Washington Township School District

The mission of the Washington Township Public Schools is to provide a safe, positive, and progressive educational environment that provides opportunity for all students to attain the knowledge and skills specified in the NJ Learning Standards at all grade levels, so as to ensure their full participation in an ever-changing world as responsible, self-directed and civic-minded citizens.

Course Title:	Engineering our World

Grade Level(s):	8th Grade

Duration:	*Full Year:*		*Semester:*		*Marking Period:*	X

Course Description:	Engineering our World is a 9-week course designed for 8th grade students. This course is intended to teach students what a technological system is and how these systems are used to solve problems, design and control our modern world. Students will study engineering design systems (CADD) and use these skills to explore construction and prototyping systems (CNC, 3d printing and tool systems) and transportation systems. Exploration of these topics will focus on student centered designs based on engineering design principals and research of current technologies in the fields of study.
Grading Procedures:	Grades are based on 50% Major assessments, 35% minor and 15% supportive
Primary Resources:	Teacher Created Materials, 3D drafting Software and Classroom equipment and tools

Washington Township Principles for Effective Teaching and Learning

- Implementing a standards-based curriculum
- Facilitating a learner-centered environment
- Using academic target language and providing comprehensible instruction
- Adapting and using age-appropriate authentic materials
- Providing performance-based assessment experiences
- Infusing 21st Century skills for College and Career Readiness in a global society

Designed by:	Patrick Goliszewski

Under the Direction of:	Malika Moore

Written: 8/2023

Revised:

Unit Title: 1 – Introduction and Overview

Unit Description: Unit 1 provides an overview of: the course, the grading procedure, and the classroom rules. Emergency procedures in the classroom will be reviewed. The cycle project which will tie all the segments of the unit together. Emphasis is placed on good classroom citizenship, listening skills and how the information and skills presented, as part of this course, will possibly shape the students career path choice

Unit Duration: 2 days

Desired Results

Standard(s): 8.2.8.ED.1-7, 8.2.8.ITH.1-5, 8.2.8.NT.1-4, 8.2.8.ETW.1-4, 8.2.8.EC1-2, 9.2.12.CAP.2-6, 9.3.12.AC.1-7, 9.3.12.AC-CST.1-7 & 9, 9.3.12.AC-DES.1-8, 9.3.12.AR.1,2 &5, 9.3.12.AR-PRF.1, 9.3.12.AR-TEL.3, 9.3.MN.1, 9.3.MN.4, 9.3.MN-HSE.1, 9.3.ST.1, 3-6, 9.3.ST-ET.1-6, 9.3.ST-SM.1,2, 9.4.12.CI.1-3, 9.4.12.CT.1-2

Indicators: Students will be able to appropriately react to classroom emergencies and identify differences in engineering career fields

Understandings:	Essential Questions:
Students will understand that…	1.What outcomes should a student expect from this course?
1. Technology is the application of knowledge and use of resources to solve problems.	2. Why is it important to understand emergency procedures?
2. In an emergency situation following established procedures is the appropriate behavior for the situation.	3. How will the content from this course help me as a lifelong learner?
3. Learning and innovation skills are necessary for an increasingly complex life and work environments in the 21st century.	4. What is technology and how has it changed society?
4. Careers in STEM fields are extremely varied and a growth area.	5. What do STEM careers look like?

Assessment Evidence

Performance Tasks:	Other Evidence:
1. Overarching goals and Grades	Teacher observations
2. Expected behavior and conduct.	Informal checks for understanding
3. Define Technology	Independent reading/student conferences
4. STEM Careers	Independent writing/student conferences
	Class discussions
	Collaboration with others
	Group work
	Classwork
	Teacher-created tests and quizzes
	Teacher-created multimedia project

Benchmarks:
Career Assessment
Emergency Safety Review

Learning Plan

Learning Activities:
1. Goals and Grades
2. Emergency procedures
3. What is Technology Activities
4. Lab tour scavenger hunt
5. STEM career portfolio
Resources:
1.Handouts
2.Teacher made web resources
3. Devices and internet

