COURSE TITLE

Myth Busters

LENGTH

One Semester

DEPARTMENT

STEM Department

SCHOOL

Union Middle School

DATE

September 10, 2018

Initial BOE Approval Date (Born on): 4/4/2016

Myth Busters

I.   Introduction/Overview/Philosophy

Ever wondered if double-dipping really spreads germs? Does toast really always land butter-side down? Can you make a glow stick out of Mountain Dew, vinegar, and baking soda as claimed on the Internet? Separating truth from fiction can be tough! In this elective, students will endeavor to find the truth as they investigate claims using research and the scientific method. Students will also analyze and critique the investigative methods of others.

II.   Objectives

Course Outline:
1. Introduction-Scientific Inquiry STEAM
   a. Background Information
   b. Myth vs. Fact
   c. What is a Myth?
   d. Scientific Inquiry Method
   e. Lab Safety
2. Newton's Laws of Motion
   a. Newton's First Law-Inertia
   b. Newton's Second Law-Acceleration
   c. Newton's Third Law-Action-Reaction
   d. Inertia Lab
   e. Newton's Cradle
   f. Action-Reaction Force Lab
   g. Tablecloth Challenge
   h. Working Pinball Machine Project
3. Building a Design
   a. Skyscrapers
   b. Forces
   c. Load
   d. Materials
   e. Shapes
   f. Wind Test
   g. Water Test
   h. Earthquake Test
4. Practice Makes Perfect
   a. Memory
   b. Online Memory Practice Challenges
   c. Design a memory challenge
5. Probability
   a. Probability tests
   b. Online testing

        c. Create unique probability game
6. Reaction Time
        a. Airplane seating challenge
        b. Online testing of reaction time
        c. Peer lesson for reaction time
7. Crime Scene Investigation
        a. Eyewitness Accounts
        b. Blood Splatter Analysis
        c. Fingerprint Analysis
        d. Blood Typing
8. Paper Engineering
        a. Cutting & Folding Techniques
        b. Research Pop-Up Books
        c. Folds for Pop-Ups
        d. Design an Idea for Pop-Up Book
        e. Create an Individual Pop-Up Book
9. Design Your Own Challenge
        a. Brainstorm Ideas and Pitch Own Idea
        b. Research Experiments Done Previously
        c. Research Reason to Test
        d. Design an Experiment Using the Scientific Inquiry Method
        e. Create Lab Sheet
        f. Test Idea with Peers

Student Outcomes:

After successfully completing this course, the student will:
- Be actively involved in constructing and applying scientific ideas and principles.
- Use problem solving as a means as well as a goal to learning.
- Determine myth from fact, and evaluate real-world situations.
- Interact and communicate with other students through the use of group-based projects.
- Use physical objects, drawings, charts, graphs, and symbols to represent science concepts and problem situations.
- Use technology as an integrative tool for learning and researching.

New Jersey Student Learning Standards

CAREER READY PRACTICES
CRP1   Act as a responsible and contributing citizen and employee.
Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.

CRP2   Apply appropriate academic and technical skills.

Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation

CRP4   Communicate clearly and effectively and with reason.

Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.

CRP5. Consider the environmental, social and economic impacts of decisions.

Career-ready individuals understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organization, and the environment. They are aware of and utilize new technologies, understandings, procedures, materials, and regulations affecting the nature of their work as it relates to the impact on the social condition, the environment and the profitability of the organization.

CRP6. Demonstrate creativity and innovation.

Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.

CRP7. Employ valid and reliable research strategies.

Career-ready individuals are discerning in accepting and using new information to make decisions, change practices or inform strategies. They use reliable research process to search for new information. They evaluate the validity of sources when considering the use and adoption of external information or practices in their workplace situation.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.

CRP11.   Use technology to enhance productivity.

Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.

TECHNOLOGY

Standard 8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

Strand A: Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations.

8.1.8.A.4- Use and/or develop a simulation that provides an environment to solve a real world problem or theory.

Strand E: Research and Information Fluency: Students apply digital tools to gather, evaluate, and use information.

8.1.8.E.1- Effectively use a variety of search tools and filters in professional public databases to find information to solve a real world problem.

Standard 8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

Strand A. The Nature of Technology: Creativity and Innovation Technology systems impact every aspect of the world in which we live.

8.2.8.A.2- Examine a system, consider how each part relates to other parts, and discuss a part to redesign to improve the system.

