overall structure of a text and contributes	measurements in fractions of a unit (1/2,		
to the development of the ideas.	1/4, 1/8). Use operations on fractions for		
CCSS. ELA.Content.RI.6.6	this grade to solve problems involving		
• Determine an author's point of view or	information presented in line plots. For		
purpose in a text and explain how it is	example, given different measurements of		
conveyed in the text.	liquid in identical beakers, find the amount		
CCSS. ELA.Content.RI.6.7	of liquid each beaker would contain if the		
Integrate information presented in	total amount in all the beakers were		
different media or formats (e.g., visually,	redistributed equally.		
quantitatively) as well as in words to	CCSS. Math.Content.NS.6.2		
develop a coherent understanding of a	• Fluently divide multi-digit numbers using		
topic or issue.	the standard algorithm.		
CCSS. ELA.Content.RI.6.8	CCSS. Math.Content.NS.6.3		
 Trace and evaluate the argument and 	• Fluently add, subtract, multiply, and divide		
specific claims in a text, distinguishing	multi-digit decimals using the standard		
claims that are supported by reasons and	algorithm for each operation.		
evidence from claims that are not.	CCSS. Math.Content.NS.6.5		
CCSS. ELA.Content.L.6.4	 Understand that positive and negative 		
	numbers are used together to describe		



 Determine or clarify the meaning of 	quantities having opposite directions or		1
unknown and multiple-meaning words and	values (e.g., temperature above/below		
phrases based on grade 6 reading and	zero, elevation above/below sea level,		
content, choosing flexibly from a range of	credits/debits, positive/negative electric		
strategies.	charge); use positive and negative numbers		
CCSS. ELA.Content.L.6.6	to represent quantities in real-world		l
 Acquire and use accurately 	contexts, explaining the meaning of 0 in		
grade-appropriate general academic and	each situation.		
domain-specific words and phrases; gather	CCSS. Math.Content.NS.6.6		
vocabulary knowledge when considering a	• Understand a rational number as a point on		
word or phrase important to	the number line. Extend number line		
comprehension or expression.	diagrams and coordinate axes familiar from		
CCSS.ELA.Content.W.6.7	previous grades to represent points on the		
• Conduct short research projects to answer	line and in the plane with negative number		
a question, drawing on several sources and	coordinates.		
refocusing the inquiry when appropriate.	CCSS. Math.Content.NS.6.7		
CCSS.ELA.Content.W.6.8	• Understand ordering and absolute value of		
Gather relevant information from multiple	rational numbers.		l
print and digital sources; assess the	CCSS. Math.Content.NS.6.8		
credibility of each source; and quote or	 Solve real-world and mathematical 		l
paraphrase the data and conclusions of	problems by graphing points in all four		l
others while avoiding plagiarism and	guadrants of the coordinate plane. Include		
providing basic bibliographic information	use of coordinates and absolute value to		l
for sources.	find distances between points with the		
CCSS. ELA.Content.W.6.9	same first coordinate or the same second		
• Draw evidence from literary or	coordinate.		
informational texts to support analysis,	CCSS. Math.Content.EE.6.2		
reflection, and research.	• Write, read, and evaluate expressions in		
CCSS. ELA.Content.W.6.10	which letters stand for numbers.		
• Write routinely over extended time frames	CCSS. Math.Content.EE.6.5		
(time for research, reflection, and revision)	 Understand solving an equation or 		
and shorter time frames (a single sitting or	inequality as a process of answering a		
a day or two) for a range of	question: which values from a specified set.		l
discipline-specific tasks, purposes, and	if any, make the equation or inequality		
audiences.	true? Use substitution to determine		
	whether a given number in a specified set		
	makes an equation or inequality true.		I
	CCSS. Math.Content.EF.6.6		1
	Use variables to represent numbers and		
	write expressions when solving a		1



real-world or mathematical problem;		
understand that a variable can represent		
an unknown number, or, depending on the		
purpose at hand, any number in a specified		
set.		
CCSS. Math.Content.EE.6.7		
 Solve real-world and mathematical 		
problems by writing and solving equations		
of the form $x + p = q$ and $px = q$ for cases in		
which <i>p</i> , <i>q</i> and <i>x</i> are all nonnegative		
rational numbers.		
CCSS. Math.Content.EE.6.9		
 Use variables to represent two quantities 		
in a real-world problem that change in		
relationship to one another; write an		
equation to express one quantity, thought		
of as the dependent variable, in terms of		
the other quantity, thought of as the		
independent variable. Analyze the		
relationship between the dependent and		
independent variables using graphs and		
tables, and relate these to the equation.		
For example, in a problem involving motion		
at constant speed, list and graph ordered		
pairs of distances and times, and write the		
equation d = 65t to represent the		
relationship between distance and time.		
CCSS. Math.Content.RP.6.1		
 Understand the concept of a ratio and use 		
ratio language to describe a ratio		
relationship between two quantities. For		
example, "The ratio of wings to beaks in		
the bird house at the zoo was 2:1, because		
for every 2 wings there was 1 beak." "For		
every vote candidate A received, candidate		
C received nearly three votes."		
CCSS. Math.Content.RP.6.2		
 Understand the concept of a unit rate a/b 		
associated with a ratio a:b with b \neq 0, and		
use rate language in the context of a ratio		



