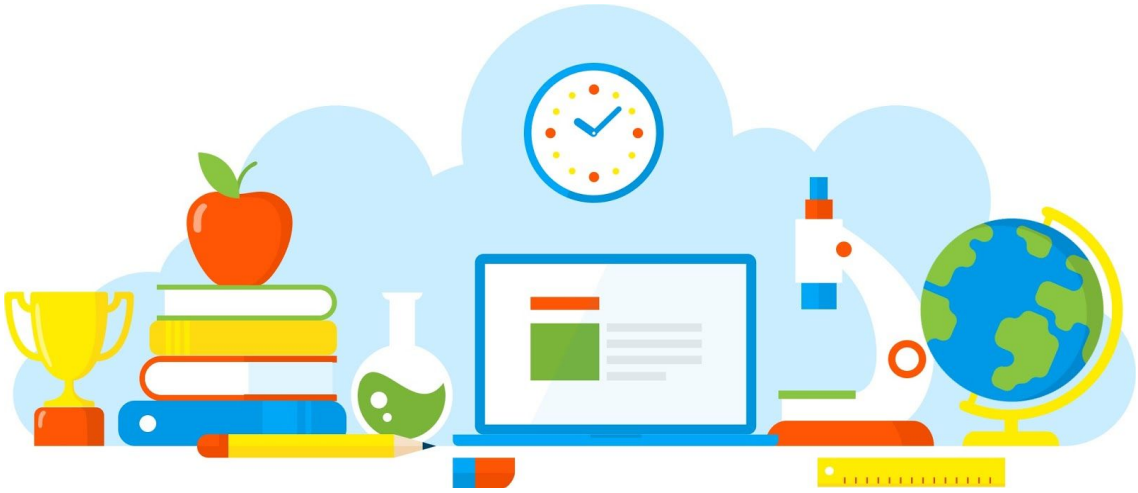

6th Grade Math Course Syllabus

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Conferences are available by appointment.
The best way for parents to reach me is by email.

Course Description:

Hello! My name is Chris LaCroix and I will be your child's math teacher for this year. 6th Grade is a transitional year for mathematics learners. They are moving away from the concrete realm of whole numbers and additive relationships to more abstract thinking and the beginnings of algebraic reasoning. Learning math this year will require thought, questioning, wondering, connecting, and most importantly hard work. In math class students share their ideas and thinking with each other through discussion, group work, reflection, and review. Since students are expected to apply concepts that they learn to new situations, see that problems can be solved in many ways, and make connections between them it is important they understand how a math concept works as well as demonstrate the procedure/strategy for solving it.

Course Content:

In trimester one, 6th graders begin the year by reasoning about different shapes to determine area, surface area, and volume. They begin with finding the areas of quadrilaterals as well as triangles by decomposing, rearranging, or removing pieces in order to relate the shapes to rectangles. Using these methods, students discuss, develop, and justify formulas for areas of triangles and parallelograms followed by the surface area of prisms and pyramids. Later in the trimester students use reasoning about multiplication and division to solve ratio and rate problems about quantities. Students work with concepts such as speed, unit pricing, and percent. Throughout the trimester students expand the scope of problems for which they can use multiplication and division and they connect ratios to fractions.

For the second-trimester students use the meaning of fractions, multiplication, and division, and the relationships between them to understand and explain why the procedures for dividing fractions make sense. Students then extend their understanding of fraction multiplication and division to formalize their understandings of the algorithms for decimal multiplication and division. Students use these operations to solve a variety of real-world problems. Towards the end of the trimester student work focuses on variables, expressions, and equations. Students use variables in expressions to explain mathematical situations and learn that the solutions to an equation are the values of the variable(s) that make the equation true.

During the third-trimester students expand their understanding of number into the realm of rational numbers and how negative whole numbers, fractions, and decimals can be used to make sense of the world around us. Students end the year learning about how statistical analysis works by creating statistical questions, gathering and interpreting data, and looking at different ways that data can be displayed graphically.

Course Expectations:

In middle school mathematics, students are more responsible for their own learning. There will be opportunities provided for every type of learner and enrichment is available for students willing to seek it out and work for it. Students are expected to show up for class every day ready to engage and make the most out of their learning opportunities. Students are expected to interact with one another in ways that build confidence in themselves and others and in ways that help them to understand the content that we are studying. Students are expected to show respect for themselves and the learning community by being where the learning is. Lastly, students are expected to be open to new ideas and to one another.

