

## Fourth Grade Curriculum Guide 2017-2018

### English Language Arts

Baldwin, Chambers, Fernandez, and Sluder

Note: Content order subject to change in accordance with meeting student needs

#### **Trimester #1** (August 29 - Nov 21)

In the initial reading unit, "Interpreting Characters," students will focus on structures, routines, and habits of a richly literate reading workshop. There will be an emphasis on growing significant, text-based ideas about characters which will then shift into building interpretations across and entire text to find meaning in recurring images, objects, and details. In the initial writing unit, "The Arc of a Story," students will begin with learning ways to live like writers and see stories everywhere through the moments and issues in their lives. They will develop main characters, especially focusing on the character's wants and needs along with other internal traits. Then the focus will shift to revising and editing, including using the story arc as a planning tool. By the end of the unit, we will move from taking students step-by-step through the fiction-writing process and instead teaching them how to conceive, develop, plan, and carry through their own independent fiction projects.

In the second reading unit, "Reading Information Texts, Reading the World," students will begin with easier nonfiction texts and do important work with those texts before then choosing more challenging and complex texts. Students will then dig into research projects that revolve around a class topic. At the end of the unit, students will research a second subtopic so that they can compare and contrast what they have learned.

#### **Unit Topics & Objectives**

##### READING: Interpreting Characters: The Heart of the Story

Students will...

- Develop a love and sense of purpose for reading/writing; building stamina and engagement; generating ideas for reading and writing
- Establish reading logs, book-shopping schedules, workshop structures and expectations
- Build solid ideas grounded in text, including confusing parts and ideas to discuss later
- Develop theories about characters' actions and motivations - how and why they change over the course of a text
- Build interpretations by looking across an entire text, finding patterns, making connections

##### WRITING: The Arc of a Story: Writing Realistic Fiction

Students will...

- Understand how to choose a seed idea and develop characters by creating external and internal traits
- Develop characters by creating scenes that show character motivations and struggles; sketch possible plot lines using story arcs
- Draft and revise with believability in mind using character actions, words, and setting
- Study published texts
- Write powerful leads and endings
- Publish short stories for class anthology
- Apply planning, drafting, revising skills to independent fiction projects

READING: Reading Information Texts, Reading the World

Students will...

- Describe the overall structure of texts
- Summarize the main idea of a text and explain how it is supported by key details
- Determine how parts of the text fit together and into the whole
- Understand the relationship between readers and writers with attention to the craft of a text
- Read across texts on a topic and be able to integrate what they have learned in order to speak / write knowledgeably about that topic

**Trimester #2** (November 28 - March 2)

We will begin the second trimester with the writing unit, “Boxes and Bullets: Personal and Persuasive Essays.” Students will begin with a quick immersion into the whole process of writing an essay - an “essay writing boot camp.” This helps students develop a sense of what it feels like to write a whole essay in addition to brainstorming and preparing for their second essay. Students will plan a thesis statement and write our evidence to support the reasons for their opinion. At the end of the unit, students will transfer their work on personal essays to persuasive opinions that are more generalized and develop a plan for a persuasive essay.

Next, students will extend their work with informational texts in trimester one with the reading unit, “Reading History: The American Revolution” in which students will take on a research project regarding the American Revolution. We will emphasize how researchers pay attention to text structure (chronological, problem and solution, cause and effect, compare and contrast) to help organize their notes and thinking. This will also help them synthesize information from multiple texts including primary and secondary sources. Students will also debate the question of independence from Great Britain to help consider various points of views and gain a more complete picture of of the Loyalists’ and Patriots’ perspectives. We will conclude the unit with another research project on the time period after the Second Continental Congress to focus on the skills of previewing and paraphrasing and extracting main ideas.

We will wrap up the trimester with a mini-unit, “Reading and Writing Poetry,” in which students will explore the differences between poems, drama, and prose, and analyze structural elements of poems in writing and speaking. During the unit, students will also select mentor poems to use as inspiration to create their own poetry.