r			1		
		relationship. For example, "This recipe has			
		a ratio of 3 cups of flour to 4 cups of sugar,			
		so there is 3/4 cup of flour for each cup of			
		sugar." "We paid \$75 for 15 hamburgers,			
		which is a rate of \$5 per hamburger."			
		CCSS. Math.Content.RP.6.3			
		 Use ratio and rate reasoning to solve 			
		real-world and mathematical problems,			
		e.g., by reasoning about tables of			
		equivalent ratios, tape diagrams, double			
		number line diagrams, or equations.			
Navigating	CCSS. ELA.Content.RI.4.1	CCSS. Math.Content.OA.4.3	4-PS3 Energy	Practices	 Self-directed
with Sensors	• Refer to details and examples in a text	• Solve multistep word problems posed with	• 4-PS3-2. Make observations	P3.Recognizing and Defining	 Innovative
 Navigation 	when explaining what the text says	whole numbers and having whole-number	to provide evidence that	Computational Problems.1	Critical-thinking
 Infrared 	explicitly and when drawing inferences	answers using the four operations,	energy can be transferred	Identify complex, interdisciplinary,	Reflection
Emitters	from the text.	including problems in which remainders	from place to place by sound,	real-world problems that can be solved	Revision
and	CCSS. ELA.Content.RI.4.2	must be interpreted. Represent these	light heat, and electric	Computationally. P3 Recognizing and Defining	 Design-thinking
Receivers	• Determine the main idea of a text and	problems using equations with a letter	• 4-PS3-4. Apply scientific ideas	Computational Problems 2	 Use technology
	explain how it is supported by key details:	standing for the unknown quantity. Assess	to design, test, and refine a	Decompose complex real-world	
	summarize the text.	the reasonableness of answers using	device that converts energy	problems into manageable	
	CCSS, ELA.Content.RI.4.3	mental computation and estimation	from one form to another.	subproblems that could integrate	
	Explain events, procedures, ideas, or	strategies including rounding.	MS-PS3 Energy	existing solutions or procedures.	
	concepts in a historical scientific or	CCSS Math Content NBT 4.2	• MS-PS3-5. Construct, use,	P3.Recognizing and Defining	
	technical text_including what happened	Read and write multi-digit whole numbers	and present arguments to	Computational Problems.3	
	and why based on specific information in	using base-ten numerals number names	the kinetic energy of an	feasible to solve a problem	
	the text	and expanded form. Compare two	object changes, energy is	computationally.	
	CCSS_ELA Content BL4.4	multi-digit numbers based on meanings of	transferred to or from the	P4.Developing and Using Abstractions.1	
	Determine the meaning of general	the digits in each place using $\Sigma = and <$	objects.	Extract common features from a set of	
	Determine the meaning of general	symbols to record the results of	4-PS4 Waves and their	interrelated processes or complex	
	academic and domain-specific words of	comparisons	Applications in Technologies for	phenomena.	
	or subject area	CCSS Math Contant NPT 4.2	Information Transfer	P4.Developing and Using Abstractions.2	
	CCSS ELA Contant BLA E	Use place value understanding to round	 4-P34-3. Generate and compare multiple solutions 	Evaluate existing technological functionalities and incorporate them	
	Describe the everall structure (e.g.	Ose place value understanding to round	that use patterns to transfer	into new designs.	
	beschibe the overall structure (e.g., chronology, comparison, course/offect	CCSS Math Contont NPT 4.4	information.	P4.Developing and Using Abstractions.3	
	chronology, comparison, cause/effect,	CCSS. Math.content.NB1.4.4	MS-PS4 Waves and their	Create modules and develop points of	
	problem/solution) or events, ideas,	 Fluency add and subtract multi-digit whole 	Applications in Technologies for	interaction that can apply to multiple	
	concepts, or information in a text or part of	numbers using the standard algorithm.	Information Transfer	situations and reduce complexity.	
		CCSS. IVIATN.CONTENT.INB1.4.6	MS-PS4-2. Develop and use a	P5.Creating Computational Artifacts.1	
	CLSS. ELA.Content.RI.4.7	Find whole-number quotients and	model to describe that waves	Plan the development of a	
	Interpret information presented visually,	remainders with up to four-digit dividends	are reflected, absorbed, or	iterative process that includes	
	orally, or quantitatively (e.g., in charts,	and one-digit divisors, using strategies		iterative process that includes	



graphs, diagrams, time lines, animations, or	based on place value, the properties of	transmitted through various	reflection on and modification of the	
interactive elements on Web pages) and	operations, and/or the relationship	materials.	plan, taking into account key features,	
explain how the information contributes to	between multiplication and division.	 MS-PS4-3. Integrate 	time and resource constraints, and user	
an understanding of the text in which it	Illustrate and explain the calculation by	qualitative scientific and	expectations.	
appears	using equations, rectangular arrays, and/or	technical information to	P5.Creating Computational Artifacts.2	
CCSS ELA Content RI 4 10	area models	support the claim that	Create a computational artifact for	
Putho and of year read and comprohend	CCSS Math Contant MD 4.1	digitized signals are a more	practical intent, personal expression, or	
• By the end of year, read and comprehend	CCSS. Math.content.MD.4.1	transmit information than	to dadress a societal issue.	
Informational texts, including history/social	Know relative sizes of measurement units		Modify an existing artifact to improve	
studies, science, and technical texts, in the	within one system of units including km, m,	3-5-FTS1 Engineering Design	or customize it	
grades 4-5 text complexity band	cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a	• 3-5-FTS1-1. Define a simple	P6 Testing and Refining Computational	
proficiently, with scaffolding as needed at	single system of measurement, express	design problem reflecting a	Artifacts.1	
the high end of the range.	measurements in a larger unit in terms of a	need or a want that includes	Systematically test computational	
CCSS. ELA.Content.L.4.4	smaller unit. Record measurement	specified criteria for success	artifacts by considering all scenarios	
• Determine or clarify the meaning of	equivalents in a two-column table. For	and constraints on materials,	and using test cases.	
unknown and multiple-meaning words and	example, know that 1 ft is 12 times as long	time, or cost.	P6.Testing and Refining Computational	
phrases based on grade 4 reading and	as 1 in. Express the length of a 4 ft snake as	 3-5-ETS1-2. Generate and 	Artifacts.2	
content, choosing flexibly from a range of	48 in. Generate a conversion table for feet	compare multiple possible	Identify and fix errors using a	
strategies	and inches listing the number pairs (1-12)	solutions to a problem based	systematic process.	
CCCC FLA Content L 4 C	(2, 24) $(2, 26)$	on how well each is likely to	P6.Testing and Refining Computational	
CCSS. ELA.Content.L.4.6	(2, 24), (3, 30),	meet the criteria and	Artifacts.3	
 Acquire and use accurately 	CCSS. Math.Content.MD.4.5	constraints of the problem.	Evaluate and refine a computational	
grade-appropriate general academic and	 Recognize angles as geometric shapes that 	• 3-5-ETS1-3. Plan and carry	artifact multiple times to enhance its	
domain-specific words and phrases,	are formed wherever two rays share a	out fair tests in which	performance, reliability, usability, and	
including those that signal precise actions,	common endpoint, and understand	failure points are controlled and	accessibility.	
emotions, or states of being (e.g., quizzed,	concepts of angle measurement.	to identify aspects of a model	Select organize and interpret large	
whined, stammered) and that are basic to	CCSS. Math.Content.MD.4.6	or prototype that can be	data sets from multiple sources to	
a particular topic (e.g., wildlife,	• Measure angles in whole-number degrees	improved	support a claim.	
conservation, and endangered when	using a protractor. Sketch angles of	MS-ETS1 Engineering Design		
discussing animal preservation)	specified measure	 MS-ETS1-2. Evaluate 	Concepts	
CCSS_ELA Content W 4.1	CCSS Math Content NE 4 2	competing design solutions	6-8.Computing Systems.Devices	
Write opinion pieces on topics or texts	Compare two fractions with different	using a systematic process to	The interaction between humans and	
• Write opinion pieces on topics of texts,	Compare two fractions with different denominators	determine how well they	computing devices presents	
supporting a point of view with reasons	numerators and different denominators,	meet the criteria and	advantages, disadvantages, and	
and information.	e.g., by creating common denominators or	constraints of the problem.	unintended consequences. The study of	
CCSS. ELA.Content.W.4.8	numerators, or by comparing to a	MS-ETS1-3. Analyze data	human-computer interaction can	
 Recall relevant information from 	benchmark fraction such as 1/2. Recognize	from tests to determine	improve the design of devices and	
experiences or gather relevant information	that comparisons are valid only when the	similarities and differences	extend the abilities of humans.	
from print and digital sources; take notes	two fractions refer to the same whole.	among several design	b-8.Computing Systems.Hardware and	
and categorize information, and provide a	Record the results of comparisons with	characteristics of each that	Hardware and coffware determine a	
list of sources.	symbols >, =, or <, and justify the	can be combined into a new	computing system's canability to store	
CCSS. ELA.Content.W.4.10	conclusions, e.g., by using a visual fraction	solution to better meet the	and process information. The design or	
	model.	criteria for success.	selection of a computing system	