8.2.8.A.3- Investigate a malfunction in any part of a system and identify its impacts.

Strand C. Design: The design process is a systematic approach to solving problems.

8.2.8.C.4- Identify the steps in the design process that would be used to solve a designated problem.

Strand D. Abilities for a Technological World: The designed world is the product of a design process that provides the means to convert resources into products and systems.

8.2.8.D.3- Build a prototype that meets a STEM-based design challenge using science, engineering, and math principles that validate a solution.

21ST CENTURY LIFE AND CAREERS

9.2 Career Awareness, Exploration, and Preparation

Strand B: Career Exploration

9.2.8.B.3 Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.

9.3 Career and Technical Education

Cluster: Science, Technology, Engineering & Mathematics Career Cluster

9.3.ST-ET.1-Use STEM concepts and processes to solve problems involving design and/or production.

9.3.ST-ET.2-Display and communicate STEM information.

9.3.ST-ET.3-Apply processes and concepts for the use of technological tools in STEM.

9.3.ST-ET.4-Apply the elements of the design process.

9.3.ST-ET.5-Apply the knowledge learned in STEM to solve problems.

COMPANION STANDARDS FOR SCIENCE AND TECHNICAL SUBJECTS

RST.6-8.1. Cite specific textual evidence to support analysis of science and technical texts.

RST.6-8.3. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

RST.6-8.4. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 6-8 texts and topics*.

RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

RST.6-8.10. By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

WHST.6-8.6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

WHST.6-8.7. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.

WHST.6-8.8. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.

WHST.6-8.10. Write routinely over extended time frames (time for research, reflection, metacognition/self-correction, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

NEW JERSEY STUDENT LEARNING STANDARDS- SCIENCE & MATH

MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

MS-PS2-1. Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.

MS-PS2-2. Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.

MS-PS2-4. Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.

MS-LS1-8. Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

MS-LS3-1. Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.

MS-LS3-2. Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.

7.RP.A- Analyze proportional relationships and use them to solve real-world and mathematical problems.

7.NS.A- Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

7.G.A- Draw, construct, and describe geometrical figures and describe the relationships between them.

7.G.B- Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

7.SP.C- Investigate chance processes and develop, use, and evaluate probability models.

III.   Proficiency Levels

Myth Busters is a semester elective course appropriate for all grade 7 and 8 students.

IV.   Methods of Assessment

Student Assessment
The teacher will provide a variety of assessments during the course of the year. The assessment may include but is not limited to: journal entries, projects, participation, group work, and other teacher-developed methods of assessment.

Curriculum/Teacher Assessment
The teacher will provide the subject area supervisor with suggestions for changes on an ongoing basis.

V.   Grouping

This is a middle school elective course offered to students in grade 7 and grade 8.

VI.   Articulation/Scope & Sequence/Time Frame

Course length is one semester.

VII.   Resources

Texts/Supplemental Reading/References

Resources include but are not limited to:
1. http://www.mythbusterstheexhibition.com/educators/
2. http://www.discovery.com/tv-shows/mythbusters/about-this-show/mythbusters-about/
3. http://school.discoveryeducation.com/teachers/myth-busters/
4. Online Videos
5. Attached optional activities

VIII. Suggested Activities

Appropriate activities are listed in the curriculum map.

IX.   Methodologies

The following methods of instruction are suggested: lecture, group projects, demonstration, hands-on applications, and class presentations.

X.   Interdisciplinary Connections

The primary focus of this course is to allow students to connect concepts learned in the regular science classroom to activities and situations in the real world. Applications to math, English/language arts, writing, and social studies will be made on a daily basis through a variety of projects and explorations.

XI.   Differentiating Instruction for Students with Special Needs: Students with Disabilities, Students at Risk, English Language Learners, and Gifted & Talented Students

Differentiating instruction is a flexible process that includes the planning and design of instruction, how that instruction is delivered, and how student progress is measured. Teachers recognize that students can learn in multiple ways as they celebrate students' prior knowledge. By providing appropriately challenging learning, teachers can maximize success for all students.

Differentiating in this course includes but is not limited to:

Differentiation for Support (ELL, Special Education, Students at Risk)
- Peer mentoring on problems
- Differentiated teacher feedback on assignments
- Modeling out problems on whiteboard
- Visual aids as we project problems on whiteboard
- Study guides
- Tiered assignments
- Scaffolding of materials and assignments
- Re-teaching and review
- Guided note taking
- Exemplars of varied performance levels
- Multi-media approach to accommodating various learning styles

Differentiation for Enrichment
- Supplemental reading material for independent study
- Flexible grouping
- Tiered assignments
- Topic selection by interest
- Enhanced expectations for independent study
- Elevated questioning techniques using Webb's Depth of Knowledge matrix

XII. Professional Development

The teacher will continue to improve expertise through participation in a variety of professional development opportunities.