**Unit Topics & Objectives**

WRITING: Boxes and Bullets: Personal and Persuasive Essays

Students will...

- Use boxes and bullets to frame an essay
- Introduce their topic clearly through a variety of strategies
- Increase cohesion in their pieces through more sophisticated transition words
- Use strategies to conclude their pieces in ways that follow from the piece themselves
- Chose words and phrases to convey ideas precisely

READING: Reading History

- Consider themes and lessons of texts
- Consider different points of view and recognize firsthand and secondhand sources, including how the point of view will result in differences in the account
- Identify main ideas and supporting details; summarize texts
- Discuss the relationships between historical texts
- Collect and merge ideas from different texts

## Reading and Writing Poetry

Students will...

- Describe the overall structure of poems (stanzas, lines, verse, line break, etc.)
- Determine the theme of the poem
- Determine how parts of a poem fit together and into the whole
- Understand the relationship between readers and writers with attention to the craft of a text
- Write a variety of poetry incorporating learned poetic elements

### **Trimester #3** (March 6 - June 6)

In the fourth reading unit, "Historical Fiction" students will develop ideas about characters, determine themes, infer within a text, compare and contrast texts, synthesize across texts, and talk and write about reading - specifically historical fiction focusing on the book "Number the Stars" by Lois Lowry. Students will also read their own historical fiction texts that are inherently complex. The characters live in places our students have not lived and in times they have now known. As readers, they must figure out the nature of the setting, the ways people live, and not just who the characters are, but also the relationships the characters have to historical tensions.

In the next writing unit, "Literary Essays," students will write structured, compelling essays in which they make and support claims, and analyze, unpack, and incorporate evidence. Students focus on arguing for their ideas about characters while carrying forward what they have been taught about planning and drafting essays, writing introductions and conclusions, and marshalling evidence in support of reasons.

In the final unit, "Testing Genre" our most important emphasis, as always, is still growing stronger readers. The big work of this unit is not to teach new reading strategies for each genre but to support students in bringing forward all that they have learned all year about each genre. It is also about helping students see connections between genres, for example, reminding them to use all they know about story structures in fiction to identify important elements in narrative nonfiction articles. The work, then, will be to support students in reading passages and holding on to meaning, to review strategies students already know for each genre, to teach strategies to quickly identify genres, and to teach predictable question types for each one. We will continue meeting in small groups to help students move up reading levels and to grow stronger in other skills. Stamina will be a critical factor we emphasize so that students can read all the passages and answer all the questions with appropriate energy and focus.

## **Unit Topics & Objectives**

### READING: Historical Fiction

- Determine themes and cohesion
- Track character changes and responses
- Deepen understanding of character traits to include motivation and causes of change
- Infer about characters and other story elements (setting, plotline)
- Envision and predict based on historical events and knowledge
- Develop vocabulary related to this historical time period they are reading about

### WRITING: Literary Essay

- Read texts closely and respond to them in writing.
- Provide support for a claim in ways that chunk the supportive evidence into logically grouped categories.
- Use transitional words, such as for instance, in order to, consequently, and specifically
- Revise, edit, publish and share their literary essays.

### Testing Genre

- Monitor for understanding while reading a variety of passages
- Transfer reading strategies from other genres
- Identify elements of fiction and nonfiction genres
- Identify predictable question types
- Search for evidence in passages to support thinking

### **ELA Personalized Learning Approach**

Students will work in differentiated groups based on their individual needs. Instruction will be a combination of: whole class instruction, small group instruction, partner work and independent work. Differentiated groups will be determined through ongoing formal and informal assessments and will support their work in strategy and guided reading groups.

### **Student Work**

The majority of student work will be completed within their Reader's and Author's notebooks. Charlotte Lab School also uses an online portfolio system called SeeSaw which enables students to independently showcase what they are learning in each one of their content areas. Both students and teachers are able to view and assess progress and growth over time. In ELA, students post to SeeSaw to share their current work and progress toward their personalized goals. Teachers provide regular feedback and families are invited to also leave encouraging comments on their student's work as well.

