PACING GUIDE SCIENCE
Grade 3rd

Topic	Unit	Marking Period	Number of Days
Motion and Stability: Forces and Interactions	Physical Science	MP 1	15 days
From Molecules to Organisms: Structures and Processes	Life Science	MP 1	17 days
Ecosystems: Interactions, Energy and Dynamics	Life Science	MP 2	10 days
Heredity: Inheritance and Variation of Traits	Life Science	MP 2	14 days
Biological Evolution Unity and Diversity	Life Science	MP 3	11 days
Earth's Systems	Earth Science	MP 3	22 days
Earth and Human Activity	Earth Science	MP 4	15 days
Engineering Design	Physical Science	MP 4	6 days

Alpha Public School

Science Curriculum Map

Grade: 3rd

Standard: 3-PS2	**Content Topic:** Motion and Stability: Forces and Interaction

Strand	Disciplinary Core Ideas / Essential Statement	Objective / Essential Question	Science & Engineering Practices / Skills & Lesson
3-PS2-1	Each force acts on one particular object and has both strength and direction. An object at rest typically has multiple forces acting on it, but they add to give zero net force on the object. Forces that do not sum to zero can cause changes in the object's speed or direction of motion (Boundary: Qualitative and conceptual , but not quantitative addition of forces, are used at this level) PS2.A) ---objects in contact exert forces on each other (PS2.B)	Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object What are the effects of balanced and unbalanced forces on the motion of an object?	plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered
3-PS2-2	The patterns of an object's motion in various situations can be observed and measured; when that past motion exhibits a regular pattern, future motion can be predicted from it. (Boundary: Technical terms, such as magnitude, velocity, momentum, and vector quantity, are not introduced at this level, but the concept that some quantities need both size and direction to be described is developed (PS2.A)	Make observations and / or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion How can we make observations and measurements of an object's motion to provide evidence that a pattern can be used to predict future motion?	make observations and / or measurements to produce data to serve as the basis for evidence for an explanation of phenomenon or test a design solution
3-PS2-3	Electric and magnetic forces between a pair of objects do not require that the objects be in contact. The sizes of the forces in each situation depend on the properties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other (PS2.B)	Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other What is the cause and effect relationship of the electric or magnetic interactions between two objects that are not in contact with one another?	ask questions that can be investigated based on patterns such as cause and effect relationships

3-PS2-4	Electric and magnetic forces between a pair of objects do not require that the objects be in contact. The sizes of the forces in each situation depend on the properties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other (PS2.B)	Define a simple design problem that can be solved by applying scientific ideas about magnets	define a simple problem that can be solved through the development of a new or improved object or tool

Formative, Summative and Alternative Assessments	**Benchmark Assessments**	**Core Instructional and Supplemental Materials (including various texts at each grade level)**
Science journal Lab- Balancing Forces Lab- Measure That Lab- Distance Traveled Lab- Speed Lab- Lets Move- Forces in Motion Lab- Magnets Lab- Maglev Train Teacher created; guideline 10-15 questions Alternative Assessment: Performance Task	Assessment Rubric (pg 54) Assessment Rubric (pg 15) Assessment Rubric (pg 26) Assessment Rubric (pg 39) Assessment Rubric (pg 77)	Knowing Science- Physical Science Unit 1.4 Knowing Science- Physical Science Unit 1.1 and 1.2 Knowing Science- Physical Science Unit 1.6 Knowing Science Literature Knowing Science Vocabulary Flashcards Mystery Science Holt: Science

Technology	**Crosscutting Concepts / Interdisciplinary Connections across grade levels and content areas (at least 1)**
Mystery Science Invisible Forces mysteries 1-3 Mystery Science Invisible Forces mysteries 4-5	science investigations use a variety of methods, tools, and techniques science findings are based on recognizing patterns scientific discoveries about the natural world can often lead to new and improved technologies, which are developed through the engineering design processes **ELA/Literacy – RI.3.1** Ask and answer questions to demonstrate understanding of a text, referring explicitly to

	the text as the basis for the answers. (3-PS2-1),(3-PS2-3) RI.3.3 Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect. (3-PS2-3) RI.3.8 Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence). (3-PS2-3) W.3.7 Conduct short research projects that build knowledge about a topic. (3-PS2-1),(3-PS2-2) W.3.8 Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories. (3-PS2-1),(3-PS2-2) SL.3.3 Ask and answer questions about information from a speaker, offering appropriate elaboration and detail. (3-PS2-3) **Mathematics – MP.2** Reason abstractly and quantitatively. (3-PS2-1) MP.5 Use appropriate tools strategically. (3-PS2-1) 3.MD.A.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (3-PS2-1)