Write routinely over extended time frames	CCSS. Math.Content.NBT.5.1	 MS-ETS1-4. Develop a model 	involves multiple tradeoffs, such as
(time for research, reflection, and revision)	 Recognize that in a multi-digit number, a 	to generate data for iterative	functionality, cost, size, speed,
and shorter time frames (a single sitting or	digit in one place represents 10 times as	testing and modification of a	accessibility, and aesthetics.
a day or two) for a range of	much as it represents in the place to its	proposed object, tool, or	6-8. Computing Systems. I roubleshooting
discipline-specific tasks, purposes, and	right and 1/10 of what it represents in the	design can be achieved	requires knowledge of how computing
audiences.	place to its left.	design can be demeved.	devices and components work and
CCSS. ELA.Content.SL.4.1	CCSS. Math.Content.NF.5.3		interact. A systematic process will
 Engage effectively in a range of 	 Interpret a fraction as division of the 		identify the source of a problem,
collaborative discussions (one-on-one. in	numerator by the denominator $(a/b = a \div$		whether within a device or in a larger
groups, and teacher-led) with diverse	b). Solve word problems involving division		system of connected devices.
partners on arade 4 tonics and texts	of whole numbers leading to answers in the		6-8.Data and Analysis.Collection
building on others' ideas and expressing	form of fractions or mixed numbers e g		People design algorithms and tools to
their own clearly	by using visual fraction models or		automate the collection of data by
CCSS ELA Content PLE 1	aguations to represent the problem. For		computers. When data collection is
CCSS. ELA.Content.N.S.1	equations to represent the problem. For		converted into a form that a computer
Quote accurately from a text when	example, interpret 3/4 as the result of		can process. For example, data from an
explaining what the text says explicitly and	dividing 3 by 4, noting that 3/4 multiplied		analog sensor must be converted into a
when drawing inferences from the text.	by 4 equals 3, and that when 3 wholes are		digital form. The method used to
CCSS. ELA.Content.RI.5.2	shared equally among 4 people each person		automate data collection is influenced
 Determine two or more main ideas of a 	has a share of size 3/4. If 9 people want to		by the availability of tools and the
text and explain how they are supported by	share a 50-pound sack of rice equally by		intended use of the data.
key details; summarize the text.	weight, how many pounds of rice should		6-8.Data and Analysis.Storage
CCSS. ELA.Content.RI.5.3	each person get? Between what two whole		Applications store data as a
Explain the relationships or interactions	numbers does your answer lie?		representation. Representations occur
between two or more individuals, events,	CCSS. Math.Content.NF.5.7		at multiple levels, from the
ideas, or concepts in a historical, scientific,	• Apply and extend previous understandings		organized formats (such as tables in
or technical text based on specific	of division to divide unit fractions by whole		software) to the physical storage of
information in the text.	numbers and whole numbers by unit		bits. The software tools used to access
CCSS_FLA_Content_RL5_4	fractions		information translate the low-level
Determine the meaning of general	CCSS, Math Content, MD, 5, 1		representation of bits into a form
academic and domain-specific words and	Convert among different-sized standard		understandable by people.
nhrases in a text relevant to a grade 5 tonic	measurement units within a given		6-8.Algorithms and
or subject grog	measurement duits within a given		Programming.Variables
CCSS FLA Content DLE C	0.05 m) and use these conversions in		Programmers create variables to store
CCSS. ELA.Content.Ri.S.6	0.05 m), and use these conversions in		data values of selected types. A
Analyze multiple accounts of the same	solving multi-step, real world problems.		meaningful identifier is assigned to
event or topic, noting important similarities	CCSS. Math.Content.NS.6.5		operations on the value by name
and differences in the point of view they	 Understand that positive and negative 		Variables enable the flexibility to
represent.	numbers are used together to describe		represent different situations, process
CCSS. ELA.Content.RI.5.10	quantities having opposite directions or		different sets of data, and produce
 By the end of the year, read and 	values (e.g., temperature above/below		varying outputs.
comprehend informational texts, including	zero, elevation above/below sea level.		6-8. Algorithms and Programming. Control



 history/social studies, science, and technical texts, at the high end of the grades 4-5 text complexity band independently and proficiently. CCSS. ELA.Content.L.5.4	credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	Programmers select and combine control structures, such as loops, event handlers, and conditionals, to create more complex program behavior. 6-8.Algorithms and Programming.Modularity	
 CCSS. ELA.Content.L.5.4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 5 reading and content, choosing flexibly from a range of strategies. CCSS. ELA.Content.L.5.6 Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships (e.g., however, although, nevertheless, similarly, moreover, in addition). CCSS. ELA.Content.W.5.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information. CCSS. ELA.Content.W.5.8 Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources. CCSS. ELA.Content.W.5.10 Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and in ising in the set of sources. 	 each situation. CCSS. Math.Content.NS.6.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. CCSS. Math.Content.NS.6.7 Understand ordering and absolute value of rational numbers. CCSS. Math.Content.RP.6.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes." CCSS. Math.Content.RP.6.2 Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0, and use rate language in the context of a ratio relationship. For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is 3/4 cup of flour for each cup of sugar." "We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger." CCSS. Math.Content.RP.6.3 	Programming.Modularity Programs use procedures to organize code, hide implementation details, and make code easier to reuse. Procedures can be repurposed in new programs. Defining parameters for procedures can generalize behavior and increase reusability.	
 audiences. CCSS. ELA.Content.SL.5.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information. CCSS. ELA.Content.RI.6.1 	 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. 		