Homework can be expected weekly and quizzes will occur approximately once every two weeks with lots of small check-ins in between. Tests will be administered at the end of each unit with a minimum of one week's notice given. All quizzes and tests can be retaken by appointment once students review their work.

6th Grade Math Trimester 1 Supporting Document

Geometry: To begin sixth grade, students extend their reasoning about area to include shapes that are not composed of rectangles. Doing this draws on abilities developed in earlier grades to compose and decompose shapes, for example, to see a rectangle as composed of two congruent right triangles. Through activities designed and sequenced to allow students to make sense of problems and persevere in solving them (MP1), students build on these abilities and their knowledge of areas of rectangles to find the areas of polygons by decomposing and rearranging them to make figures whose areas they can determine (MP7). They learn strategies for finding areas of parallelograms and triangles and use regularity in repeated reasoning (MP8) to develop formulas for these areas, using geometric properties to justify the correctness of these formulas. They use these formulas to solve problems. They understand that any polygon can be decomposed into triangles, and use this knowledge to find areas of polygons. Students find the surface areas of 3D shapes with triangular and rectangular surfaces. They study, assemble, and draw nets for polyhedra and use nets to determine surface areas. Throughout, they discuss their mathematical ideas and respond to the ideas of others (MP3, MP6).

Intro to Ratios: In our unit on ratios, students learn that a ratio is an association between two quantities, e.g., “1 teaspoon of drink mix to 2 cups of water.” Students analyze contexts that are often expressed in terms of ratios, such as recipes, mixtures of different paint colors, constant speed (an association of time measurements with distance measurements), and uniform pricing (an association of item amounts with prices).

Unit Rates and Percentages: In our study of unit rates and percentages, students find the two values $\frac{a}{b}$ and $\frac{b}{a}$ that are associated with the ratio *a:b*, and interpret them as rates per 1. For example, if a person walks 13 meters in 10 seconds at a constant rate, that means they walked at a speed of $\frac{13}{10}$ meters per 1 second and a pace of $\frac{10}{13}$ seconds per 1 meter.

Students learn that one of the two values ($\frac{a}{b}$ or $\frac{b}{a}$) may be more useful than the other in reasoning about a given situation. They find and use rates per 1 to solve problems set in contexts (MP2), attending to units and specifying units in their answers. For example, given item amounts and their costs, which is the better deal? Or given distances and times, which object is moving faster? Measurement conversions provide other opportunities to use rates.

Students observe that if two ratios *a:b* and *c:d* are equivalent, then $\frac{a}{b} = \frac{c}{d}$. The values $\frac{a}{b}$ and $\frac{c}{d}$ are called *unit rates* because they can be interpreted in the context from which they arose as rates per unit. Students note that in a table of equivalent ratios, the entries in one column are produced by multiplying a unit rate by the corresponding entries in the other column. Students learn that “percent” means “per 100” and indicates a rate. Just as a unit rate can be interpreted in context as a rate per 1, a percentage can be interpreted in the context from which it arose as a rate per 100. For example, suppose a beverage is made by mixing 1 cup of juice with 9 cups of water. The *percentage* of juice in 20 cups of the beverage is 2 cups and 10 *percent* of the beverage is juice. Interpreting the 10 as a rate: “there are 10 cups of juice per 100 cups of beverage” or, more generally, “there are 10 units of juice per 100 units of beverage.” The percentage—and the rate—indicate equivalent ratios of juice to beverage, e.g., 2 cups to 20 cups and 10 cups to 100 cups.

The standards being covered according to the Common Core are:
(http://www.corestandards.org/Math/Content/6/introduction/)

Alongside these content standards, we choose lessons and tasks that help students to build certain processes and proficiencies which have longstanding importance for all math learners. These are called the Standards for Mathematical Practice, a set of habits which we strive to build within each math learner.