### **Homework and Home-School Connections**

Homework will consist of daily reading and will be assigned as needed to complete in-class tasks and for extra practice. Students will be encouraged to read and write independently or with adults whenever possible and appropriate. Later in the first trimester, students will also have a reading log for their out of school reading to foster independence and reflection on their reading habits. Students are responsible for filling out their logs in order for teachers to discuss and reflect on the student's book choices, stamina, and reading habits.

We also encourage parents to review and engagement with SeeSaw at home with their children; this allows parents to connect with what your child is learning in ELA.

Here are some other things you can do at home to reinforce the learning that is taking place at school:

- *Track the books and genres that your child is reading at home*
- *Set goals for the minutes spent reading and add time to build stamina*
- *Have your child go on RAZ kids to listen to and read a book aloud, then answer comprehension questions*
- *Discuss the book with your child and ask him/her inferential question stems provided*
- *Comment and ask questions on Seesaw posts made by students and teachers*

### **Parent-Teacher Communication**

The best way to communicate general questions is through your student's advisor. If a specific ELA question arises, please directly email the ELA team and an answer will be provided within 48 hours.

**Elisabeth Baldwin:** [ebaldwin@charlottelabschool.org](mailto:ebaldwin@charlottelabschool.org)

**Leslie Chambers:** [lchambers@charlottelabschool.org](mailto:lchambers@charlottelabschool.org)

**Wendolyn Fernandez:** [wfernandez@charlottelabschool.org](mailto:wfernandez@charlottelabschool.org)

**Kristen Sluder:** [ksluder@charlottelabschool.org](mailto:ksluder@charlottelabschool.org)

## Mathematics

Brown, Wycinsky, Davino, Newswanger

### Trimester #1 (August 28- November 21)

In this unit students will explore surveying peers and place the information gathered into a bar graph and pictograph. Students will also review some measurement by measuring various items and placing the information onto line plots. They will revisit addition and subtraction word problems; some of these word problems will ask the students to estimate the answers by rounding to any place value. Students will then have to compare numbers based on their place value up to any digit.

Students will explore multi-digit multiplication and division. They will extend their knowledge of multiplication and division from third grade into working with bigger numbers and interpreting remainders. Students will understand how factors and multiples relate to multiplication and division. Toward the end of the unit, students will solve multi-step word problems with all four operations.

### Unit Topics, Objectives & Vocabulary

Below is a list of the topics that will be introduced this trimester. While this represents pacing for a typical 4th grader, teachers will group students according to their level of mastery in each of these concepts and will personalize pacing and work for the students; some students may need to review prerequisite topics while others may have already mastered what is listed below and will move on to deeper content.

<u>Topics</u>	<u>Objectives</u> Students will...	<u>Vocabulary</u>
<b>Graphing/ Measurement</b>	<ul style="list-style-type: none"> <li>Collect data by surveying and/or measuring objects</li> <li>Represent data in bar graphs, pictographs, and line plots</li> <li>Ask/answer questions related to graphs</li> </ul>	<i>Bar graph, pictograph, data, line plots, nearest inch, ½ inch, and ¼ inch</i>
<b>Place Value</b>	<ul style="list-style-type: none"> <li>Write numbers in various ways. ie. <math>285 = 1 \text{ hundred} + 18 \text{ tens} + 5 \text{ ones}</math></li> <li>Understand the use of commas in a number</li> <li>Be able to read, write, and understand numbers to 1,000,000</li> </ul>	<i>Place, value, ones, tens, hundreds, thousands, ten thousands, hundred thousands, millions, expanded form, base ten</i>
<b>Rounding/ Estimating</b>	<ul style="list-style-type: none"> <li>Estimate answers to word problems and number sentences by rounding</li> <li>Round a number to any place value</li> </ul>	<i>Estimate, about, round</i>
<b>Comparing Numbers</b>	<ul style="list-style-type: none"> <li>Compare two multi-digit whole numbers</li> <li>Successfully use <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> symbols to compare numbers</li> </ul>	<i>Greater than, less than, equal to</i>
<b>Addition/ Subtraction Word Problems</b>	<ul style="list-style-type: none"> <li>Fluently add and subtract using various strategies including the standard algorithm</li> <li>Solve multi-step word problems related to addition and subtraction</li> </ul>	<i>Add, subtract, sum, difference, odd, even, number line, standard algorithm</i>
<b>Multiplication</b>	<ul style="list-style-type: none"> <li>Find all factor pairs from 1-100</li> <li>Understand that a whole number is a multiple of their factors</li> <li>Determine that a number from 1-100 is</li> </ul>	<i>Factor, multiple, factor pair, prime, composite, array, area model, standard algorithm</i>