Cite textual evidence to support analysis of		
what the text says explicitly as well as		
inferences drawn from the text.		
CCSS. ELA.Content.RI.6.2		
• Determine a central idea of a text and how		
it is conveyed through particular details;		
provide a summary of the text distinct from		
personal opinions or judgments.		
CCSS. ELA.Content.RI.6.3		
 Analyze in detail how a key individual, 		
event, or idea is introduced, illustrated,		
and elaborated in a text (e.g., through		
examples or anecdotes).		
CCSS. ELA.Content.RI.6.4		
 Determine the meaning of words and 		
phrases as they are used in a text, including		
figurative, connotative, and technical		
meanings.		
CCSS. ELA.Content.RI.6.5		
 Analyze how a particular sentence, 		
paragraph, chapter, or section fits into the		
overall structure of a text and contributes		
to the development of the ideas.		
CCSS. ELA.Content.RI.6.6		
 Determine an author's point of view or 		
purpose in a text and explain how it is		
conveyed in the text.		
CCSS. ELA.Content.RI.6.7		
 Integrate information presented in 		
different media or formats (e.g., visually,		
quantitatively) as well as in words to		
develop a coherent understanding of a		
topic or issue.		
CCSS. ELA.Content.L.6.4		
Determine or clarify the meaning of		
unknown and multiple-meaning words and		
phrases based on grade 6 reading and		
content, choosing flexibly from a range of		
strategies.		
CCSS, FLA Content L.6.6		1



	 Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression. CCSS. ELA.Content.W.6.1 Write arguments to support claims with clear reasons and relevant evidence. CCSS. ELA.Content.W.6.10 Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences. CCSS. ELA.Content.SL.6.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly. 				
Hacker Port Expansion • Hacker Port • Pins • LEDs • Standard Servos • PING))) Sensor	 CCSS. ELA.Content.RI.4.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text. CCSS. ELA.Content.RI.4.2 Determine the main idea of a text and explain how it is supported by key details; summarize the text. CCSS. ELA.Content.RI.4.3 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text. CCSS. ELA.Content.RI.4.4 	 CCSS. Math.Content.OA.4.1 Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations. CCSS. Math.Content.OA.4.2 Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison. CCSS. Math.Content.OA.4.3 	 5-PS1 Matter and Its Instructions 5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen. 4-PS3 Energy 4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sounds, light, heat, and electric currents. 4-PS4. Waves and Their Applications in Technologies for Information Transfer 4-PS4-3. Generate and compare multiple solutions 	 Practices P3.Recognizing and Defining Computational Problems.1 Identify complex, interdisciplinary, real-world problems that can be solved computationally. P3.Recognizing and Defining Computational Problems.2 Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures. P3.Recognizing and Defining Computational Problems.3 Evaluate whether it is appropriate and feasible to solve a problem computationally. P4.Developing and Using Abstractions.1 	 Self-directed Innovative Critical-thinking Reflection Revision Design-thinking Use technology



				1
 Determine the meaning of general 	 Solve multistep word problems posed with 	that use patterns to transfer	Extract common features from a set of	
academic and domain-specific words or	whole numbers and having whole-number	Information.	interrelated processes or complex	
phrases in a text relevant to a grade 4 topic	answers using the four operations,	Applications in Technologies for	Phenomena. R4 Doveloping and Using Abstractions 2	
or subject area.	including problems in which remainders	Information Transfer	Fyaluate existing technological	
CCSS. ELA.Content.RI.4.5	must be interpreted. Represent these	 MS-PS4-2. Develop and use a 	functionalities and incorporate them	
 Describe the overall structure (e.g., 	problems using equations with a letter	model to describe that waves	into new designs.	
chronology, comparison, cause/effect,	standing for the unknown quantity. Assess	are reflected, absorbed, or	P5.Creating Computational Artifacts.1	
problem/solution) of events, ideas,	the reasonableness of answers using	transmitted through various	Plan the development of a	
concepts, or information in a text or part of	mental computation and estimation	materials.	computational artifact using an	
a text.	strategies including rounding.	3-5-ETS1 Engineering Design	iterative process that includes	
CCSS. ELA.Content.RI.4.7	CCSS. Math.Content.NBT.4.1	 3-5-EIS1-1. Define a simple design problem reflecting a 	reflection on and modification of the	
 Interpret information presented visually, 	 Recognize that in a multi-digit whole 	need or a want that includes	time and resource constraints and user	
orally, or quantitatively (e.g., in charts,	number, a digit in one place represents ten	specified criteria for success	expectations	
graphs, diagrams, time lines, animations, or	times what it represents in the place to its	and constraints on materials,	P5.Creating Computational Artifacts.2	
interactive elements on Web pages) and	right. For example, recognize that 700 ÷ 70	time, or cost.	Create a computational artifact for	
explain how the information contributes to	= 10 by applying concepts of place value	• 3-5-ETS1-2. Generate and	practical intent, personal expression, or	
an understanding of the text in which it	and division.	compare multiple possible	to address a societal issue.	
appears	CCSS. Math Content NBT 4.5	solutions to a problem based	P5.Creating Computational Artifacts.3	
CCSS, FLA Content RL4.8	 Multiply a whole number of up to four 	on how well each is likely to	Modify an existing artifact to improve	
Explain how an author uses reasons and	digits by a one-digit whole number and	constraints of the problem	Of Customize IC.	
evidence to support particular points in a	multiply two two-digit numbers using	• 3-5-FTS1-3. Plan and carry	Artifacts 1	
text	strategies based on place value and the	out fair tests in which	Systematically test computational	
CCSS_ELA_Content_RL4.9	properties of operations. Illustrate and	variables are controlled and	artifacts by considering all scenarios	
Integrate information from two texts on the	overlain the calculation by using equations	failure points are considered	and using test cases.	
• Integrate information norm two texts on the	restangular arrays, and/or area models	to identify aspects of a model	P6.Testing and Refining Computational	
the subject knowledgeably	CCSS Math Contant NPT 4 6	or prototype that can be	Artifacts.2	
	Find whole number quotients and	Improved.	Identify and fix errors using a	
CCSS. ELA.CONTENT.RI.4.10	 Find whole-number quotients and 	MS-ETS1_2 Evaluate	Systematic process. P6 Testing and Refining Computational	
• By the end of year, read and comprehend	remainders with up to rour-digit dividends	competing design solutions	Artifacts.3	
informational texts, including history/social	and one-digit divisors, using strategies	using a systematic process to	Evaluate and refine a computational	
studies, science, and technical texts, in the	based on place value, the properties of	determine how well they	artifact multiple times to enhance its	
grades 4-5 text complexity band	operations, and/or the relationship	meet the criteria and	performance, reliability, usability, and	
proficiently, with scatfolding as needed at	between multiplication and division.	constraints of the problem.	accessibility.	
the high end of the range.	Illustrate and explain the calculation by	MS-ETS1-3. Analyze data		
CCSS. ELA.Content.L.4.4	using equations, rectangular arrays, and/or	from tests to determine	Concepts	
• Determine or clarify the meaning of	area models.	among several design	o-o.computing Systems. Devices	
unknown and multiple-meaning words and	CCSS. Math.Content.MD.4.1	solutions to identify the best	computing devices presents	
phrases based on grade 4 reading and	 Know relative sizes of measurement units 	characteristics of each that	advantages, disadvantages, and	
content, choosing flexibly from a range of	within one system of units including km, m,	can be combined into a new	unintended consequences. The study of	
strategies.	cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a	solution to better meet the	human-computer interaction can	
CCSS. ELA.Content.L.4.6	single system of measurement, express	criteria for success.		