Unit Modifications for Special Population Students	
Advanced Learners	• Provide ample opportunities for creative behavior. • Create assignments that call for original work, independent learning, critical thinking, problem solving, and experimentation. • Show appreciation for creative efforts • Respect unusual questions, ideas, and solutions. • Encourage students to test their ideas. • Provide opportunities and give credit for self-initiated learning. • Avoid overly detailed supervision and too much reliance on prescribed curricula. • Allow time for reflection. • Resist immediate and constant evaluation. • Avoid comparisons to other students
Struggling Learners	• Assist students in getting organized. • Give short directions. • Use drill exercises. • Give prompt cues during student performance. • Let students with poor writing skills use a computer. • Chunk Assignments • Demonstrate skills and have students model them. • Give prompt feedback. • Use continuous assessment to mark students' daily progress. • Prepare materials at varying levels of ability
English Language Learners	• Use a slow, but natural rate of speech; speak clearly; use shorter sentences; repeat concepts in several ways. • When possible, use pictures, photos, and charts. • Corrections should be limited and appropriate. Do not correct grammar or usage errors in front of the class. • Give honest praise and positive feedback through your voice tones and visual articulation whenever possible. • Encourage students to use language to communicate, allowing them to use their native language to ask/answer questions when they are unable to do so in English. • Integrate students' cultural background into class discussions. • Use cooperative learning where students have opportunities to practice expressing ideas without risking language errors in front of the entire class
Learners with an IEP	Each special education student has an Individualized Educational Plan (IEP) that details the specific accommodations, modifications, services, and support needed to level the playing field. This will enable that student to

	access the curriculum to the greatest extent possible in the least restrictive environment. These include: • Variation of time: adapting the time allotted for learning, task completion, or testing • Variation of input: adapting the way instruction is delivered • Variation of output: adapting how a student can respond to instruction • Variation of size: adapting the number of items the student is expected to complete • Modifying the content, process or product Additional resources are outlined to facilitate appropriate behavior and increase student engagement. The most frequently used modifications and accommodations can be viewed here. Teachers are encouraged to use the Understanding by Design Learning Guidelines (UDL). These guidelines offer a set of concrete suggestions that can be applied to any discipline to ensure that all learners can access and participate in learning opportunities. The framework can be viewed here www.udlguidelines.cast.org
Learners with a 504	Refer to page four in the Parent and Educator Resource Guide to Section 504 to assist in the development of appropriate plans.

Interdisciplinary Connections

Indicators:

Integration of 21st Century Skills

Indicators:

Critical thinking

Communication skills

Creativity

Problem solving

Perseverance

Collaboration

Information literacy

Technology skills and digital literacy

Media literacy

Global awareness

Self-direction

Social skills

Literacy skills

Civic literacy

Social responsibility

Innovation skills

Thinking skills

Unit Title: 2 Safety and Measurement

Unit Description:
This unit provides an overview of: Safety in the classroom, at home and in the workplace, The use of measuring tools and forms of measurement, Introduction to hand tools and power tools

Unit Duration: 10 days

Desired Results

Standard(s): 8.2.8.ED.1-7, 8.2.8.ITH.1-5, 8.2.8.NT.1-4, 8.2.8.ETW.1-4, 8.2.8.EC1-2, 9.2.12.CAP.2-6, 9.3.12.AC.1-7, 9.3.12.AC-CST.1-7 & 9, 9.3.12.AC-DES.1-8, 9.3.12.AR.1,2 &5, 9.3.12.AR-PRF.1, 9.3.12.AR-TEL.3, 9.3.MN.1, 9.3.MN.4, 9.3.MN-HSE.1, 9.3.ST.1, 3-6, 9.3.ST-ET.1-6, 9.3.ST-SM.1,2, 9.4.12.CI.1-3, 9.4.12.CT.1-2

Indicators: Students will pass the safety Quiz with a 100% and be able to accurately measure to 1/16 of an inch