	<p>prime or composite</p> <ul style="list-style-type: none"> <li>• Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers</li> </ul>	
<b>Division</b>	<ul style="list-style-type: none"> <li>• Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors</li> </ul>	<i>Remainder, dividend, divisor, quotient</i>
<b>Word Problems</b>	<ul style="list-style-type: none"> <li>• Solve whole number multi-step word problems that have whole number answers</li> <li>• Create expressions and equations to represent word problems</li> </ul>	<i>Multiplication, division, addition, subtraction, equation, expression</i>

### Trimester #2 (November 28- March 2)

This unit will explore fractions and measurement. To begin, students will review what they learned about fractions in third grade; as third graders they developed an understanding of fractions as parts of a whole and could compare fractions with like numerators or denominators by comparing the size in pictures or diagrams. By the end of fourth grade we want students to extend their understanding of fraction equivalence and ordering, compare fractions with different numerators and denominators, understand and compare decimal fractions, and add and subtract mixed numbers with like denominators.

In addition, students will deepen their understanding of measurement by knowing relative sizes of measurement units within one system of units including length - km, m, cm; weight - kg, g and lb, oz.; volume- l, ml; and time - hr, min, sec. Staying within a single system of measurement, students will be able to express measurements in a larger unit in terms of a smaller unit (i.e. *I know that 1 ft is 12 times as long as 1 in.*) and be able to generate a conversion table for equivalent measurements (i.e. *feet = inches - (1, 12), (2, 24), (3, 36), ...*)

### Unit Topics, Objectives & Vocabulary

<u>Topics</u>	<u>Objectives</u> Students will...	<u>Vocabulary</u>
<b>Understanding Place Value</b>	<ul style="list-style-type: none"> <li>• Review that fractions are a part of a whole; review equivalent fractions by placing fractions on a number line</li> </ul>	<i>Partition, Numerator, Denominator, Equivalent, Comparison, Fourths, Halves, Eighths, Sixths, Common denominator</i>
<b>Adding and Subtracting Fractions</b>	<ul style="list-style-type: none"> <li>• Understand addition and subtraction of fractions as joining and separating parts referring to the same whole (Example: <math>\frac{2}{8} = \frac{1}{8} + \frac{1}{8}</math>)</li> </ul>	
<b>Multiplying Fractions by Whole Numbers</b>	<ul style="list-style-type: none"> <li>• Apply and extend previous understandings of multiplication to multiply a fraction by a whole number</li> <li>• Solve word problems involving the addition and subtraction of fractions; answer word problems dealing with multiplying fractions by whole numbers</li> </ul>	
<b>Comparing Fractions</b>	<ul style="list-style-type: none"> <li>• Compare two fractions with different numerators and different denominators;</li> </ul>	

	<p>create common denominators or numerators, or compare them to a benchmark fraction such as <math>\frac{1}{2}</math></p> <ul style="list-style-type: none"> <li>• Compare, add and subtract fractions on corresponding measurement tools and create story problems to solve for the answer</li> </ul>	
<b>Understanding Decimals</b>	<ul style="list-style-type: none"> <li>• Understand and express a fraction with denominator 10 as an equivalent fraction with denominator 100</li> <li>• Use decimal notation for fractions with denominators 10 or 100</li> <li>• Compare two decimals to hundredths by reasoning about their size. Use symbols <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and justify the conclusions, e.g., by using a visual model.</li> </ul>	<i>decimal, fraction, tenths, hundredths</i>
<b>Converting Among Standard Measurement Units</b>	<ul style="list-style-type: none"> <li>• Know relative sizes of measurement units within one system of units including <i>km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec</i></li> <li>• 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 (1 ft is 12 times as long as 1 in.); generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36).</li> </ul>	<i>km, m, cm; kg, g; lb, oz.; l, ml; hr, min, seconds, conversion table</i>