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 Acquire and use accurately 	measurements in a larger unit in terms of a	MS-ETS1-4. Develop a model	improve the design of devices and	
grade-appropriate general academic and	smaller unit. Record measurement	to generate data for iterative	extend the abilities of humans.	
domain-specific words and phrases,	equivalents in a two-column table. For	proposed object tool or	6-8.Computing Systems.Hardware and	
including those that signal precise actions,	example, know that 1 ft is 12 times as long	proposed object, tool, of	Hardware and software determine a	
emotions, or states of being (e.g., quizzed,	as 1 in. Express the length of a 4 ft snake as	design can be achieved	computing system's canability to store	
whined, stammered) and that are basic to a	48 in. Generate a conversion table for feet		and process information. The desian or	
particular topic (e.g., wildlife, conservation,	and inches listing the number pairs (1, 12),		selection of a computing system	
and endangered when discussing animal	(2, 24), (3, 36),		involves multiple tradeoffs, such as	
preservation).	CCSS. Math.Content.MD. 4.2		functionality, cost, size, speed,	
CCSS. ELA.Content.RI.5.1	• Use the four operations to solve word		accessibility, and aesthetics.	
Ouote accurately from a text when	problems involving distances, intervals of		6-8.Computing Systems.Troubleshooting	
explaining what the text says explicitly and	time liquid volumes masses of objects		Comprehensive troubleshooting	
when drawing informations from the text	and monoy including problems involving		requires knowledge of how computing	
CCCC FLA Content BLE 2	simple frequence or desimple and problems		devices and components work and	
CCSS. ELA.CONTENT.RI.S.Z	simple fractions of decimals, and problems		identify the source of a problem	
Determine two or more main ideas of a text	that require expressing measurements		whether within a device or in a larger	
and explain how they are supported by key	given in a larger unit in terms of a smaller		system of connected devices.	
details; summarize the text.	unit. Represent measurement quantities		6-8. Data and Analysis. Collection	
CCSS. ELA.Content.RI.5.3	using diagrams such as number line		People design algorithms and tools to	
 Explain the relationships or interactions 	diagrams that feature a measurement		automate the collection of data by	
between two or more individuals, events,	scale.		computers. When data collection is	
ideas, or concepts in a historical, scientific,	CCSS. Math.Content.MD.4.5		automated, data is sampled and	
or technical text based on specific	 Recognize angles as geometric shapes that 		converted into a form that a computer	
information in the text.	are formed wherever two rays share a		can process. For example, data from an	
CCSS. ELA.Content.RI.5.4	common endpoint, and understand		analog sensor must be converted into a	
 Determine the meaning of general 	concepts of angle measurement.		automate data collection is influenced	
academic and domain-specific words and	CCSS. Math.Content.MD.4.6		by the availability of tools and the	
phrases in a text relevant to a <i>arade 5 topic</i>	 Measure angles in whole-number degrees 		intended use of the data.	
or subject area.	using a protractor. Sketch angles of		6-8. Data and Analysis. Storage	
CCSS ELA Content RI 5 7	specified measure		Applications store data as a	
Draw on information from multiple print or	CCSS Math Contont MD 4 7		representation. Representations occur	
digital sources, demonstrating the ability to	Becognize angle measure as additive When		at multiple levels, from the	
lageta sources, demonstrating the ability to	• Recognize angle measure as additive. When		arrangement of information into	
iocate an answer to a question quickly or to	an angle is decomposed into		organized formats (such as tables in	
solve a problem efficiently.	non-overlapping parts, the angle measure		software) to the physical storage of	
CCSS. ELA.Content.RI.5.8	of the whole is the sum of the angle		bits. The software tools used to access	
 Explain how an author uses reasons and 	measures of the parts. Solve addition and		representation of hits into a form	
evidence to support particular points in a	subtraction problems to find unknown		understandable by people.	
text, identifying which reasons and	angles on a diagram in real world and		6-8.Algorithms and	
evidence support which point(s).	mathematical problems, e.g., by using an		Programming.Variables	
CCSS. ELA.Content.RI.5.10	equation with a symbol for the unknown		Programmers create variables to store	
	angle measure.		data values of selected types. A	