Understandings:	**Essential Questions:**
Students will understand that…	
	What situations can be dangerous and how do I minimize the risk of injury?
They are responsible for their own safety and the safety of those around them while they are using tools in the classroom, at home and in the workplace	
	How do you create objects to uniform or specified sizes?
Measuring tools assist with the design and material processing	
	What can be used to modify materials to meet specific needs?
Hand and power tools assist with manufacturing, construction and modification	

Assessment Evidence

Performance Tasks:	**Other Evidence:**
Students will use proper protective equipment and conduct themselves in a safe and appropriate manner in the classroom and the lab	Teacher observations
Use a ruler to measure	Informal checks for understanding
	Independent reading/student conferences

Draw various straight edges and angles Reduce to the nearest 1/16th of an inch Utilize hand tools in order to manufacture the cycle project(s) Utilize basic computer programs to design the cycle project(s)	Independent writing/student conferences Class discussions Collaboration with others Group work Classwork Teacher-created tests and quizzes Teacher-created multimedia project

Benchmarks:

Students will appropriately apply measuring and safety practices to complete a tool skills project

Learning Plan

Learning Activities:

Demonstration
1.Safety
2.First aid procedures
3.Measurement Techniques
4.Computer sketches
5.Hand tools
6.Power tools
Learning Activity Examples
1. Classroom Measuring
2.Tool Skills Projects

Resources:
Middle school level Safety resources
1. Safety Packet
2. Review Worksheet
3. Safety Quiz
(Paper or Schoology or other web-based platform) Various Measuring devices
1. Rulers (metric and standard)
2. Measuring tapes
3. Tape measures
Assorted hand and power tools as per laboratory and individual project
Wood and materials as available or required

Unit Modifications for Special Population Students	
Advanced Learners	- Provide ample opportunities for creative behavior. - Create assignments that call for original work, independent learning, critical thinking, problem solving, and experimentation. - Show appreciation for creative efforts • Respect unusual questions, ideas, and solutions. - Encourage students to test their ideas. - Provide opportunities and give credit for self-initiated learning. - Avoid overly detailed supervision and too much reliance on prescribed curricula. - Allow time for reflection. - Resist immediate and constant evaluation. Avoid comparisons to other students
Struggling Learners	- Assist students in getting organized. - Give short directions. - Use drill exercises. - Give prompt cues during student performance. - Let students with poor writing skills use a computer. - Chunk Assignments - Demonstrate skills and have students model them. - Give prompt feedback. - Use continuous assessment to mark students' daily progress. Prepare materials at varying levels of ability
English Language Learners	- Use a slow, but natural rate of speech; speak clearly; use shorter sentences; repeat concepts in several ways. - When possible, use pictures, photos, and charts. - Corrections should be limited and appropriate. Do not correct grammar or usage errors in front of the class. - Give honest praise and positive feedback through your voice tones and visual articulation whenever possible. - Encourage students to use language to communicate, allowing them to use their native language to ask/answer questions when they are unable to do so in English. - Integrate students' cultural background into class discussions. Use cooperative learning where students have opportunities to practice expressing ideas without risking language errors in front of the entire class
Learners with an IEP	Each special education student has an Individualized Educational Plan (IEP) that details the specific accommodations, modifications, services, and support needed to level the playing field. This will enable that student to access the curriculum to the greatest extent possible in the least restrictive environment. These include: - Variation of time: adapting the time allotted for learning, task completion, or testing - Variation of input: adapting the way instruction is delivered - Variation of output: adapting how a student can respond to instruction - Variation of size: adapting the number of items the student is expected to complete - Modifying the content, process or product Additional resources are outlined to facilitate appropriate behavior and increase student engagement. The most frequently used modifications and accommodations can be viewed here. Teachers are encouraged to use the Understanding by Design Learning Guidelines (UDL). These guidelines offer a set of concrete suggestions that

	can be applied to any discipline to ensure that all learners can access and participate in learning opportunities. The framework can be viewed here www.udlguidelines.cast.org
Learners with a 504	Refer to page four in the Parent and Educator Resource Guide to Section 504 to assist in the development of appropriate plans.