Differentiation (IEPs / 504s)	Differentiation (ELL)	Differentiation (G &T)
Visual aids Sentence Frames Modeling Anchor charts Modify rubric Teacher directed grouping Chunk learning at teacher discretion Re-read text at teacher discretion Text in auditory format	Visual aids Sentence Frames Modeling Anchor charts Modify rubric Teacher directed grouping Chunk learning at teacher discretion Re-read text at teacher discretion Text in auditory format Pre-teach vocabulary Non-linguistic cues Manipulatives	Independent research projects Advanced texts http://education.jlab.org/vocabhangman/ Science content vocabulary hangman http://kids.nationalgeographic.com/ National Geographic online http://www.bbc.co.uk/schools/scienceclips/ages/10_11/science_10_11.shtml Interactive science activities http://classroom.jc-schools.net/sci-units/plants-animals.htm#Interactive

	Graphic organizers Use of educational websites: www.khanacademy.org www.colorincolorado.org/	

21st Century Education	Career Education
THEMES: Global Awareness Financial, Economic, Business and Entrepreneurial Literacy Civic Literacy Health Literacy SKILLS: Creativity and Innovation Critical Thinking and Problem Solving Communication and Collaboration Information Literacy Media Literacy ICT Literacy Life and Career Skills	Career Ready Practices describe the career-ready skills that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study. CRP1. Act as a responsible and contributing citizen and employee. CRP2. Apply appropriate academic and technical skills. CRP3. Attend to personal health and financial well-being. CRP4. Communicate clearly and effectively and with reason. CRP5. Consider the environmental, social and economic impacts of decisions. CRP6. Demonstrate creativity and innovation. CRP7. Employ valid and reliable research strategies. CRP8. Utilize critical thinking to make sense of problems and persevere in solving them. CRP9. Model integrity, ethical leadership and effective management. CRP10. Plan education and career paths aligned to personal goals. CRP11. Use technology to enhance productivity. CRP12. Work productively in teams while using cultural global competence.

Alpha Public School

Science Curriculum Map

Standard: 3-LS1	**Content Topic:** From Molecules to ORganisms: Structures and Processes

Strand	Disciplinary Core Ideas / Essential Statement	Objective / Essential Question	Science & Engineering Practices / Skills & Lesson
3-LS2-1	Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles (LS1.B)	Develop models to describe that organisms have unique and diverse life cycles, but all have in common birth, growth, reproduction, and death How can we develop a model to show that organisms have unique and diverse life cycles but they all include birth, growth, reproduction,and death	---ask questions that can be investigated based on patterns such as cause and effect relationships ---define a simple problem that can be solved through the development of a new or improved object or tool ---develop models to describe phenomena

Formative, Summative and Alternative Assessments	Benchmark Assessments	Core Instructional and Supplemental Materials (including various texts at each grade level)
Science journal Lab- What is a Life Cycle? Lab- How have you Changed? Lab- Plant Life Cycles Lab- Animal Life Cycles Teacher created; guideline 10-15 questions Alternative Assessment: Performance Task	Assessment Rubric (pg 16)	Knowing Science- Life Science Unit 1.1 Knowing Science Literature Knowing Science Vocabulary Flashcards Mystery Science Holt: Science

Technology	Crosscutting Concepts / Interdisciplinary Connections across grade levels and content areas (at least 1)
Mystery Science Power of Flowers mysteries 1-2 Google Classroom- Internet Research	---patterns of change can be used to make predictions ---science findings are based on recognizing patterns **ELA/Literacy – RI.3.7** Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur). (3-LS1-1) SL.3.5

	Create engaging audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details. (3-LS1-1) **Mathematics – MP.4** Model with mathematics. (3-LS1-1) 3.NBT Number and Operations in Base Ten (3-LS1-1) 3.NF Number and Operations—Fractions (3-LS1-1)

Differentiation (IEPs / 504s)	Differentiation (ELL)	Differentiation (G &T)
Visual aids Sentence Frames Modeling Anchor charts Modify rubric Teacher directed grouping Chunk learning at teacher discretion Re-read text at teacher discretion Text in auditory format	Visual aids Sentence Frames Modeling Anchor charts Modify rubric Teacher directed grouping Chunk learning at teacher discretion Re-read text at teacher discretion Text in auditory format Pre-teach vocabulary Non-linguistic cues Manipulatives Graphic organizers Use of educational websites: www.khanacademy.org www.colorincolorado.org/	Independent research projects Advanced texts http://education.jlab.org/vocabhangman/ Science content vocabulary hangman http://kids.nationalgeographic.com/ National Geographic online http://www.bbc.co.uk/schools/scienceclips/ages/10_11/science_10_11.shtml Interactive science activities http://classroom.jc-schools.net/sci-units/plants-animals.htm#Interactive

21st Century Education	Career Education
THEMES: Global Awareness Financial, Economic, Business and Entrepreneurial Literacy Civic Literacy Health Literacy	Career Ready Practices describe the career-ready skills that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study. CRP1. Act as a responsible and contributing citizen and employee. CRP2. Apply appropriate academic and technical skills.