### Trimester #3 (March 6 - June 6)

This quarter will begin with a two-week unit on measuring angles and geometry. Students will learn how to read angles using protractors and solve for missing angle measurements. Once those two weeks are over, students will be placed in a fixed group for review of all units before the End of Grade Test.

### Unit Topics, Objectives & Vocabulary

<u>Topics</u>	<u>Objectives</u> Students will...	<u>Vocabulary</u>
<b>Angles</b>	<ul style="list-style-type: none"> <li>• Recognize that a circle has 360 degrees and that an angle is a fraction of a 360 degree circle</li> <li>• Recognize and identify that an angle is formed from 2 rays with a common endpoint</li> <li>• Read a protractor and determine which scale on the protractor to use, based on the direction the angle is open</li> </ul>	<i>Right, acute, obtuse, protractor, complementary, supplementary, straight angle, vertice, ray, line segment, line, perpendicular</i>

	<ul style="list-style-type: none"> <li>Solve addition and subtraction equations to find unknown angle measurements on a diagram</li> </ul>	
<b>REVIEW UNIT TOPICS</b>		
<b>Graphing/ Measurement</b>	<ul style="list-style-type: none"> <li>Collect data by surveying and/or measuring objects</li> <li>Represent data in bar graphs, pictographs, and line plots</li> <li>Ask/answer questions related to graphs</li> </ul>	<i>Bar graph, pictograph, data, line plots, nearest inch, ½ inch, and ¼ inch</i>
<b>Place Value</b>	<ul style="list-style-type: none"> <li>Write numbers in various ways. ie. <math>285 = 1 \text{ hundred} + 18 \text{ tens} + 5 \text{ ones}</math></li> <li>Understand the use of commas in a number</li> <li>Be able to read, write, and understand numbers to 1,000,000</li> <li>Compare Numbers</li> </ul>	<i>Place, value, ones, tens, hundreds, thousands, ten thousands, hundred thousands, millions, expanded form, base ten</i>
<b>Rounding/ Estimating</b>	<ul style="list-style-type: none"> <li>Estimate answers to word problems and number sentences by rounding</li> <li>Round a number to any place value</li> </ul>	<i>Estimate, about, round</i>
<b>Addition/ Subtraction Word Problems</b>	<ul style="list-style-type: none"> <li>Fluently add and subtract using various strategies including the standard algorithm</li> <li>Solve multi-step word problems related to addition and subtraction</li> </ul>	<i>Add, subtract, sum, difference, odd, even, number line, standard algorithm</i>
<b>Multiplication</b>	<ul style="list-style-type: none"> <li>Find all factor pairs from 1-100</li> <li>Understand that a whole number is a multiple of their factors</li> <li>Determine that a number from 1-100 is prime or composite</li> <li>Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers</li> </ul>	<i>Factor, multiple, factor pair, prime, composite, array, area model, standard algorithm</i>
<b>Division</b>	<ul style="list-style-type: none"> <li>Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors</li> </ul>	<i>Remainder, dividend, divisor, quotient</i>
<b>Word Problems</b>	<ul style="list-style-type: none"> <li>Solve whole number multi-step word problems that have whole number answers</li> <li>Create expressions and equations to represent word problems</li> </ul>	<i>Multiplication, division, addition, subtraction, equation, expression</i>