Interdisciplinary Connections

Indicators:
Students will be making connections to Math (measuring, fractions, decimal conversions), Health (safety), Digital Literacy (computer software) and ELA (design loop paperwork)

Integration of 21st Century Skills

Indicators:

1. Critical thinking
2. Communication skills
3. Creativity
4. Problem solving
5. Perseverance
6. Collaboration
7. Information literacy
8. Technology skills and digital literacy
9. Media literacy
10. Global awareness
11. Self-direction
12. Social skills
13. Literacy skills
14. Civic literacy
15. Social responsibility
16. Innovation skills
17. Thinking skills

Unit Title: 3 Design, The Design Loop and Problem Solving

Unit Description:
This unit introduces the concept of Design in its many forms (i.e. artistic, industrial and engineering) and the Design Process / Problem Solving. Problem solving will be explained through the steps of the design loop. Students will use the elements of design to create an original design of a product and Students will use the design loop to design / engineer a solution to a real-world problem. An emphasis will be placed on the use of CAD software to create design ideas.

Unit Duration: 10 days

Desired Results

Standard(s): 8.2.8.ED.1-7, 8.2.8.ITH.1-5, 8.2.8.NT.1-4, 8.2.8.ETW.1-4, 8.2.8.EC1-2, 9.2.12.CAP.2-6, 9.3.12.AC.1-7, 9.3.12.AC-CST.1-7 & 9, 9.3.12.AC-DES.1-8, 9.3.12.AR.1,2 &5, 9.3.12.AR-PRF.1, 9.3.12.AR-TEL.3, 9.3.MN.1, 9.3.MN.4, 9.3.MN-HSE.1, 9.3.ST.1, 3-6, 9.3.ST-ET.1-6, 9.3.ST-SM.1,2, 9.4.12.CI.1-3, 9.4.12.CT.1-2

Indicators: Students will be able to follow the 7-step design loop to create an original solution to a real-world problem

Understandings:	**Essential Questions:**
Students will understand that…	1. What are the seven steps to the design loop/ problem solving model
The design loop is a guideline/ systematic approach for problem solving and can be used in any circumstance	
	2. What are the 4 elements of design and 7 principles of design?
There are 4 elements of design and 7 principles of design	
	3. How can a computer create a drawing quicker and more accurate than traditional drafting?
CAD software is more accurate and easier to manipulate variables in than traditional paper and pencil drawings	
	4. How does following the design loop aid the design process?

Assessment Evidence

Performance Tasks:	**Other Evidence:**
Learn the seven sequential steps to the design loop to problem solving and use skills such as research, sketching, 3D modeling, and testing to solve problems	Teacher observations
	Informal checks for understanding
	Independent reading/student conferences
	Independent writing/student conferences
Identify how a product's use of line, shape & form, texture, and color was used to create an appealing design	Class discussions
	Collaboration with others
	Group work
Identify the use of the elements; balance, proportion, harmony, contrast, pattern, movement and rhythm in an existing designed work	Classwork
	Teacher-created tests and quizzes
	Teacher-created multimedia project
Use Computer Aided Design (CAD) software to create drawings, 3D models or renderings of an original design	

Benchmarks:
Students will document their design process following the 7-step problem solving model
Students will create an artifact to solve a real-world problem

Learning Plan

Learning Activities:

1. Label the 7 steps to the design process by creating a poster or PowerPoint
2. Apply the elements and principles of design in all possible solutions for design briefs
3. Use CAD software to re-create and create drawings of simple objects
4. Use CAD to create a design of a room within a house or a floor plan of a single-story home
5. Use CAD and the design loop to create a solution to a real-world problem.