Science Curriculum Map

SKILLS: Creativity and Innovation Critical Thinking and Problem Solving Communication and Collaboration Information Literacy Media Literacy ICT Literacy Life and Career Skills	CRP3. Attend to personal health and financial well-being. CRP4. Communicate clearly and effectively and with reason. CRP5. Consider the environmental, social and economic impacts of decisions. CRP6. Demonstrate creativity and innovation. CRP7. Employ valid and reliable research strategies. CRP8. Utilize critical thinking to make sense of problems and persevere in solving them. CRP9. Model integrity, ethical leadership and effective management. CRP10. Plan education and career paths aligned to personal goals. CRP11. Use technology to enhance productivity. CRP12. Work productively in teams while using cultural global competence.

Alpha Public School

Science Curriculum Map

Standard: 3-LS2	**Content Topic:** Ecosystems: Interaction, Energy and Dynamics

Strand	Disciplinary Core Ideas / Essential Statement	Objective / Essential Question	Science & Engineering Practices / Skills & Lesson
3-LS2-1	being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size (LS2.D)	Construct an argument that some animals form groups that help members survive How can we construct an argument that some animals form groups to survive?	Construct an argument with evidence, data, and/ or a model

Formative, Summative and Alternative Assessments	Benchmark Assessments	Core Instructional and Supplemental Materials (including various texts at each grade level)
Science journal Lab- Animal Groups Animal Group Questions Lab- Smelly Communication Lab- Sound Communications Bird Call Cards Lab- Communicating by Sight Lab- Going Further Teacher created; guideline 10-15 questions Alternative Assessment: Performance Task	Assessment Rubric (pg 140)	Life Science Unit 1.5 Knowing Science Literature Knowing Science Vocabulary Flashcards Mystery Science Holt: Science

Technology	Crosscutting Concepts / Interdisciplinary Connections across grade levels and content areas (at least 1)
Mystery Science Animals Through Time mystery 6 Google Classroom - Internet Research	**ELA/Literacy – RI.3.1** Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. (3-LS2-1) RI.3.3 Describe the relationship between a series of historical events, scientific ideas or

	concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect. (3-LS2-1) W.3.1 Write opinion pieces on topics or texts, supporting a point of view with reasons. (3-LS2-1) **Mathematics – MP.4** Model with mathematics. (3-LS2-1) 3.NBT Number and Operations in Base Ten (3-LS2-1)

Differentiation (IEPs / 504s)	Differentiation (ELL)	Differentiation (G &T)
Visual aids Sentence Frames Modeling Anchor charts Modify rubric Teacher directed grouping Chunk learning at teacher discretion Re-read text at teacher discretion Text in auditory format	Visual aids Sentence Frames Modeling Anchor charts Modify rubric Teacher directed grouping Chunk learning at teacher discretion Re-read text at teacher discretion Text in auditory format Pre-teach vocabulary Non-linguistic cues Manipulatives Graphic organizers Use of educational websites: www.khanacademy.org www.colorincolorado.org/	Independent research projects Advanced texts http://education.jlab.org/vocabhangman/ Science content vocabulary hangman http://kids.nationalgeographic.com/ National Geographic online http://www.bbc.co.uk/schools/scienceclips/ages/10_11/science_10_11.shtml Interactive science activities http://classroom.jc-schools.net/sci-units/plants-animals.htm#Interactive

21st Century Education	Career Education
THEMES: Global Awareness Financial, Economic, Business and Entrepreneurial Literacy Civic Literacy Health Literacy SKILLS: Creativity and Innovation	Career Ready Practices describe the career-ready skills that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study. CRP1. Act as a responsible and contributing citizen and employee. CRP2. Apply appropriate academic and technical skills. CRP3. Attend to personal health and financial well-being.

Science Curriculum Map

Critical Thinking and Problem Solving Communication and Collaboration Information Literacy Media Literacy ICT Literacy Life and Career Skills	CRP4. Communicate clearly and effectively and with reason. CRP5. Consider the environmental, social and economic impacts of decisions. CRP6. Demonstrate creativity and innovation. CRP7. Employ valid and reliable research strategies. CRP8. Utilize critical thinking to make sense of problems and persevere in solving them. CRP9. Model integrity, ethical leadership and effective management. CRP10. Plan education and career paths aligned to personal goals. CRP11. Use technology to enhance productivity. CRP12. Work productively in teams while using cultural global competence.