<p><b>Adding and Subtracting Fractions</b></p>	<ul style="list-style-type: none"> <li>Understand addition and subtraction of fractions as joining and separating parts referring to the same whole (Example: <math>\frac{2}{8} = \frac{1}{8} + \frac{1}{8}</math>)</li> </ul>	<p><i>Partition, Numerator, Denominator, Equivalent, Comparison, Fourths, Halves, Eighths, Sixths, Common denominator</i></p>
<p><b>Multiplying Fractions by Whole Numbers</b></p>	<ul style="list-style-type: none"> <li>Apply and extend previous understandings of multiplication to multiply a fraction by a whole number</li> <li>Solve word problems involving the addition and subtraction of fractions; answer word problems dealing with multiplying fractions by whole numbers</li> </ul>	<p>Partition, Numerator, Denominator, Equivalent, Comparison, Fourths, Halves, Eighths, Sixths, Common denominator</p>
<p><b>Comparing Fractions</b></p>	<ul style="list-style-type: none"> <li>Compare two fractions with different numerators and different denominators; create common denominators or numerators, or compare them to a benchmark fraction such as <math>\frac{1}{2}</math></li> <li>Compare, add and subtract fractions on corresponding measurement tools and create story problems to solve for the answer</li> </ul>	<p>Partition, Numerator, Denominator, Equivalent, Comparison, Fourths, Halves, Eighths, Sixths, Common denominator</p>
<p><b>Converting Among Standard Measurement Units</b></p>	<ul style="list-style-type: none"> <li>Know relative sizes of measurement units within one system of units including <i>km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec</i></li> <li>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 (1 ft is 12 times as long as 1 in.); generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36).</li> </ul>	<p><i>km, m, cm; kg, g; lb, oz.; l, ml; hr, min, seconds, conversion table</i></p>

## Math Personalized Learning Approach

Personalized learning is instruction that offers specific curriculum and learning environments that meet each individual student's needs. Students will approach the content in a variety of ways and paces based upon their mastery of each concept. This process will look like this:

- Students will take a pre-assessment
- Once the assessment is scored, students will be placed into one of 3 personalized learning groups for enrichment, review, mini-lesson and foundation skills
- Students will stay in that specific skill group for several weeks depending on the skill
- The skill is taught and practiced and then students will take a post assessment
- After the post assessment is scored, students will either remain in the same group to focus on the same skill with more practice or move on to another skill

## Student Work

This year, Charlotte Lab School will use an online portfolio system called SeeSaw which will enable students to independently showcase what they are learning in each one of their content areas. Both students and teachers will be able to view and assess progress and growth over time. In Math, students will take home their grade pre-assessments every week or two weeks (depending on the skill) and are responsible for submitting 1 post per week that document their learning related to that skill; this can be in the form of videos, pictures, drawings, texts and pdfs. They are expected to correct and comment on their work as needed and teachers will provide weekly feedback on their submitted work through the Seesaw program. In addition, each student will have a Math journal in class for "Do Now" and follow-up activities. The students' math journals will remain at school at all times.

## Homework and Home-School Connections

We encourage parents to review SeeSaw at home with students as well as review Math work in their binder. In addition, students will be provided enrichment activities, review materials, etc. on an as needed basis. Homework will not come home every week for each child and will vary depending on what your child is working on. The purpose of Math homework is to ensure that students are practicing independently at home and this allows parents to connect with what your child is learning in Math as well.

Teachers will check in with weekly comments and feedback in SeeSaw to ensure parent-teacher communication is active and relevant. If a child is not completing SeeSaw requirements or turning in the appropriate work provided by the teacher, parents will be contacted.

## Teacher-Parent Communication

The best way to communicate general questions is through your student's advisor because multiple teachers work with each student. If a specific Math question arises, please directly email the Math team and an answer will be provided within 48 hours.