The Eight Standards for Mathematical Practice are:
(standards in bold are assessed each trimester on the report card)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. **Construct viable arguments and critique the reasoning of others.**
4. **Model with mathematics.**
5. Use appropriate tools strategically.
6. **Attend to precision.**
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

In other words, Students will:

- Communicate their understanding of mathematics
- Create and use representations to communicate mathematical ideas to solve problems
- Recognize, explore, and develop mathematical connections
- Use problem-solving strategies to investigate and understand increasingly complex mathematical content
- Use mathematical reasoning and/or proof throughout the study of geometry and algebra
- Apply mathematical concepts and skills to solve problems across the content areas of number operations, algebra, geometry, and probability and statistics
- Demonstrate the skills to work independently
- Demonstrate the skills to work collaboratively
- Organize and evaluate information for its relevance to a question or problem

2019-2020 Grade 6 Humanities Supporting Document Term One

In Term One, students will work toward the following:

- Students build basic geography skills, including learning key vocabulary and how to read different types of maps.
- They learn how geographers represent the world by studying an atlas and learning about the key geographic features in the world.
- Students then integrate this geographic understanding with the concept of human rights.
- They study the Universal Declaration of Human Rights to build a foundation of knowledge about human rights and the quest to create a just society.
- They read *A Life Like Mine* and *If the World Were a Village* to better understand the ways in which human rights are met and not met in different parts of the world.
- They also learn how to read a variety of tables, charts, and graphs, and infographics that help them compare information related to human rights in different parts of the world.

Information Reading, Writing and Research will be taught and assessed through the humanities curriculum. For the first term, our focus will be on information reading including:

Key Ideas and Details:

- Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
- 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.
- Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes).

Craft and Structure:

- Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.
- 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.
- Determine an author's point of view or purpose in a text and explain how it is conveyed in the text.

Integration of Knowledge and Ideas:

- 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.
- Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.
- Compare and contrast one author's presentation of events with that of another (e.g., a memoir written by and a biography on the same person).

2019-2020 North Hampton School Supporting Document Term One ELA Grade 6

The ***Common Core State Standards for English Language Arts*** guides the development and implementation of curriculum in the areas of reading, writing, speaking and listening, and language development. Reading is broken into two parts, the reading of literature and the reading of informational texts. Written expression is broken into three common types: narrative, informational and argumentative. The focus throughout the first trimester will be on the reading of literature and narrative writing. Informational text reading and writing will be taught and assessed in the Humanities curriculum.

Speaking and Listening: Students will engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade-level topics, texts and issues, building on others' ideas and expressing their own clearly. Listening, drawing inferences, and making logical correlations will be integrated into all shared presentations.

Reading and Responding to Literature: During the first trimester, students will participate in curriculum that focuses on several elements of literacy. Students will read a range of materials that include multiple genres and levels of complexity including drama, fictional stories, and independent reading books. We will read the novel *The Lightning Thief* by Rick Riordan as a whole-grade novel, focusing on the hero's journey and elements of Greek Mythology.

Key Ideas and Details

Students will work to effectively:

- Cite textual evidence to support analysis and make inferences
- Determine the theme or central idea of a text and how this is conveyed through particular details
- Describe how a story's plot unfolds in a series of episodes
- Notice how the characters respond or change as the plot moves toward a resolution

Craft and Structure

While reading the text, students will work to:

- Determine the meanings of words and phrases as used in a text
- Analyze how particular sentences or scenes fit into the overall structure and development of the plot
- Explain how authors develop the point of view of the narrator or characters in a text

Integration of Knowledge and Ideas

- Compare and contrast reading a text with viewing a video or movie
- Compare and contrast texts in different genres in terms of their approaches to similar themes or topics

Production and Distribution of Writing

With some guidance from peers and adults, students will produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. They will also develop and strengthen writing by planning, revising, editing, and rewriting. Students should be able to type a minimum of three pages in a single sitting (approximately 45 minutes).

Writing Narrative: Students will write narratives to develop real or imagined experiences using descriptive details and well-structured event sequences.