Alpha Public School

Science Curriculum Map

Standard: 3-LS3	**Content Topic:** Heredity: Inheritance and Variation of Traits

Strand	Disciplinary Core Ideas / Essential Statement	Objective / Essential Question	Science & Engineering Practices / Skills & Lesson
3-LS3-1	-Many characteristics of organisms are inherited from their parents (LS3.A) ---Different organisms vary in how they look and function because they have different inherited information (LS3.B)	Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exist in a group of similar organisms. How can we provide evidence to show that plants and animals have inherited traits from parents and that these variations exists in a group of similar organisms?	analyze and interpret data to make sense of phenomena using logical reasoning.
3-LS3-2	---Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment (LS3.A) --- The environment also affects the traits that an organism develops (LS3.B)	Use evidence to support the explanation that traits can be influenced by the environment How can I develop evidence to support that traits can be influenced by the environment?	use evidence (e.g., observations, patterns) to support an explanation

Formative, Summative and Alternative Assessments	Benchmark Assessments	Core Instructional and Supplemental Materials (including various texts at each grade level)
Science journal Lab- What are you Thinking? Lab- All Kinds of Traits Traits Survey Lab-Plant Traits Lab- Lessons from Nature Lab-Variations and Survival Lab- Fossil Stories	Assessment Rubric (pg 97) Walrus Paragraph Organizer	Knowing Science- Life Science Unit 1.4 Knowing Science Literature Knowing Science Vocabulary Flashcards Mystery Science Holt: Science Better Lessons- What does a walrus do when the ice is gone?

Selective Breeding Project Selective Breeding Outline Teacher created; guideline 10-15 questions Alternative Assessment: Performance Task		

Technology	Crosscutting Concepts / Interdisciplinary Connections across grade levels and content areas (at least 1)
Mystery Science Power of Flowers mysteries 3-4 Mystery Science Animals Through Time mysteries 4,5 Mystery Science Animals Through Time mystery 8	similarities and differences in patterns can be used to sort and classify natural phenomena cause and effect relationships are routinely identified and used to explain change **ELA/Literacy – RI.3.1** Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. (3-LS3-1),(3-LS3-2) RI.3.2 Determine the main idea of a text; recount the key details and explain how they support the main idea. (3-LS3-1),(3-LS3-2) RI.3.3 Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect. (3-LS3-1),(3-LS3-2) W.3.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly. (3-LS3-1),(3-LS3-2) SL.3.4 Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace. (3- LS3-1),(3-LS3-2) **Mathematics – MP.2** Reason abstractly and quantitatively. (3-LS3-1),(3-LS3-2) MP.4 Model with mathematics. (3-LS3-1),(3-LS3-2) 3.MD.B.4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters. (3-LS3-1),(3-LS3-2)

Differentiation (IEPs / 504s)	Differentiation (ELL)	Differentiation (G &T)
Visual aids Sentence Frames	Visual aids Sentence Frames	Independent research projects Advanced texts

Modeling Anchor charts Modify rubric Teacher directed grouping Chunk learning at teacher discretion Re-read text at teacher discretion Text in auditory format	Modeling Anchor charts Modify rubric Teacher directed grouping Chunk learning at teacher discretion Re-read text at teacher discretion Text in auditory format Pre-teach vocabulary Non-linguistic cues Manipulatives Graphic organizers Use of educational websites: www.khanacademy.org www.colorincolorado.org/	http://education.jlab.org/vocabhangman/ Science content vocabulary hangman http://kids.nationalgeographic.com/ National Geographic online http://www.bbc.co.uk/schools/scienceclips/ages/10_11/science_10_11.shtml Interactive science activities http://classroom.jc-schools.net/sci-units/plants-animals.htm#Interactive

21st Century Education	Career Education
THEMES: Global Awareness Financial, Economic, Business and Entrepreneurial Literacy Civic Literacy Health Literacy SKILLS: Creativity and Innovation Critical Thinking and Problem Solving Communication and Collaboration Information Literacy Media Literacy ICT Literacy Life and Career Skills	Career Ready Practices describe the career-ready skills that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study. CRP1. Act as a responsible and contributing citizen and employee. CRP2. Apply appropriate academic and technical skills. CRP3. Attend to personal health and financial well-being. CRP4. Communicate clearly and effectively and with reason. CRP5. Consider the environmental, social and economic impacts of decisions. CRP6. Demonstrate creativity and innovation. CRP7. Employ valid and reliable research strategies. CRP8. Utilize critical thinking to make sense of problems and persevere in solving them. CRP9. Model integrity, ethical leadership and effective management. CRP10. Plan education and career paths aligned to personal goals. CRP11. Use technology to enhance productivity. CRP12. Work productively in teams while using cultural global competence.