XII.   Curriculum Map/Pacing Guide

Unit Topic	Time Allocated	Differentiating Instruction for Students with Disabilities, Students at Risk, English Language Learners, & Gifted & Talented Students	Standards	Assessments
Introduction-Scientific Inquiry STEAM ● Background Information ● Myth vs. Fact ● What is a Myth? ● Scientific Inquiry Method ● Lab Safety	2 weeks	*For Support:* Peer mentoring Differentiated teacher feedback Modeling Use of visual aids and 3-D models Pre-teaching Re-teaching Assistance as needed Multi-media approach Use of prompts Modification of content/product Student pairing *For Enhancement:* Supplemental materials/reading Flexible grouping Independent project Elevated level of project design Elevated questioning techniques Real-world application	MS-ETS1-2 MS-ETS1-3 MS-ETS1-4 CRP1,2,4,6,7,8,11,12 8.1.8.E.1 8.2.8.A.2,3 8.2.8.C.4 8.2.8.D.3 9.2.8.B.3 9.3.ST-ET.1-5 RST.6-8.1,2,4,9,10 WHST.6-8.6,7,8,10	*Formative Assessment:* *Note accuracy and completion *Digital journal writing to assess prior knowledge, student metacognition, self-reflection and complimentary/constructive peer critiques *Self-reflection sheet & "ticket out" to re-cap learning of the day *Project rubric graded by student before final assessment *Discussion quality *Google Form quick check and individual feedback *Summative Assessment:* *Project rubric *Classwork assignments *Digital Journal Entries *Google Form quizzes
Newton's Laws of Motion ● Newton's First Law-Inertia ● Newton's Second Law-Acceleration	4 weeks	*For Support:* Differentiated teacher feedback Modeling Use of visual aids and 3-D models Scaffolding	MS-ETS1-4 MS-PS2-1 MS-PS2-2 CRP1,2,4,6,7,8,11,12 8.1.8.E.1 8.2.8.A.2,3	*Formative Assessment:* *Anecdotal records; progress on project, time on task, mini-lessons needed *Note accuracy and completion *Digital journal writing to assess prior knowledge, student metacognition, self-

Unit Topic	Time Allocated	Differentiating Instruction for Students with Disabilities, Students at Risk, English Language Learners, & Gifted & Talented Students	Standards	Assessments
● Newton's Third Law-Action-Reaction ● Inertia Lab ● Newton's Cradle ● Action-Reaction Force Lab ● Tablecloth Challenge ● Working Pinball Machine Project		materials/assignments Pre-teaching Teacher modeling Assistance as needed Exemplars of varied products Visual & multi-sensory formats Use of prompts Team learning groups *For Enhancement:* Independent project Topic selection by interest Elevated level of project design Elevated questioning techniques Higher-order thinking skills Student-driven learning	8.2.8.C.4 8.2.8.D.3 9.2.8.B.3 9.3.ST-ET.1-5 RST.6-8.1,2,4,9,10 WHST.6-8.6,7,8,10	reflection and complimentary/constructive peer critiques *One-on-one meetings to discuss team work habits, monitor project progress, suggest mini-lessons for areas of need *Self-reflection sheet & "ticket out" to re-cap learning of the day *Project rubric graded by student before final assessment *Summative Assessment:* *Lab reports on Newton's Laws *Research worksheets *Classwork assignments *Prototypes, final models of Pinball Machine *Digital Journal Entries
Building a Design ● Skyscrapers ● Forces ● Load ● Materials ● Shapes ● Wind Test ● Water Test ● Earthquake Test	3 weeks	*For Support:* Modeling Pre-teaching Re-teaching Visual & multi-sensory formats Modification of content/product Student pairing Team learning groups *For Enhancement:* Supplemental materials/reading Independent project Enhanced expectation/product Elevated level of project design Higher-order thinking skills Real-world application	MS-ETS1-4 MS-PS2-4 CRP1,2,4,6,7,8,11,12 8.1.8.E.1 8.2.8.A.2,3 8.2.8.C.4 8.2.8.D.3 9.2.8.B.3 9.3.ST-ET.1-5 RST.6-8.1,2,4,9,10 WHST.6-8.6,7,8,10	*Formative Assessment:* *Note accuracy and completion *Digital journal writing to assess prior knowledge, student metacognition, self-reflection and complimentary/constructive peer critiques *Project rubric graded by student before final assessment *Discussion quality *Brainstorming session quality *Google Form quick check and individual feedback *Google Slide feedback *Summative Assessment:* *Project rubric for wind, water, and earthquake