- Engage/orient reader by establishing a context and introducing characters/narrator. Organize a logical event sequence.
- Use dialogue, pacing, and description, to develop events and characters
- Use a variety of transitions, phrases, and clauses to convey sequence and time/setting shifts
- Use precise words and phrases, descriptive details and sensory language to capture action and convey experiences or events
- Provide a conclusion that follows from the narrated experiences or events

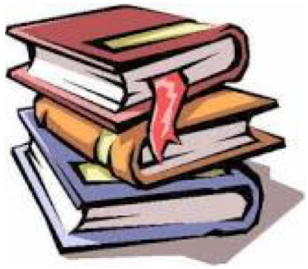
Standards for Language

- Demonstrate command of the conventions of standard English grammar and usage when writing or speaking
- Demonstrate command of the conventions of standard English capitalization, punctuation and spelling
- Acquire and use accurately general academic and domain-specific vocabulary
- Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade level reading and content, choosing flexibly from a range of strategies

Reading Range and Complexity

By end of year, students will read and comprehend literature in the 6-8 text complexity band proficiently. In addition to reading requirements in the ELA Classroom, students are expected to be reading a minimum of 30 minutes each day at home.

6th Grade Language Arts Course Syllabus
North Hampton School
2019-2020



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Language arts class is designed to increase communication skills through reading, writing, the study of the English language and speaking and listening. The primary focus in language arts class will be expanding reading range and level of complexity, mastering different writing styles, learning and applying the standard rules of grammar, exploring new vocabulary, and developing the ability to express oneself effectively through various means of communication that are aligned to the Common Core State Standards. For more information about the Standards go to: http://corestandards.org.

This year students can expect to read a variety of fiction and nonfiction texts including novels, short stories, dramas, poetry, magazine and newspaper articles and essays. Writing assignments will include LA Notebook entries, journal writing, creative narratives, argument essays and written responses to reading. Students will engage with the writing process of prewriting, drafting, revising, editing and presenting final work. Assessed writing assignments will be completed in Google Classroom and will follow the SAU 21 Writing Guidelines. Vocabulary, spelling, and individualized grammar instruction will also be an important part of this class. Study skills will include test prep tips and time-management techniques. Because we are a community of learners, students can expect to occasionally work in cooperative learning groups and to present information to peers both collaboratively as well as individually.

At-home reading of independently selected books is an expected and important component of this class. Students should be reading a minimum of 30 minutes every night! With 180 school days in the 2019-2020 academic year, that's 5,400 minutes or 90 hours of reading that will be completed this year!

TOPICS OF STUDY WE WILL COVER IN ELA THIS YEAR

- Reading: Literary terms, elements of plot, analyzing character and point of view, understanding theme, sensory language, imagery and style, figurative language of poetry, using evidence to support thinking in written responses to literature
- Elements of Narrative Writing: creative narratives, purpose of narratives, audience
- Elements of Argument Writing: purpose of arguments, presenting a case, support claims with relevant evidence, counterclaims, the art of debate
- Effective Communication Skills: listening, speaking, viewing, presenting
- Mechanics, Usage, Grammar: No Red Ink (online grammar and writing program)
- Vocabulary Development: Greek & Latin Root Words, Wordly Wise 3000 (direct academic vocabulary instruction)

See Term One Supporting Document for more information about what students will be learning this term.

CLASSROOM EXPECTATIONS

Students spent the first few days of school establishing guidelines and expectations for their LA classes. Here is an example of what one group came up with:

We, the sixth-grade students of NHS, agree to abide by the following classroom expectations so that we are able to do our best work at all times:

- *We will work quietly and respect the needs of everyone to have a calm work space.*
- *We will limit noise levels, side conversations, and attention seeking behaviors to minimize distractions.*
- *We will maintain a judgement-free zone in* ***and*** *out of class. This includes being respectful of one another and being positive about the work of others.*
- *We will share our ideas with one another and take some risks.*
- *We will be active listeners. We will look at people when they are talking and not focus on anything but what the person is sharing.*
- *We will respect one another and ourselves at all times.*
- *We will choose work spaces that help us focus and concentrate on our work, respecting one another's space and privacy.*
- *We will be confident in our ourselves and work through challenges.*
- *We will help each other and be resources for each other, recognizing that we each have strengths and talents that others could benefit from.*
- *We'll try not to give up on ourselves when things seem hard.*
- *We will work at our own pace without judgment, taking time to create quality work.*
- *We will be positive.*

PROCEDURAL EXPECTATIONS:

- Come to class prepared with all required materials (LA Notebook, independent reading book, keepers binder, laptop and a writing utensil).
- If you are absent, please reach out to me for any missed work. You can do this via e-mail or you can make arrangements to come to school early after an absence to review what was missed.
- Homework is an important part of the LA classroom and will be given on a regular basis. It is intended to support the learning done in the classroom. It is important that your homework is completed fully and on time to allow continuity with class instruction and activities. Use the weekly overview and your agenda book daily. If you are ever confused or stuck, contact me as soon as possible. I'm always here to help!