Alpha Public School

Science Curriculum Map

Standard: 3-LS4	**Content Topic:** Biological Evolution: Unity and Diversity

Strand	Disciplinary Core Ideas / Essential Statement	Objective / Essential Question	Science & Engineering Practices / Skills & Lesson
3-LS4-1	---some kinds of plants and animals that once lived on Earth are no longer found anywhere (LS4.A) ---fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments (LS4.A)	analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago How can we interpret data from fossils to provide evidence of the organisms and the environment in which they lived long ago?	---analyze and interpret data to make sense of phenomena using logical reasoning
3-LS4-2	---sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates and reproducing (LS4.B)	Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing How can I determine how a specific trait or adaptation help an organism survive by discussing it in a group?	---use evidence (e.g., observations, patterns) to construct an explanation
3-LS4-3	---for any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all (LS4.C)	Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all How can I determine whether an animal can survive in a different environment other than its own based on its inherited traits	---construct an argument with evidence
3-LS4-4	---When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet another move into the transformed environment, and some die (LS2.C)	make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change How can I explain that any given physical characteristic has advantages and disadvantages?	---make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem

Alpha Public School

Science Curriculum Map

Formative, Summative and Alternative Assessments	Benchmark Assessments	Core Instructional and Supplemental Materials (including various texts at each grade level)
Science journal Lab- Fun with Fossils Lab- What are Fossils? Lab- Fossils Tell a Story Teacher created; guideline 10-15 questions Alternative Assessment: Performance Task	Assessment Rubric (pg 163) Graphic Organizer for project Accountable Talk Sentence Stems amd Starters Would it Survive Focus Page Reticulated Giraffe Organizer Reading Passage	Knowing Science- Life Science Unit 1.6 Knowing Science Literature Knowing Science Vocabulary Flashcards Mystery Science Holt: Science Knowing Science- covered under 1.5 Better Lessons- Animal Adadtations- Their Best Defense Better Lessons- Would your animal survive there? (Day 2) Better Lessons- What made the giraffe decide to be tall?

Technology	Crosscutting Concepts / Interdisciplinary Connections across grade levels and content areas (at least 1)
Mystery Science Animals Through Time mysteries 1-3 Mystery Science Animals Through Time mysteries 4,5 Mystery Science Animals Through Time mysteries 5,7 Could Your Animal Survive Power Point Mystery Science Animals Through Time mysteries 1,5,7	---observable phenomena exist from very short to very long time periods ---science assumes consistent patterns in natural systems ---cause and effect relationships are routinely identified and used to explain change ---a system can be described in terms of its components and their interactions ---knowledge of relevant scientific concepts and research findings is important in engineering **ELA/Literacy – RI.3.1** Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. (3-LS4-1),(3-LS4-2),(3-LS4-3) (3-LS4-4) RI.3.2 Determine the main idea of a text; recount the key details and explain how they support the main idea. (3-LS4-1),(3-LS4-2),(3-LS4-3),(3LS4-4) RI.3.3 Describe the relationship between a series of historical events, scientific ideas or

	concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect. (3-LS4-1),(3-LS4-2),(3-LS4-3),(3-LS4-4) W.3.1 Write opinion pieces on topics or texts, supporting a point of view with reasons. (3-LS4-1),(3-LS4-3),(3-LS4-4) W.3.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly. (3-LS4-1),(3-LS4-2),(3-LS4-3),(3-LS4-4) W.3.8 Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories. (3-LS4-1) SL.3.4 Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace. (3-LS4- 2),(3-LS4-3),(3-LS4-4) **Mathematics – MP.2** Reason abstractly and quantitatively. (3-LS4-1),(3-LS4-2),(3-LS4-3),(3-LS4-4) MP.4 Model with mathematics. (3-LS4-1),(3-LS4-2),(3-LS4-3),(3-LS4-4) MP.5 Use appropriate tools strategically. (3-LS4-1) 3.MD.B.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. (3-LS4-2),(3-LS4-3) 3.MD.B.4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters. (3-LS4-1)

Differentiation (IEPs / 504s)	Differentiation (ELL)	Differentiation (G &T)
Visual aids	Visual aids	Independent research projects
Sentence Frames	Sentence Frames	Advanced texts
Modeling	Modeling	http://education.jlab.org/vocabhangman/ Science content vocabulary hangman
Anchor charts	Anchor charts	
Modify rubric	Modify rubric	http://kids.nationalgeographic.com/ National Geographic online
Teacher directed grouping	Teacher directed grouping	
Chunk learning at teacher discretion	Chunk learning at teacher discretion	http://www.bbc.co.uk/schools/scienceclips/ages/10_11/science_10_11.shtml Interactive science activities
Re-read text at teacher discretion	Re-read text at teacher discretion	