 By the end of the year, read and 	CCSS. Math.Content.G.4.1		meaningful identifier is assigned to	
comprehend informational texts, including	 Draw points, lines, line segments, rays, 		each variable to access and perform	
history/social studies, science, and technical	angles (right, acute, obtuse), and		operations on the value by name.	
texts, at the high end of the grades 4-5 text	perpendicular and parallel lines. Identify		Variables enable the flexibility to	
complexity band independently and	these in two-dimensional figures.		different sets of data and produce	
proficiently.	CCSS. Math.Content.OA.5.1		varvina outputs.	
CCSS. ELA.Content.L.5.4	• Use parentheses, brackets, or braces in		6-8.Algorithms and Programming.Control	
• Determine or clarify the meaning of	numerical expressions, and evaluate		Programmers select and combine	
unknown and multiple-meaning words and	expressions with these symbols.		control structures, such as loops, event	
phrases based on grade 5 reading and	CCSS. Math.Content.OA.5.2		handlers, and conditionals, to create	
content, choosing flexibly from a range of	• Write simple expressions that record		more complex program behavior.	
strategies.	calculations with numbers, and interpret			
CCSS. ELA.Content.L.5.6	numerical expressions without evaluating			
 Acquire and use accurately 	them. For example, express the calculation			
grade-appropriate general academic and	"add 8 and 7, then multiply by 2" as 2 × (8 +			
domain-specific words and phrases,	7). Recognize that 3 × (18932 + 921) is three			
including those that signal contrast,	times as large as 18932 + 921, without			
addition, and other logical relationships	having to calculate the indicated sum or			
(e.g., however, although, nevertheless,	product.			
similarly, moreover, in addition).	CCSS. Math.Content.OA.5.3			
CCSS. ELA.Content.RI.6.1	• Generate two numerical patterns using two			
• Cite textual evidence to support analysis of	given rules. Identify apparent relationships			
what the text says explicitly as well as	between corresponding terms. Form			
inferences drawn from the text.	ordered pairs consisting of corresponding			
CCSS. ELA.Content.RI.6.2	terms from the two patterns, and graph the			
• Determine a central idea of a text and how	ordered pairs on a coordinate plane. For			
it is conveyed through particular details;	example, given the rule "Add 3" and the			
provide a summary of the text distinct from	starting number 0, and given the rule "Add			
personal opinions or judgments.	6" and the starting number 0, generate			
CCSS. ELA.Content.RI.6.3	terms in the resulting sequences, and			
 Analyze in detail how a key individual, 	observe that the terms in one sequence are			
event, or idea is introduced, illustrated, and	twice the corresponding terms in the other			
elaborated in a text (e.g., through examples	sequence. Explain informally why this is so.			
or anecdotes).	CCSS. Math.Content.NBT.5.1			
CCSS. ELA.Content.RI.6.4	 Recognize that in a multi-digit number, a 			
 Determine the meaning of words and 	digit in one place represents 10 times as			
phrases as they are used in a text, including	much as it represents in the place to its			
figurative, connotative, and technical	right and 1/10 of what it represents in the			
meanings.	place to its left.			
CCSS. ELA.Content.RI.6.5	CCSS. Math.Content.NBT.5.3			
•		•	,	



 Analyze how a particular sentence, 	 Read, write, and compare decimals to 		
paragraph, chapter, or section fits into the	thousand ths.		
overall structure of a text and contributes	CCSS. Math.Content.NBT.5.4		
to the development of the ideas.	 Use place value understanding to round 		
CCSS. ELA.Content.RI.6.6	decimals to any place.		
 Determine an author's point of view or 	CCSS. Math.Content.NBT.5.5		
purpose in a text and explain how it is	• Fluently multiply multi-digit whole numbers		
conveyed in the text.	using the standard algorithm.		
CCSS. ELA.Content.RI.6.7	CCSS. Math.Content.NBT.5.6		
• Integrate information presented in different	• Find whole-number quotients of whole		
media or formats (e.g., visually,	numbers with up to four-digit dividends		
quantitatively) as well as in words to	and two-digit divisors, using strategies		
develop a coherent understanding of a	based on place value, the properties of		
topic or issue.	operations, and/or the relationship		
CCSS. ELA.Content.RI.6.8	between multiplication and division.		
• Trace and evaluate the argument and	Illustrate and explain the calculation by		
specific claims in a text, distinguishing	using equations, rectangular arrays, and/or		
claims that are supported by reasons and	area models.		
evidence from claims that are not.	CCSS. Math.Content.NBT.5.7		
CCSS. ELA.Content.L.6.4	• Add, subtract, multiply, and divide decimals		
 Determine or clarify the meaning of 	to hundredths, using concrete models or		
unknown and multiple-meaning words and	drawings and strategies based on place		
phrases based on grade 6 reading and	value, properties of operations, and/or the		
content, choosing flexibly from a range of	relationship between addition and		
strategies.	subtraction: relate the strategy to a written		
CCSS. ELA.Content.L.6.6	method and explain the reasoning used.		
 Acquire and use accurately 	CCSS. Math.Content.MD.5.1		
grade-appropriate general academic and	 Convert among different-sized standard 		
domain-specific words and phrases: gather	measurement units within a given		
vocabulary knowledge when considering a	measurement system (e.g., convert 5 cm to		
word or phrase important to	0.05 m), and use these conversions in		
comprehension or expression.	solving multi-step, real world problems		
	CCSS. Math. Content. G. 5.3		
	Understand that attributes belonging to a		
	category of two-dimensional figures also		
	belong to all subcategories of that		
	category For example all rectangles have		
	four right angles and squares are		
	rectangles so all squares have four right		
	angles		
	angles.		



CCSS. Math.Content.G.5.4		
Classify two-dimensional figures in a		
hierarchy based on properties.		
CCSS. Math.Content.NS.6.2		
Fluently divide multi-digit numbers using		
the standard algorithm.		
CCSS. Math.Content.NS.6.3		
• Fluently add, subtract, multiply, and divide		
multi-digit decimals using the standard		
algorithm for each operation.		
CCSS. Math.Content.NS.6.5		
 Understand that positive and negative 		
numbers are used together to describe		
quantities having opposite directions or		
values (e.g., temperature above/below		
zero, elevation above/below sea level,		
credits/debits, positive/negative electric		
charge); use positive and negative numbers		
to represent quantities in real-world		
contexts, explaining the meaning of 0 in		
each situation.		
CCSS. Math.Content.NS.6.6		
Understand a rational number as a point on		
the number line. Extend number line		
diagrams and coordinate axes familiar from		
previous grades to represent points on the		
line and in the plane with negative number		
coordinates.		
CCSS. Math.Content.NS.6.7		
Understand ordering and absolute value of		
rational numbers.		
CCSS. Math.Content.EE.6.2		
Write, read, and evaluate expressions in		
which letters stand for numbers.		
CCSS. Math.Content.EE.6.5		
 Understand solving an equation or 		
inequality as a process of answering a		
question: which values from a specified set,		
if any, make the equation or inequality		
true? Use substitution to determine		