6th Grade Humanities Syllabus

North Hampton School

2019-2020

Overview:

The sixth grade humanities curriculum is focused on world geography and human rights. The curriculum is built around two important Essential Questions: *What are human rights?* and *Why do they matter?* The work we will do this year is designed to give students the necessary tools in order to think deeply about those questions and to help students understand the rich complexity of geography and the quest for human rights.

An essential feature of learning about the geography content and human rights is the ability to apply literacy skills. Throughout the year, students will apply critical reading, writing, research, and speaking skills in all aspects of their humanities assignments. Students will demonstrate their abilities through individual and group work, discussion, reflection, presentation, performance tasks and assessments.

At the same time that students are gaining these important content knowledge and literacy skills, they are becoming more proficient in “disciplinary thinking” -- how to think like a geographer. This includes working with a variety of maps that communicate different types of geographic information. It includes asking the questions that geographers ponder, such as what affects the movement of people, goods, and ideas between places, and how people both affect and are affected by the physical environment. These skills are key to understanding the content of human rights within the context of geography -- they are also key to understanding *any* geographical content and its relationship to real events. Thus, these are important transferable skills for students who need to participate effectively -- as informed citizens -- in our democracy.

The New Hampshire Curriculum Framework outlines essential topics covered in the 5-8 grade span. Essential topics covered in 6th grade include Geography, Civics and Government and Civic Engagement.

The Common Core State Standards also outline several key skills that students will learn and demonstrate within the context of Humanities. These include skills such as nonfiction reading and writing, non-text literacy (reading charts, graphs, maps, timelines), and research. This link will provide

more specific information about the CCSS as they relate to Humanities: http://www.corestandards.org/ELA-Literacy/RH/6-8/.

In addition to the standards that are outlined by the state of New Hampshire, there are also several essential skills that will be taught, practiced, reinforced and assessed during the course of each term. The New Hampshire Standards for Social Studies outlines these “Essential Skills for Social Studies” as:

- Differentiating past, present and future and change over time
- Detecting cause and effect, distinguishing fact from opinion, recognizing biases
- Evaluating and critiquing varied sources of information and the use of appropriate primary and secondary sources
- Using technology to acquire information
- Creating and testing generalizations and theses
- Expressing clearly and concisely thoughts and ideas supported by evidence
- Calculating effects of decisions and decision making
- Solving individual and group problems

COMPETENCIES:

Geography: Students will demonstrate and apply knowledge of geography and geographic tools in the study of the world around them.

Civics & Government: Students will understand that conflict and cooperation among individual citizens and governments helped shaped the development of civilization.

Civic Engagement: Students will identify the needs of the local, national and international community and create plans and take action to solve problems.

Tips for Parents

- Provide opportunities to learn organizational skills and responsibility at home
- Encourage your child to try new things and take responsible risks
- Help your child persevere through challenges and know it's okay to make mistakes
- Review weekly overviews and agendas with your child
- Stay involved with the school
- Watch for changes in your child's behavior – contact the team if you have any concerns
- Encourage your child to attend school every day unless he/she is sick
- Be accepting of new friendships
- Have any questions or concerns? Feel free to contact us at any time! ☺

How to Contact Your Student's Middle School Team

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Welcome to 6th Grade!!

A Head's Up for 6th Grade

Things you should know about your child's transition into middle school and adolescence.

What to Expect as Your Child Transitions to Middle School

- A team of teachers meets weekly to discuss curriculum and student needs
- Challenging academic expectations with increased emphasis on becoming a more independent learner
- Greater importance on time management and deadlines for assignments
- Academic subjects are integrated whenever possible to highlight real world applications
- More choices for extracurricular activities
- Increased expectations for homework as the year progresses (up to an hour each night on average).

Changes You May See in Your 6th Grader

Adolescents…

- Experience physical and emotional changes related to puberty - may be moody, self-absorbed, and/or sensitive
- Worry more about who is "in" and who is "out" than in fifth grade
- Need lots of time to talk with peers
- Can be impulsive – often talk before thinking
- Often behave differently at home vs. at school
- Can have trouble making decisions
- Test limits and boundaries
- Need adult empathy, humor, and sensitivity to help them cope with the changes they are experiencing
- Are still kids!