Unit Topic	Time Allocated	Differentiating Instruction for Students with Disabilities, Students at Risk, English Language Learners, & Gifted & Talented Students	Standards	Assessments
				tests *Classwork assignments *Prototypes, final models *Google Form quizzes *Google Slide Shows , Prezis, iMovies, Posters etc.
Practice Makes Perfect ● Memory ● Online Memory Practice Challenges ● Design a memory challenge	2 weeks	*For Support:* Differentiated teacher feedback Scaffolding materials/assignments Pre-teaching Assistance as needed Multi-media approach Use of prompts *For Enhancement:* Independent project Enhanced expectation/product Elevated questioning techniques Higher-order thinking skills Student-driven learning	MS-ETS1-4 MS-LS1-8 CRP1,2,4,6,7,8,11,12 8.1.8.E.1 8.2.8.A.2,3 8.2.8.C.4 8.2.8.D.3 9.2.8.B.3 9.3.ST-ET.1-5 RST.6-8.1,2,4,9,10 WHST.6-8.6,7,8,10	*Formative Assessment:* *Anecdotal records; progress on project, time on task, mini-lessons needed *One-on-one meetings to discuss team work habits, monitor project progress, suggest mini-lessons for areas of need *Self-reflection sheet & "ticket out" to re-cap learning of the day *Discussion quality *Brainstorming session quality *Google Form quick check and individual feedback *Summative Assessment:* *Memory Challenge project rubric *Research worksheets *Prototypes, final models *Digital Journal Entries *Google Form quizzes
Probability ● Probability tests ● Online testing ● Create unique probability game	1 week	*For Support:* Differentiated teacher feedback Use of visual aids and 3-D models Teacher modeling Assistance as needed	MS-ETS1-4 NJSLS 7.SP NJSLS 7.RP NJSLS 7.NS NJSLS 7.G CRP1,2,4,6,7,8,11,12	*Formative Assessment:* *Anecdotal records; progress on project, time on task, mini-lessons needed *Note accuracy and completion *Digital journal writing to assess prior knowledge, student metacognition, self-

Unit Topic	Time Allocated	Differentiating Instruction for Students with Disabilities, Students at Risk, English Language Learners, & Gifted & Talented Students	Standards	Assessments
		Multi-media approach Use of prompts *For Enhancement:* Supplemental materials/reading Independent project Topic selection by interest Elevated level of project design Elevated questioning techniques	8.1.8.E.1 8.2.8.A.2,3 8.2.8.C.4 8.2.8.D.3 9.2.8.B.3 9.3.ST-ET.1-5 RST.6-8.1,2,4,9,10 WHST.6-8.6,7,8,10	reflection and complimentary/constructive peer critiques *Project rubric graded by student before final assessment *Google Form quick check and individual feedback *Google Slide feedback *Summative Assessment:* *Rubric for Probability Project *Research worksheets *Classwork assignments *Prototypes, final models *Google Slide Shows , Prezis, iMovies, Posters etc.
Reaction Time ● Airplane seating challenge ● Online testing of reaction time ● Peer lesson for reaction time	1 week	*For Support:* Differentiated teacher feedback Scaffolding materials/assignments Pre-teaching Re-teaching Visual & multi-sensory formats Use of prompts Modification of content/product *For Enhancement:* Independent project Enhanced expectation/product Elevated questioning techniques Real-world application	MS-LS3-1 MS-ETS1-4 NJSLS 7.RP NJSLS 7-NS NJSLS 7-.G CRP1,2,4,6,7,8,11,12 8.1.8.E.1 8.2.8.A.2,3 8.2.8.C.4 8.2.8.D.3 9.2.8.B.3 9.3.ST-ET.1-5 RST.6-8.1,2,4,9,10 WHST.6-8.6,7,8,10	*Formative Assessment:* *Note accuracy and completion *Discussion quality *Brainstorming session quality *Google Form quick checkand individual feedback *Summative Assessment* *Classwork assignments *Digital Journal Entries *Google Form quizzes
Crime Scene Investigation	2 weeks	*For Support:*	MS-LS3-1	*Formative Assessment:*