Resources:
Computers, projectors and presentation software
Examples of engineered products
Assorted materials- wood, foam core, cardboard, etc.
Various hand and power tools

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Struggling Learners	- Assist students in getting organized. - Give short directions. - Use drill exercises. - Give prompt cues during student performance. - Let students with poor writing skills use a computer. - Chunk Assignments - Demonstrate skills and have students model them. - Give prompt feedback. - Use continuous assessment to mark students' daily progress. Prepare materials at varying levels of ability
English Language Learners	- Use a slow, but natural rate of speech; speak clearly; use shorter sentences; repeat concepts in several ways. - When possible, use pictures, photos, and charts. - Corrections should be limited and appropriate. Do not correct grammar or usage errors in front of the class. - Give honest praise and positive feedback through your voice tones and visual articulation whenever possible. - Encourage students to use language to communicate, allowing them to use their native language to ask/answer questions when they are unable to do so in English. - Integrate students' cultural background into class discussions. Use cooperative learning where students have opportunities to practice expressing ideas without risking language errors in front of the entire class
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Interdisciplinary Connections

Indicators: Students will be making connections to Math (measuring, fractions, decimal conversions), Health (safety), Digital Literacy (computer software) and ELA (design loop paperwork)

Integration of 21st Century Skills

Indicators:

1. Critical thinking
2. Communication skills
3. Creativity
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6. Collaboration
7. Information literacy
8. Technology skills and digital literacy
9. Media literacy
10. Global awareness
11. Self-direction
12. Social skills
13. Literacy skills
14. Civic literacy
15. Social responsibility
16. Innovation skills
17. Thinking skills

Unit Title: 4 Manufacturing and Production Systems
Unit Description: This Unit covers the topic of Manufacturing. The basic operations of a production system will be explained. An emphasis will be placed on how to use power and hand tools to transform a raw material into a finished product. Additionally, the concept of manufacturing products through design and 3D printing will be explored.
Unit Duration: 10 days

Desired Results
Standard(s): 8.2.8.ED.1-7, 8.2.8.ITH.1-5, 8.2.8.NT.1-4, 8.2.8.ETW.1-4, 8.2.8.EC1-2, 9.2.12.CAP.2-6, 9.3.12.AC.1-7, 9.3.12.AC-CST.1-7 & 9, 9.3.12.AC-DES.1-8, 9.3.12.AR.1,2 &5, 9.3.12.AR-PRF.1, 9.3.12.AR-TEL.3, 9.3.MN.1, 9.3.MN.4, 9.3.MN-HSE.1, 9.3.ST.1, 3-6, 9.3.ST-ET.1-6, 9.3.ST-SM.1,2, 9.4.12.CI.1-3, 9.4.12.CT.1-2
Indicators:

Understandings:	**Essential Questions:**
Students will understand that… 1. Materials are processed by marking out, cutting, shaping, joining and finishing the raw materials till the desired final product is created. 2. Hand and power tools assist with manufacturing. 3. A production system starts with a design and ends with the final packaging of a product.	1. What steps are needed to transform a raw material into a finished product? 2. What can be used to modify materials to meet specific needs? 3. What five basic operations are included in a production system used to manufacture products?

Assessment Evidence

Performance Tasks:	**Other Evidence:**
1. Apply the steps marking out, cutting & shaping, joining and finishing to transform any material into a finished product 2. Safely use all the hand and power tools provided to create class projects 3. Identify designing, planning, tooling up, controlling production and packaging & distribution as the five basic operations included in a production system used to manufacture products 4. Observe the fabrication of a part created from a student generated CAD file	Teacher observations Informal checks for understanding Independent reading/student conferences Independent writing/student conferences Class discussions Collaboration with others Group work Classwork Teacher-created tests and quizzes Teacher-created multimedia project

Benchmarks:

Learning Plan

Learning Activities:

1. Using hand and power tools, demonstrate the required steps to process a material such as wood into a finished product. Examples of sample projects include seasonal or household projects, tic tac toe boards or mechanical toys.

2. Students will follow the basic operations of a production system to design, plan, build and possibly package their finished product.