whether a given number in a specified set		
makes an equation or inequality true.		
CCSS. Math.Content.EE.6.6		
 Use variables to represent numbers and 		
write expressions when solving a real-world		
or mathematical problem; understand that		
a variable can represent an unknown		
number, or, depending on the purpose at		
hand, any number in a specified set.		
CCSS. Math.Content.EE.6.7		
 Solve real-world and mathematical 		
problems by writing and solving equations		
of the form $x + p = q$ and $px = q$ for cases in		
which <i>p</i> , <i>q</i> and <i>x</i> are all nonnegative		
rational numbers.		
CCSS. Math.Content.RP.6.1		
 Understand the concept of a ratio and use 		
ratio language to describe a ratio		
relationship between two quantities. For		
example, "The ratio of wings to beaks in the		
bird house at the zoo was 2:1, because for		
every 2 wings there was 1 beak." "For every		
vote candidate A received, candidate C		
received nearly three votes."		
CCSS. Math.Content.RP.6.2		
 Understand the concept of a unit rate a/b 		
associated with a ratio a:b with b \neq 0, and		
use rate language in the context of a ratio		
relationship. For example, "This recipe has		
a ratio of 3 cups of flour to 4 cups of sugar,		
so there is 3/4 cup of flour for each cup of		
sugar." "We paid \$75 for 15 hamburgers,		
which is a rate of \$5 per hamburger."		
CCSS. Math.Content.RP.6.3		
 Use ratio and rate reasoning to solve 		
real-world and mathematical problems,		
e.g., by reasoning about tables of		
equivalent ratios, tape diagrams, double		
number line diagrams, or equations.		



IR Remote	CCSS. ELA.Content.RI.4.1	4-PS3 Energy	Practices	 Self-directed
Control with	 Refer to details and examples in a text 	• 4-PS3-2. Make observations	P1.Fostering an Inclusive Computing	 Innovative
the S3	when explaining what the text says	to provide evidence that	Culture.1	 Critical-thinking
 Sony IR 	explicitly and when drawing inferences	energy can be transferred	Include the unique perspectives of	Reflection
Remote	from the text	from place to place by	others and reflect on one's own	Revision
IR Receiver	CCSS_ELA Contont PL 4.2	sounds, light, heat, and	perspectives when designing and	 Design-thinking
Hacker Port	Determine the main idea of a text and	electric currents.	developing computational products.	 Use technology
• LEDs	Determine the main idea of a text and	• 4-PS3-4. Apply scientific ideas	P3.Recognizing and Defining	
Remote	explain now it is supported by key details;	dovice that converts energy	Identify complex interdisciplingry	
Driving	summarize the text.	from one form to another	real-world problems that can be solved	
	CCSS. ELA.Content.RI.4.3	4-PS4. Waves and Their	computationally.	
	 Explain events, procedures, ideas, or 	Applications in Technologies for	P3.Recognizing and Defining	
	concepts in a historical, scientific, or	Information Transfer	Computational Problems.2	
	technical text, including what happened and	• 4-PS4-3. Generate and	Decompose complex real-world	
	why, based on specific information in the	compare multiple solutions	problems into manageable	
	text.	that use patterns to transfer	subproblems that could integrate	
	CCSS. ELA.Content.RI.4.4	information.	existing solutions or procedures.	
	• Determine the meaning of general	MS-PS4 Waves and Their	P3.Recognizing and Defining	
	academic and domain-specific words or	Applications in Technologies for	Computational Problems.3	
	phrases in a text relevant to a grade 4 tonic	Information Transfer	Evaluate whether it is appropriate and	
	or subject area	 MS-PS4-3. Integrate gualitative scientific and 	jeasible to solve a problem	
	CCSS ELA Contont PLA E	technical information to	PA Developing and Using Abstractions 1	
	CCSS. ELA.Content.RI.4.5	support the claim that	Extract common features from a set of	
	• Describe the overall structure (e.g.,	digitized signals are a more	interrelated processes or complex	
	chronology, comparison, cause/effect,	reliable way to encode and	phenomena.	
	problem/solution) of events, ideas,	transmit information than	P4.Developing and Using Abstractions.2	
	concepts, or information in a text or part of	analog signals.	Evaluate existing technological	
	a text.	3-5-ETS1 Engineering Design	functionalities and incorporate them	
	CCSS. ELA.Content.RI.4.7	• 3-5-ETS1-1. Define a simple	into new designs.	
	 Interpret information presented visually, 	design problem reflecting a	P4.Developing and Using Abstractions.3	
	orally, or quantitatively (e.g., in charts,	need or a want that includes	Create modules and develop points of	
	graphs, diagrams, time lines, animations, or	specified criteria for success	interaction that can apply to multiple	
	interactive elements on Web pages) and	and constraints on materials,	Situations and reduce complexity.	
	explain how the information contributes to	 3-5-ETS1-2 Generate and 	Plan the development of a	
	an understanding of the text in which it	compare multiple possible	computational artifact using an	
	appears	solutions to a problem based	iterative process that includes	
	CCSS_FLA_Content_RL4_8	on how well each is likely to	reflection on and modification of the	
	• Evolution how an author uses reasons and	meet the criteria and	plan, taking into account key features,	
	evidence to support particular points in a	constraints of the problem.	time and resource constraints, and user	
	evidence to support particular points in a	• 3-5-ETS1-3. Plan and carry	expectations.	
		out fair tests in which	P5.Creating Computational Artifacts.2	
	CCSS. ELA.Content.RI.4.9	variables are controlled and		
		failure points are considered		