Text in auditory format	Text in auditory format Pre-teach vocabulary Non-linguistic cues Manipulatives Graphic organizers Use of educational websites: www.khanacademy.org www.colorincolorado.org/	http://classroom.jc-schools.net/sci-units/plants-animals.htm#Interactive

21st Century Education	Career Education
THEMES: Global Awareness Financial, Economic, Business and Entrepreneurial Literacy Civic Literacy Health Literacy SKILLS: Creativity and Innovation Critical Thinking and Problem Solving Communication and Collaboration Information Literacy Media Literacy ICT Literacy Life and Career Skills	Career Ready Practices describe the career-ready skills that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study. CRP1. Act as a responsible and contributing citizen and employee. CRP2. Apply appropriate academic and technical skills. CRP3. Attend to personal health and financial well-being. CRP4. Communicate clearly and effectively and with reason. CRP5. Consider the environmental, social and economic impacts of decisions. CRP6. Demonstrate creativity and innovation. CRP7. Employ valid and reliable research strategies. CRP8. Utilize critical thinking to make sense of problems and persevere in solving them. CRP9. Model integrity, ethical leadership and effective management. CRP10. Plan education and career paths aligned to personal goals. CRP11. Use technology to enhance productivity. CRP12. Work productively in teams while using cultural global competence.

Alpha Public School

Science Curriculum Map

Standard: 3-ESS2	**Content Topic:** Earth's Systems

Strand	Disciplinary Core Ideas / Essential Statement	Objective	Science & Engineering Practices / Skills & Lesson
3-ESS2-1	---Scientists record pattern of the weather across different times and areas so that they can make predictions about what kinds of weather might happen next (ESS2.D)	represent data in tables and graphical displays to describe typical weather conditions expected during a particular season How can I use data in tables and graphs to describe typical weather conditions during a particular season?	---represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships
3-ESS2-2	---Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years (ESS2.D)	obtain and combine information to describe climates in different regions of the world How do I obtain and combine information to describe climates in different regions of the world	---obtain and combine information from books and other reliable media to explain phenomena

Formative, Summative and Alternative Assessments	Benchmark Assessments	Core Instructional and Supplemental Materials (including various texts at each grade level)
Science journal Lab- Weather or Not? Lab- How to use a thermometer Lab- Measuring Weather Lab- Weather instruments Lab- The Water Cycle Lab- Clouds Lab- The Cloud Model Lab- Forcasting Weather Lab- Gathering Weather Data I have, Who Has Cards Weather Watchers Journal	Assessment Rubric (pg 19) Assessment Rubric (pg 73)	Knowing Science- Earth Science 1.1 Knowing Science Literature Knowing Science Vocabulary Flashcards Mystery Science Holt: Science Knowing Science- Earth 1.2

Lab- Climate and Seasons Lab- Earth's Biomes Lab- Biome Travel and Tourism Biome Details Outline Teacher created; guideline 10-15 questions Alternative Assessment: Performance Task		

Technology	Crosscutting Concepts / Interdisciplinary Connections across grade levels and content areas (at least 1)
Mystery Science Stormy Skies mysteries 1,2,4 Mystery Science Stormy Skies mystery 3 Google Classroom- Internet Research	---patterns of change can be used to make predictions **ELA/Literacy – RI.3.1** Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. (3-ESS2-2) RI.3.9 Compare and contrast the most important points and key details presented in two texts on the same topic. (3-ESS2-2) W.3.8 Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories. (3-ESS2-2) **Mathematics – MP.2** Reason abstractly and quantitatively. (3-ESS2-1),(3-ESS2-2) MP.4 Model with mathematics. (3-ESS2-1),(3-ESS2-2) MP.5 Use appropriate tools strategically. (3-ESS2-1) 3.MD.A.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (3-ESS2-1) 3.MD.B.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in bar graphs. (3-ESS2-1)

Science Curriculum Map

Differentiation (IEPs / 504s)	Differentiation (ELL)	Differentiation (G &T)
Visual aids Sentence Frames Modeling Anchor charts Modify rubric Teacher directed grouping Chunk learning at teacher discretion Re-read text at teacher discretion Text in auditory format	Visual aids Sentence Frames Modeling Anchor charts Modify rubric Teacher directed grouping Chunk learning at teacher discretion Re-read text at teacher discretion Text in auditory format Pre-teach vocabulary Non-linguistic cues Manipulatives Graphic organizers Use of educational websites: www.khanacademy.org www.colorincolorado.org/	Independent research projects Advanced texts http://education.jlab.org/vocabhangman/ Science content vocabulary hangman http://kids.nationalgeographic.com/ National Geographic online http://www.bbc.co.uk/schools/scienceclips/ages/10_11/science_10_11.shtml Interactive science activities http://classroom.jc-schools.net/sci-units/plants-animals.htm#Interactive