**Maggie Brown:** [mbrown@charlottelabschool.org](mailto:mbrown@charlottelabschool.org)

**Mary Ashley Davino:** [mdavino@charlottelabschool.org](mailto:mdavino@charlottelabschool.org)

**Brittany Newswanger:** [bnewswanger@charlottelabschool.org](mailto:bnewswanger@charlottelabschool.org)

**Sara Wycinsky:** [swycinsky@charlottelabschool.org](mailto:swycinsky@charlottelabschool.org)

## Quest

Davino, Boidy, Wycinsky

### Trimester #1: Natural Disaster Survival Kits (August 28-November 21)

#### **The Challenge**

As the frequency and strength of natural disasters seems to be growing, Lab students will have the opportunity to learn about and raise awareness of how people can be better prepared. In this course, we will investigate the social impact of natural disasters as it relates to communities around the world. Students will review case studies of natural disasters in the United States and other countries to better understand what makes different communities particularly vulnerable. Given this background, their challenge is to learn how to be prepared for a natural disaster. In addition, through course material our goal is to help students develop empathy for disaster victims ultimately creating a durable care package we will provide to relief organizations.

#### **The Quest**

In this Quest, students will study energy and weather with a focus on the science behind severe weather and natural disasters. Students will explore basic weather concepts and what conditions cause severe weather. One key component of this quest will be to simulate the vulnerability of the people living within these communities and develop empathy for those affected by such disasters. Students will be exposed to a variety of conditions, some simulated through design projects, to help better understand the impact of weather.

#### **Course Objectives**

<u>Big Ideas</u>	<u>Content &amp; Concepts</u>	<u>Survival Skills</u>
<p>The science behind thunderstorms, hurricanes, and tornadoes, focusing on flooding.</p> <p>Geography of regions and how that relates to weather/ natural disasters</p> <p>Identifying natural and socio-economic vulnerabilities that make certain communities more susceptible to disaster</p>	<p><b><i>NC Science Standards</i></b></p> <p>4.P.3 Recognize that energy takes various forms that may be grouped based on their interaction with matter.</p> <p>5.E.1 Understand weather patterns and phenomena, making connections to the weather in a particular place and time.</p> <p>5.P.2 Understand the interactions of matter and energy and the changes that occur.</p> <p><b><i>Design Thinking</i></b></p> <p>"Design thinking is a human-centered approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success." — <i>Tim Brown, President and CEO, IDEO</i></p> <p><b>Science Labs and Maker Experiences will be embedded throughout the trimester to expose kids to hands on experiences and creative thinking.</b></p>	<p>Critical thinking and problem solving</p> <p>Curiosity and imagination</p> <p>Initiative and entrepreneurship</p> <p>Effective oral and written communication</p>

**Trimester #2 - Biome Design** (November 28 - March 2)

**The Challenge**

As environmental issues become more critical to the long-term health of our planet, our students will need to become problem-solvers armed with the knowledge of how our biome - planet Earth - can best adapt. In this course, students will examine differences in various habitats to identify what assists the survival of organisms in ecosystems. Students will identify basic structure of an ecosystem with a focus on the environmental factors that affect those needs. Ultimately, we are challenging students to design a perfect ecosystem, where everything is in balance and self-sustaining.

**The Quest**

In this quest, 4th grade students will learn about ecosystems and habitats. Students will use their knowledge of ecosystems and the elements within them to create their own biome. The miniature ecosystem will be self contained and need to perpetually sustain itself with no external influence. Students' designs will need to consider the right amount of moisture, soil, light, and temperature for the various elements of their mini-ecosystem.

**Course Objectives**

<b>Big Ideas</b>	<b>Content &amp; Concepts</b>	<b>Survival Skills</b>
<p>What elements make and define an ecosystem.</p> <p>How do those elements maintain life within the ecosystem?</p> <p>How does that life support each other?</p>	<p><b><i>NC Science Standards</i></b></p> <p>4.L.1.1 Give examples of changes in an organism's environment that are beneficial to it and some that are harmful</p> <p>4.L.1.2 Explain how animals meet their needs by using behaviors in response to information received from the environment.</p> <p>4.L.1.3 Explain how humans can adapt their behavior to live in changing habitats (e.g., recycling wastes, establishing rain gardens, planting trees and shrubs to prevent flooding and erosion).</p> <p>NGSS LS2.A Interdependent Relationships in Ecosystems</p> <p>NGSS LS2.B Cycle of Matter and Energy Transfer in Ecosystems.</p>	<p>Critical thinking and problem solving</p> <p>Agility and adaptability</p> <p>Accessing and Analyzing Information</p>