 Integrate information from two texts on the 	to identify a	spects of a model	Create a computational artifact for	
same topic in order to write or speak about	or prototype	e that can be	practical intent, personal expression, or	
the subject knowledgeably.	improved.		to address a societal issue.	
CCSS. ELA.Content.RI.4.10	MS-ETS1 Engin	eering Design	P5.Creating Computational Artifacts.3	
 By the end of year, read and comprehend 	 MS-ETS1-2. 	Evaluate	Modify an existing artifact to improve	
informational texts, including history/social	using a syste	matic process to	Of Lusionnize II P6 Testing and Refining Computational	
studies, science, and technical texts, in the	determine h	ow well they	Artifacts 1	
grades 4-5 text complexity band	meet the cri	teria and	Systematically test computational	
proficiently, with scaffolding as needed at	constraints o	of the problem.	artifacts by considering all scenarios	
the high end of the range.	 MS-ETS1-3. 	Analyze data	and using test cases.	
CCSS_ELA Content L 4.6	from tests to	o determine	P6.Testing and Refining Computational	
Acquire and use accurately	similarities a	and differences	Artifacts.2	
grade-appropriate general academic and	among seve	ral design	Identify and fix errors using a	
domain specific words and phrases	solutions to	ice of each that	Systematic process.	
including these that signal provise actions	can be comb	nined into a new	Artifacts 3	
amotions, or states of being (o g. guinzed	solution to b	petter meet the	Evaluate and refine a computational	
emotions, or states of being (e.g., quizzed,	criteria for s	uccess.	artifact multiple times to enhance its	
willies, staninered) and that are basic to a	• MS-ETS1-4.	Develop a model	performance, reliability, usability, and	
particular topic (e.g., wildlife, conservation,	to generate	data for iterative	accessibility.	
and endangered when discussing animal	testing and i	modification of a	P7.Communicating About Computing.2	
preservation).	proposed ob	oject, tool, or	Describe, justify, and document	
CCSS. ELA.Content.RI.5.1	process such	n that an optimal	computational processes using	
Quote accurately from a text when	uesign can b	le achieveu.	with the intended audience and	
explaining what the text says explicitly and			purpose.	
when drawing inferences from the text.			parpooer	
CCSS. ELA.Content.RI.5.2			Concepts	
 Determine two or more main ideas of a text 			6-8.Computing Systems.Devices	
and explain how they are supported by key			The interaction between humans and	
details; summarize the text.			computing devices presents	
CCSS. ELA.Content.RI.5.3			advantages, disadvantages, and	
• Explain the relationships or interactions			unintended consequences. The study of	
between two or more individuals, events,			improve the design of devices and	
ideas, or concepts in a historical, scientific,			extend the abilities of humans.	
or technical text based on specific			6-8.Computing Systems.Hardware and	
information in the text.			Software	
CCSS. ELA.Content.RI.5.4			Hardware and software determine a	
 Determine the meaning of general 			computing system's capability to store	
academic and domain-specific words and			and process information. The design or	
phrases in a text relevant to a grade 5 topic			selection of a computing system	
or subject area.			functionality cost size speed	
CCSS. ELA.Content.RI.5.7			accessibility, and aesthetics.	



• Draw on information from multiple print or		6-8.Computing Systems.Troubleshooting	
digital sources, demonstrating the ability to		Comprehensive troubleshooting	
locate an answer to a question quickly or to		requires knowledge of how computing	
solve a problem efficiently.		devices and components work and	
CCSS, FLA Content RL5.8		interact. A systematic process will	
 Explain how an author uses reasons and 		identify the source of a problem,	
ovidence to support particular points in a		whether within a device or in a larger	
tout identifying which reasons and		6 8 Data and Analysis Collection	
text, identifying which reasons and		People design algorithms and tools to	
evidence support which point(s).		automate the collection of data by	
CCSS. ELA.Content.RI.5.9		computers. When data collection is	
 Integrate information from two texts on the 		automated, data is sampled and	
same topic in order to write or speak about		converted into a form that a computer	
the subject knowledgeably.		can process. For example, data from an	
CCSS. ELA.Content.RI.5.10		analog sensor must be converted into a	
• By the end of the year, read and		digital form. The method used to	
comprehend informational texts, including		automate data collection is influenced	
history/social studies, science, and technical		by the availability of tools and the	
texts, at the high end of the grades 4-5 text		intended use of the data.	
complexity band independently and		6-8.Data and Analysis.Storage	
proficiently		Applications store data as a	
CCSS_FLA_Content 5.6		at multiple levels from the	
Acquire and use accurately		arrangement of information into	
• Acquire and use accurately		organized formats (such as tables in	
grade-appropriate general academic and		software) to the physical storage of	
domain-specific words and phrases,		bits. The software tools used to access	
including those that signal contrast,		information translate the low-level	
addition, and other logical relationships		representation of bits into a form	
(e.g., however, although, nevertheless,		understandable by people.	
similarly, moreover, in addition).		6-8.Algorithms and	
CCSS. ELA.Content.RI.6.1		Programming.Variables	
 Cite textual evidence to support analysis of 		Programmers create variables to store	
what the text says explicitly as well as		meaninaful identifier is assigned to	
inferences drawn from the text.		each variable to access and perform	
CCSS. ELA.Content.RI.6.2		operations on the value by name.	
• Determine a central idea of a text and how		Variables enable the flexibility to	
it is conveyed through particular details;		represent different situations, process	
provide a summary of the text distinct from		different sets of data, and produce	
personal opinions or judgments.		varying outputs.	
CCSS. ELA.Content.RI.6.3		6-8.Algorithms and Programming.Control	
Analyze in detail how a key individual		Programmers select and combine	
event or idea is introduced illustrated and		control structures, such as loops, event	
event, or ruea is introduced, mustrated, dhu		1	1



elaborated in a text (e.g., through examples	handlers, and conditionals, to create	
or anecdotes).	more complex program behavior.	
CCSS. ELA.Content.RI.6.4	6-8.Algorithms and	
• Determine the meaning of words and	Programming.Modularity	
phrases as they are used in a text, including	Programmers use procedures to	
figurative, connotative, and technical	details and make code easier to reuse	
meanings.	Procedures can be repurposed in new	
CCSS. ELA.Content.RI.6.5	programs. Defining parameters for	
• Analyze how a particular sentence.	procedures can generalize behavior	
paragraph, chapter, or section fits into the	and increase reusability.	
overall structure of a text and contributes		
to the development of the ideas.		
CCSS. ELA.Content.RI.6.6		
• Determine an author's point of view or		
purpose in a text and explain how it is		
conveyed in the text.		
CCSS. ELA.Content.RI.6.7		
Integrate information presented in different		
media or formats (e.g., visually,		
quantitatively) as well as in words to		
develop a coherent understanding of a		
topic or issue.		
CCSS. ELA.Content.L.6.6		
Acquire and use accurately		
grade-appropriate general academic and		
domain-specific words and phrases; gather		
vocabulary knowledge when considering a		
word or phrase important to		
comprehension or expression.		

1. K-12 Computer Science Framework. (2016). Framework view by grade band. Retrieved from http://www.k12cs.org