21st Century Education	Career Education
THEMES: Global Awareness Financial, Economic, Business and Entrepreneurial Literacy Civic Literacy Health Literacy SKILLS: Creativity and Innovation Critical Thinking and Problem Solving Communication and Collaboration Information Literacy Media Literacy ICT Literacy Life and Career Skills	Career Ready Practices describe the career-ready skills that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study. CRP1. Act as a responsible and contributing citizen and employee. CRP2. Apply appropriate academic and technical skills. CRP3. Attend to personal health and financial well-being. CRP4. Communicate clearly and effectively and with reason. CRP5. Consider the environmental, social and economic impacts of decisions. CRP6. Demonstrate creativity and innovation. CRP7. Employ valid and reliable research strategies. CRP8. Utilize critical thinking to make sense of problems and persevere in solving them. CRP9. Model integrity, ethical leadership and effective management. CRP10. Plan education and career paths aligned to personal goals. CRP11. Use technology to enhance productivity. CRP12. Work productively in teams while using cultural global competence.

Alpha Public School

Science Curriculum Map

Standard: 3-ESS3	**Content Topic:** Earth and Human Activity

Strand	Disciplinary Core Ideas / Essential Statement	Objective / Essential Question	Science & Engineering Practices / Skills & Lesson
3-ESS1-1	---a variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts (ESS3.B)	Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard How can I understand the basic engineering and design process to make a model of a house capable of withstanding extreme weather?	---make a claim about the merit of a solution to a problem by citing relevant evidence and how it meets the criteria and constraints of the problem

Formative, Summative and Alternative Assessments	Benchmark Assessments	Core Instructional and Supplemental Materials (including various texts at each grade level)
Science journal Lab- What's in your head? Lab- Thunderstorms and Tornadoes Lab- Egg in a Bottle Lab- Hurricanes Lab- Winter Storms Hurricane House Design Journal Teacher created; guideline 10-15 questions Alternative Assessment: Performance Task	Assessment Rubric (pg 124)	Knowing Science- Earth Science Unit 1.3 Knowing Science Literature Knowing Science Vocabulary Flashcards Mystery Science Holt: Science

Technology	Crosscutting Concepts / Interdisciplinary Connections across grade levels and content areas (at least 1)
Mystery Science Stormy Skies mystery 4 Google Classroom- Internet Research	---cause and effect relationships are routinely identified, tested and used to explain change ---engineers improve existing technologies or develop new ones to increase their benefits (e.g., better artificial limbs), decrease known risks (e.g., seatbelts in cars), and meet societal demands (e.g., cell phones) ---science affects everyday life **ELA/Literacy – W.3.1**

	Write opinion pieces on topics or texts, supporting a point of view with reasons. (3-ESS3-1) W.3.7 Conduct short research projects that build knowledge about a topic. (3-ESS3-1) **Mathematics – MP.2** Reason abstractly and quantitatively. (3-ESS3-1) MP.4 Model with mathematics. (3-ESS3-1)

Differentiation (IEPs / 504s)	Differentiation (ELL)	Differentiation (G &T)
Visual aids Sentence Frames Modeling Anchor charts Modify rubric Teacher directed grouping Chunk learning at teacher discretion Re-read text at teacher discretion Text in auditory format	Visual aids Sentence Frames Modeling Anchor charts Modify rubric Teacher directed grouping Chunk learning at teacher discretion Re-read text at teacher discretion Text in auditory format Pre-teach vocabulary Non-linguistic cues Manipulatives Graphic organizers Use of educational websites: www.khanacademy.org www.colorincolorado.org/	Independent research projects Advanced texts http://education.jlab.org/vocabhangman/ Science content vocabulary hangman http://kids.nationalgeographic.com/ National Geographic online http://www.bbc.co.uk/schools/scieneclips/ages/10_11/science_10_11.shtml Interactive science activities http://classroom.jc-schools.net/sci-units/plants-animals.htm#Interactive

21st Century Education	Career Education
THEMES: Global Awareness Financial, Economic, Business and Entrepreneurial Literacy Civic Literacy Health Literacy SKILLS: Creativity and Innovation	Career Ready Practices describe the career-ready skills that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study. CRP1. Act as a responsible and contributing citizen and employee. CRP2. Apply appropriate academic and technical skills. CRP3. Attend to personal health and financial well-being.

Critical Thinking and Problem Solving Communication and Collaboration Information Literacy Media Literacy ICT Literacy Life and Career Skills	CRP4. Communicate clearly and effectively and with reason. CRP5. Consider the environmental, social and economic impacts of decisions. CRP6. Demonstrate creativity and innovation. CRP7. Employ valid and reliable research strategies. CRP8. Utilize critical thinking to make sense of problems and persevere in solving them. CRP9. Model integrity, ethical leadership and effective management. CRP10. Plan education and career paths aligned to personal goals. CRP11. Use technology to enhance productivity. CRP12. Work productively in teams while using cultural global competence.