3. After using CAD to design a prototype, students will create a product. Projects will vary.

Resources:
Various hand and power tools, computers, LCD Projector, PowerPoint, Internet, handouts, 3D printer, CAD software, Moodle, Whitebox

Unit Modifications for Special Population Students	
Advanced Learners	- Provide ample opportunities for creative behavior. - Create assignments that call for original work, independent learning, critical thinking, problem solving, and experimentation. - Show appreciation for creative efforts • Respect unusual questions, ideas, and solutions. - Encourage students to test their ideas. - Provide opportunities and give credit for self-initiated learning. - Avoid overly detailed supervision and too much reliance on prescribed curricula. - Allow time for reflection. - Resist immediate and constant evaluation. Avoid comparisons to other students
Struggling Learners	- Assist students in getting organized. - Give short directions. - Use drill exercises. - Give prompt cues during student performance. - Let students with poor writing skills use a computer. - Chunk Assignments - Demonstrate skills and have students model them. - Give prompt feedback. - Use continuous assessment to mark students' daily progress. Prepare materials at varying levels of ability
English Language Learners	- Use a slow, but natural rate of speech; speak clearly; use shorter sentences; repeat concepts in several ways. - When possible, use pictures, photos, and charts. - Corrections should be limited and appropriate. Do not correct grammar or usage errors in front of the class. - Give honest praise and positive feedback through your voice tones and visual articulation whenever possible. - Encourage students to use language to communicate, allowing them to use their native language to ask/answer questions when they are unable to do so in English. - Integrate students' cultural background into class discussions. Use cooperative learning where students have opportunities to practice expressing ideas without risking language errors in front of the entire class
Learners with an IEP	Each special education student has in Individualized Educational Plan (IEP) that details the specific accommodations, modifications, services, and support needed to level the playing field. This will enable that student to access the curriculum to the greatest extent possible in the least restrictive environment. These include: - Variation of time: adapting the time allotted for learning, task completion, or testing - Variation of input: adapting the way instruction is delivered - Variation of output: adapting how a student can respond to instruction - Variation of size: adapting the number of items the student is expected to complete - Modifying the content, process or product Additional resources are outlined to facilitate appropriate behavior and increase student engagement. The most frequently used modifications and accommodations can be viewed here. Teachers are encouraged to use the Understanding by Design Learning Guidelines (UDL). These guidelines offer a set of concrete suggestions that

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Interdisciplinary Connections

Indicators: Students will be making connections to Math (measuring, fractions, decimal conversions), Health (safety), Digital Literacy (computer software) and ELA (design loop paperwork)

Integration of 21st Century Skills

Indicators:

1. Critical thinking
2. Communication skills
3. Creativity
4. Problem solving
5. Perseverance
6. Collaboration
7. Information literacy
8. Technology skills and digital literacy
9. Media literacy
10. Global awareness
11. Self-direction
12. Social skills
13. Literacy skills
14. Civic literacy
15. Social responsibility
16. Innovation skills
17. Thinking skills

Unit Title: 5 Transportation Systems
Unit Description: This unit will cover the topic of transportation. Students will learn the different vehicular and non-vehicular modes of transportation. They will also understand how different subsystems are needed to complete a transportation system. Forces and laws of motion will be discussed to understand how these affect transportation.
Unit Duration: 10 days

Desired Results

Standard(s): 8.2.8.ED.1-7, 8.2.8.ITH.1-5, 8.2.8.NT.1-4, 8.2.8.ETW.1-4, 8.2.8.EC1-2, 9.2.12.CAP.2-6, 9.3.12.AC.1-7, 9.3.12.AC-CST.1-7 & 9, 9.3.12.AC-DES.1-8, 9.3.12.AR.1,2 &5, 9.3.12.AR-PRF.1, 9.3.12.AR-TEL.3, 9.3.MN.1, 9.3.MN.4, 9.3.MN-HSE.1, 9.3.ST.1, 3-6, 9.3.ST-ET.1-6, 9.3.ST-SM.1,2, 9.4.12.CI.1-3, 9.4.12.CT.1-2

Indicators:

Understandings:	**Essential Questions:**
Students will understand that…	1. Transportation can be divided into modes such as
1. Transportation can be divided into modes such as land, water, air, space, on-site or a human-powered vehicle.	as
2.1 Modes of transportation operate with the help of subsystems.	2. land, water, air, space, on-site or a human-powered vehicle.
2 Some transportation systems consist of several coordinated modes and parts.	a. Modes of transportation operate with the help of subsystems.
3. The forces of gravity, lift, thrust and drag need to be considered when constructing a transportation vehicle.	b. Some transportation systems consist of several coordinated modes and parts.
4. They need to consider Newton's Laws of Motion when they are constructing their CO2 dragsters and model rockets.	3. The forces of gravity, lift, thrust and drag need to be considered when constructing a transportation vehicle.
	4. They need to consider Newton's Laws of motion when they are constructing their CO2 dragsters and model rockets.

Assessment Evidence

Performance Tasks:	**Other Evidence:**
1. Identify a mode of transportation as being either land, water, air, space, on-site or a human-powered vehicle.	Teacher observations
2. Recognize the subsystems located in modes of transportation, the systems needed to coordinate transportation and the parts of a transportation system.	Informal checks for understanding
3. Distinguish transportation forces such as gravity, lift, thrust and drag as they relate to a specific mode of transportation.	Independent reading/student conferences
4. Analyze how each of Newton's three laws effect the motion of various modes of transportation	Independent writing/student conferences
	Class discussions
	Collaboration with others
	Group work
	Classwork
	Teacher-created tests and quizzes
	Teacher-created multimedia project

Benchmarks:

Learning Plan

Learning Activities:
1. After identifying the transportation modes, systems, forces and Newton's laws, students will use hand and power tools to construct a CO_2 powered dragster.
2. After identifying the transportation modes, systems, forces and Newton's laws, students will work collaboratively to construct a single-stage model rocket

Resources:

Unit Modifications for Special Population Students

Advanced Learners	- Provide ample opportunities for creative behavior. - Create assignments that call for original work, independent learning, critical thinking, problem solving, and experimentation. - Show appreciation for creative efforts • Respect unusual questions, ideas, and solutions. - Encourage students to test their ideas. - Provide opportunities and give credit for self-initiated learning. - Avoid overly detailed supervision and too much reliance on prescribed curricula. - Allow time for reflection. - Resist immediate and constant evaluation. Avoid comparisons to other students
Struggling Learners	- Assist students in getting organized. - Give short directions. - Use drill exercises. - Give prompt cues during student performance. - Let students with poor writing skills use a computer. - Chunk Assignments - Demonstrate skills and have students model them. - Give prompt feedback. - Use continuous assessment to mark students' daily progress. Prepare materials at varying levels of ability
English Language Learners	- Use a slow, but natural rate of speech; speak clearly; use shorter sentences; repeat concepts in several ways. - When possible, use pictures, photos, and charts. - Corrections should be limited and appropriate. Do not correct grammar or usage errors in front of the class. - Give honest praise and positive feedback through your voice tones and visual articulation whenever possible. - Encourage students to use language to communicate, allowing them to use their native language to ask/answer questions when they are unable to do so in English. - Integrate students' cultural background into class discussions. Use cooperative learning where students have opportunities to practice expressing ideas without risking language errors in front of the entire class
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Learners with a 504	Refer to page four in the Parent and Educator Resource Guide to Section 504 to assist in the development of appropriate plans.

Interdisciplinary Connections

Indicators: Students will be making connections to Math (measuring, fractions, decimal conversions), Health (safety), Digital Literacy (computer software) and ELA (design loop paperwork)

Integration of 21ˢᵗ Century Skills

Indicators:

1. Critical thinking
2. Communication skills
3. Creativity
4. Problem solving
5. Perseverance
6. Collaboration
7. Information literacy
8. Technology skills and digital literacy
9. Media literacy
10. Global awareness
11. Self-direction
12. Social skills
13. Literacy skills
14. Civic literacy
15. Social responsibility
16. Innovation skills
17. Thinking skills