**Trimester #3 Nutritional Menu Design** (March 6 - June 6)

**The Challenge**

In this Quest, students will be asked to solve two problems for the school:

1. Help our caterer increase the nutritional value of school lunch menus and to reduce food waste by ensuring that these nutritional improvements are also popular and tasty;
2. Ensure that the foods shared at our Annual Multicultural Night reflect the diversity of the world.

In order to address these two challenges, students will be exposed to the importance of nutrition and overall well being. Students will have opportunities to examine the influence of food and nutrition in relation to humans' physical, environmental, social, mental and emotional health. Practical experiences will occur to help students develop health-enhancing attitudes to food and nutrition and appreciation of other cultures and eating patterns.

**The Quest**

In this Quest, 4th grade students will learn about energy and chemical processes (nutrition) and the impact of food production and preparation on the human body. The content is designed to help students gain an appreciation for their health and well being. Students will be responsible for suggesting lunch menu items based on specific criteria including budget, supply, nutrition, etc. In addition, students will explore food and culture as they prepare menus from various regions for multicultural night.

## Course Objectives

Big Ideas	Content & Concepts	Survival Skills
<p>Where food comes from and how modern processing impacts quality.</p> <p>Availability of quality food is often dependent on income, neighborhood, etc. (cost v nutrition).</p> <p>Healthy lifestyle practices.</p>	<p><b>NC Science Standards</b></p> <p>4.L.2 Understand food and the benefits of vitamins, minerals and exercise.</p> <p>4.L.2.1 Classify substances as food or non-food items based on their ability to provide energy and materials for survival, growth, and repair of the body.</p> <p>4.L.2.2 Explain the role of vitamins and minerals, and exercise in maintaining a healthy body.</p> <p>NGSS PS3.D Energy is chemical processes and everyday life.</p> <p>NGSS LS1.C Organization for Matter and Energy Flow in Organisms</p> <p>Federal and other recommended nutritional guidelines</p> <p>Food Molecules: Protein, Carbohydrates, Fats</p> <p>Human Body Systems and Food</p> <p>Food, Energy and Exercise</p> <p>Reading Nutrition Labels</p>	<p>Critical Thinking and Problem Solving</p> <p>Curiosity and Imagination</p> <p>Agility and Adaptability</p>

### Quest Personalized Learning Approach

Personalized learning is instruction that offers specific curriculum and learning environments that meet each individual student's needs. In 4th grade, students will be placed in different groups throughout the Quest block based on individual needs, strengths, and levels. Groups will change as needed throughout the year according to informal and formal assessments.

### Student Work

Charlotte Lab School uses an online portfolio system called SeeSaw which enables students to independently showcase what they are learning in each one of their content areas. Both students and teachers are able to view and assess progress and growth over time. In Quest, students will include examples of their work in the form of videos, pictures, drawings, & messages. Teachers provide feedback and families are invited to leave comments on their child's work as well.

### Homework and Home-School Connection

Homework will only consist of work that your student did not finish during the school day. There will be no formally assigned homework this year. Since the purpose of Quest is to foster curiosity in your child, we encourage activities that include experiments, building, outdoor exploration, and making, using items easily accessible in your home! We also hope that you will ask your child many questions about what they're learning and doing in Quest each day.

### Parent-Teacher Communication

The best way to communicate general questions is through your student's advisor. If a specific Quest question arises, please directly email the Quest team and an answer will be provided within 48 hours.

**Mary Ashley Davino:** [mdavino@charlottelabschool.org](mailto:mdavino@charlottelabschool.org)

**Brandt Boidy:** [bboidy@charlottelabschool.org](mailto:bboidy@charlottelabschool.org)

**Sara Wycinsky:** [swycinsky@charlottelabschool.org](mailto:swycinsky@charlottelabschool.org)