Alpha Public School

Science Curriculum Map

Standard: 3-5-ETS1	**Content Topic:** Engineering Design

Strand	Disciplinary Core Ideas / Essential Statement	Objective	Science & Engineering Practices / Skills & Lesson
3-5-ETS1-1	---possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account (ETS1.A)	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost	---define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost
3-5-ETS1-2	---Research on a problem, such as climate change, should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions (ETS1.B) ---at whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs (ETS1.B)	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem	---generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design problem
3-5-ETS1-3	---tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved (ETS1.B) ---different solutions need to be tested in order to determine which of them best solves the problem, given the criteria, and the constraints (ETS1.C)	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved	---plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered

Science Curriculum Map

Formative, Summative and Alternative Assessments	Benchmark Assessments	Core Instructional and Supplemental Materials (including various texts at each grade level)
Science journal See Hurricane House Teacher created; guideline 10-15 questions Alternative Assessment: Performance Task	Hurricane House	Knowing Science Knowing Science Literature Knowing Science Vocabulary Flashcards Mystery Science Holt: Science

Technology	Crosscutting Concepts / Interdisciplinary Connections across grade levels and content areas (at least 1)
Google Classroom - Internet Research Mystery Science Stormy Skies mystery 4 Mystery Science Invisible Forces mystery 2,5 Mystery Science Animals Through Time mystery 7 Mystery Science Stormy Skies mystery 4 Mystery Science Invisible Forces mystery 2,5	---people's needs and wants change over time, as do their demands for new and improved technologies ---engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands **ELA/Literacy – RI.5.1** Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. (3-5-ETS1-2) 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. (3-5- ETS1-2) RI.5.9 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably. (3-5-ETS1-2) W.5.7 Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic. (3-5-ETS1-1),(3-5-ETS1-3) 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. (3-5-ETS1-1),(3-5-ETS1-3) W.5.9 Draw evidence from literary or informational texts to support analysis, reflection, and research. (3-5-ETS1-1),(3-5-ETS1-3) **Mathematics – MP.2** Reason abstractly and quantitatively. (3-5-ETS1-1),(3-5-ETS1-2),(3-5-ETS1-3) MP.4 Model with mathematics. (3-5-ETS1-1),(3-5-ETS1-2),(3-5-ETS1-3) MP.5 Use appropriate tools strategically. (3-5-ETS1-1),(3-5-ETS1-2),(3-5-ETS1-3) 3-5.OA

	Operations and Algebraic Thinking (3-5-ETS1-1),(3-5-ETS1-2)

Differentiation (IEPs / 504s)	Differentiation (ELL)	Differentiation (G &T)
Visual aids Sentence Frames Modeling Anchor charts Modify rubric Teacher directed grouping Chunk learning at teacher discretion Re-read text at teacher discretion Text in auditory format	Visual aids Sentence Frames Modeling Anchor charts Modify rubric Teacher directed grouping Chunk learning at teacher discretion Re-read text at teacher discretion Text in auditory format Pre-teach vocabulary Non-linguistic cues Manipulatives Graphic organizers Use of educational websites: www.khanacademy.org www.colorincolorado.org/	Independent research projects Advanced texts http://education.jlab.org/vocabhangman/ Science content vocabulary hangman http://kids.nationalgeographic.com/ National Geographic online http://www.bbc.co.uk/schools/scienceclips/ages/10_11/science_10_11.shtml Interactive science activities http://classroom.jc-schools.net/sci-units/plants-animals.htm#Interactive

21st Century Education	Career Education
THEMES: Global Awareness Financial, Economic, Business and Entrepreneurial Literacy Civic Literacy Health Literacy SKILLS: Creativity and Innovation Critical Thinking and Problem Solving Communication and Collaboration Information Literacy Media Literacy ICT Literacy Life and Career Skills	Career Ready Practices describe the career-ready skills that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study. CRP1. Act as a responsible and contributing citizen and employee. CRP2. Apply appropriate academic and technical skills. CRP3. Attend to personal health and financial well-being. CRP4. Communicate clearly and effectively and with reason. CRP5. Consider the environmental, social and economic impacts of decisions. CRP6. Demonstrate creativity and innovation. CRP7. Employ valid and reliable research strategies. CRP8. Utilize critical thinking to make sense of problems and persevere in solving them. CRP9. Model integrity, ethical leadership and effective management. CRP10. Plan education and career paths aligned to personal goals. CRP11. Use technology to enhance productivity. CRP12. Work productively in teams while using cultural global competence.