What Contributes to Academic Success

- Budgeting time for long range assignments and projects
- Using an organizational system to keep track of assignments.
- Encouraging your child to be an independent problem solver but ask a teacher for help when necessary
- Assisting your child in balancing his/her time between extra curricular activities, friends, and school
- Helping your child to set personal as well as academic goals
- Checking in on your child's organization and preparedness but letting him/her take the lead
- Continuing to provide a quiet study area in the home and set regular time aside for homework
- Helping your child make healthy decisions about the amount of time he/she spends using technology for entertainment

SCIENCE SYLLABUS
for Grade 6

A Science Framework for K-12 Science Education provides the blueprint for developing the *Next Generation Science Standards (NGSS)*, which has now been adopted by the New Hampshire Department of Education. Students in middle school will continue to develop their understanding of concepts from the three main branches of science: **Life Science, Earth & Space Science & Physical Science.** The terms and units of study are broken down as follows:

- Term 1 - **Life Science** - Students will work on formulating an answer to these Key Questions: *"How have natural processes and human activities created the ecosystems we see today?"* and *"Is it possible to create an environment in a bubble where plants and animals can live for a long time?"*
- Term 2 - **Physical Science** - Students will work on formulating an answer to these Key Questions: *"How do we use and control thermal energy in a system?" and "How can containers keep stuff from warming up or cooling down?"*
- Term 3 - **Earth & Space Science** - Students will work on formulating answers to these Key Questions: *"How is the availability of needed natural resources related to naturally occurring processes? How can natural hazards be predicted? How do we know our global climate is changing?"*

The eight practices of science and engineering that the Science Framework identifies as essential for all students to learn are listed below. These eight practices are used throughout grades K-12, although they will look differently at different grade levels. The practices describe behaviors that scientists engage in as they investigate and build models and theories about the natural world and the key set of engineering practices that engineers use as they design and build models and systems.

1. Asking questions (for science) and defining problems (for engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

Science will look different from one day to the next. Different parts of science that you might see in the classroom are: working on a project and sharing results with classmates, conducting experiments and collecting data, reading from a text and taking notes, viewing videos from online science sources and taking notes, reading text and sharing the content with classmates, sharing research in class that was done at home, analyzing data and graphs...

6th Grade Science Trimester 1 Supporting Document

The first trimester of sixth-grade science focuses on Life Science and the disciplinary core idea - LS2: Ecosystems: Interactions, Energy and Dynamics. All classwork during the first trimester builds towards students being able to answer these Key Questions: *"How have natural processes and human activities created the ecosystems we see today?"* and *"Is it possible to create an environment in a bubble where plants and animals can live for a long time?"*

For the first term's culminating project, each group of students will be tasked with using what they learn about how Earth's ecosystems are formed in order to design a "Hunger Games arena" that is like the biosphere they observed as their anchor phenomenon (see: https://docs.google.com/file/d/1nC6GChkW21Y1UgaRgVnlnRxLC8GibTb0/preview); in other words, it mimics or looks like, an ecosystem they might see on Earth. As a group of arena designers, students will decide how its geological structures were made, what natural resources it has, and how its organisms will interact. Towards the end of the trimester, each group will present their arena design to the head game maker (Mr. LaCroix). They will have the option of presenting their arena as a diorama or poster-sized annotated map. Individually, each student will then create a self-guided tour of their group's arena, in the form of a brochure or flyer, so that the head game maker has additional materials to consider as he makes his decision. Students will demonstrate their understanding of the unit's Key Questions through their design, presentation, and self-guided tour.

Students who demonstrate understanding can also:

- **Analyze and interpret data** to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
- **Construct an explanation** that predicts patterns of interactions among organisms across multiple ecosystems.
- **Develop a model** to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.
- **Construct an argument** supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.
- **Evaluate** competing design solutions for maintaining biodiversity and ecosystem functions.

<u>Middle School Engineering Design goal</u>:

The goal for middle school students is to define problems more precisely, to conduct a more thorough process of choosing the best solution, and to optimize the final design.