Unit Topic	Time Allocated	Differentiating Instruction for Students with Disabilities, Students at Risk, English Language Learners, & Gifted & Talented Students	Standards	Assessments
● Eyewitness Accounts ● Blood Splatter Analysis ● Fingerprint Analysis ● Blood Typing		Use of visual aids and 3-D models Assistance as needed Visual & multi-sensory formats Use of prompts Modification of content/product Student pairing *For Enhancement:* Supplemental materials/reading Independent project Elevated level of project design Real-world application	MS-LS3-2 MS-ETS1-4 NJSLS 7.RP NJSLS 7.NS NJSLS 7.G CRP1,2,4,6,7,8,11,12 8.1.8.E.1 8.2.8.A.2,3 8.2.8.C.4 8.2.8.D.3 9.2.8.B.3 9.3.ST-ET.1-5 RST.6-8.1,2,4,9,10 WHST.6-8.6,7,8,10	*Anecdotal records; progress on project, time on task, mini-lessons needed *Self-reflection sheet & "ticket out" to re-cap learning of the day *Discussion quality *Brainstorming session quality *Google Form quick check and individual feedback *Summative Assessment* *Lab reports on blood spatter, fingerprinting and blood typing *Research worksheets *Classwork assignments *Google Form quizzes
Paper Engineering ● Cutting & Folding Techniques ● Research Pop-Up Books ● Folds for Pop-Ups ● Design an Idea for Pop-Up Book ● Create an Individual Pop-Up Book	3 weeks	*For Support:* Peer mentoring Use of visual aids and 3-D models Scaffolding materials/assignments Assistance as needed Exemplars of varied products Multi-media approach Student pairing *For Enhancement:* Topic selection by interest Enhanced expectation/product Elevated level of project design	MS-ETS1-4 NJSLS 7.RP NJSLS 7.NS NJSLS 7.G CRP1,2,4,6,7,8,11,12 8.1.8.E.1 8.2.8.A.2,3 8.2.8.C.4 8.2.8.D.3 9.2.8.B.3 9.3.ST-ET.1-5 RST.6-8.1,2,4,9,10 WHST.6-8.6,7,8,10	*Formative Assessment:* *Anecdotal records; progress on project, time on task, mini-lessons needed *Note accuracy and completion *Digital journal writing to assess prior knowledge, student metacognition, self-reflection and complimentary/constructive peer critiques *Project rubric graded by student before final assessment on Pop Up Book *Brainstorming session quality *Summative Assessment* *Project rubric on Pop Up Books *Research worksheets *Classwork assignments *Prototypes, final model of Book

Unit Topic	Time Allocated	Differentiating Instruction for Students with Disabilities, Students at Risk, English Language Learners, & Gifted & Talented Students	Standards	Assessments
		Higher-order thinking skills Student-driven learning		*Digital Journal Entries *Google Form quizzes
Design Your Own Challenge ● Brainstorm Ideas and Pitch Own Idea ● Research Experiments Done Previously ● Research Reason to Test ● Design an Experiment Using the Scientific Inquiry Method ● Create Lab Sheet ● Test Idea with Peers	2 weeks	*For Support:* Differentiated teacher feedback Scaffolding materials/assignments Re-teaching Assistance as needed Exemplars of varied products Multi-media approach Modification of content/product Student pairing *For Enhancement:* Topic selection by interest Enhanced expectation/product Elevated level of project design Elevated questioning techniques	MS-ETS1-2 MS-ETS1-3 MS-ETS1-4 CRP1,2,4,6,7,8,11,12 8.1.8.E.1 8.2.8.A.2,3 8.2.8.C.4 8.2.8.D.3 9.2.8.B.3 9.3.ST-ET.1-5 RST.6-8.1,2,4,9,10 WHST.6-8.6,7,8,10	*Formative Assessment:* *Anecdotal records; progress on project, time on task, mini-lessons needed *Project rubric graded by student before final assessment *Discussion quality *Brainstorming session quality *Google Form quick check and individual feedback *Google Slide feedback *Summative Assessment* *Project rubric *Creation of Lab Sheet *Classwork assignments *Prototypes, final models of Individual Experiment *Digital Journal Entries *Google Slide Shows , Prezis, iMovies, Posters etc.