Committed to Excellence

Course Name: STEM Seminar	Grade Level(s): 9
Department: Science	Credits: 2.5
BOE Adoption Date: October 20, 2016	Revision Date(s): October 2019

ABSTRACT

This course prepares STEM academy students for the coursework ahead with a focus on real-world application. Topics include career exploration in Science, Technology, Engineering and Mathematics as well as service learning.   Students will be introduced to service learning in this course, which they will complete every year from the onset. By the end of the course, students will have a better idea which areas reflect their interests and talents, and they will have the tools to succeed in their chosen STEM courses. This course is appropriate for any student who has an interest in, aptitude for, or curiosity about STEM majors.

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Mission Statement

The Kingsway Regional School District believes that this school district is responsible for developing and maintaining a comprehensive educational program that will foster the academic, social, and personal growth of all students. The Kingsway Regional School District provides a secure, supportive environment. It also provides high quality resources to challenge and empower each individual to pursue his/her potential, to develop a passion for learning in a diverse and challenging world, to encourage active citizenship, and to reach a high standard of achievement at all grade levels as defined by the New Jersey Student Learning Standards (NJSLS).

Curriculum & Instruction Goals

To ensure the District continues to work toward its mission of excellence in G.R.E.A.T. Instruction, the following curriculum and instruction goals direct the conversation:

Goal(s):
1. To ensure students are college and career ready upon graduation

2. To vertically and horizontally align curriculum K-12 to ensure successful transition of students at each grade level

3. To identify individual student strengths and weaknesses utilizing various assessment measures (formative, summative, alternative, etc.) so as to differentiate instruction while meeting the rigor of the applicable content standards

4. To improve student achievement as assessed through multiple measures including, but not limited to, state testing, local assessments, and ongoing progress monitoring

How to Read this Document

This curricular document contains both *pacing guides* and *curriculum units*. The pacing guides serve to communicate an estimated timeframe as to *when* skills and topics will be taught throughout the year. The pacing, however, may differ slightly depending upon the unique needs of each learner. The *curriculum units* contain more detailed information as to the content, goals, and objectives of the course well as how students will be assessed. The terms and definitions below will assist the reader to better understand the sections and components of this curriculum document.

Terms to Know

1. **Accommodation(s):** *Accommodations* are adaptations that do not alter the learning goal or standards being measured; accommodations can be for all students.

2. **Differentiated Instruction (DI):** The idea of differentiating instruction to accommodate the different ways that students learn involves a hefty dose of common sense, as well as sturdy support in the theory and research of education (Tomlinson & Allan, 2000). It is an approach to teaching that advocates active planning for student differences in classrooms. Teachers can differentiate content, process, product, or environment. DI can be done according to students' readiness, interest, or learning profile.

3. **Enduring Understanding:** Enduring understandings (aka big ideas) are statements of understanding that articulate deep conceptual understandings at the heart of each content area. Enduring understandings are noted in the alongside essential questions within each unit in this document.

4. **Essential Question:** These are questions whose purpose is to stimulate thought, to provoke inquiry, and to spark more questions. They extend beyond a single lesson or unit. Essential questions are noted in the beginning of each unit in this document.

5. **Formative Assessments:** Formative assessments monitor student learning to provide ongoing feedback that can be used by (1) instructors to improve teaching and (2) by students to improve their learning. Formative assessments help identify students' strengths and weaknesses and address problems immediately.

6. **Learning Activity(s):** Learning activities are those activities that take place in the classroom for which the teacher facilitates and the students participate in to ensure active engagement in the learning process. (Robert J. Marzano, *The Art and Science of Teaching*)

7. **Learning Assignment(s):** Learning assignments are those activities that take place independently by the student inside the classroom or outside the classroom (i.e. homework) to extend concepts and skills within a lesson.

8. **Learning Goal(s):** Learning goals are broad statements that note what students "should know" and/or "be able to do" as they progress through a unit. Learning goals correlate specifically to the NJSLS noted within each unit.

9. **Learning Objective(s):** Learning objectives are more specific skills and concepts that students must achieve as they progress towards the broader learning goal. These are included within each unit and are assessed frequently by the teacher to ensure students are progressing appropriately.

10. **Modification(s):** *Modifications* are adaptations that alter the learning goals and grade-level standards. Modifications are warranted when the learner has significant needs that impede his or her ability to access grade-level concepts. They are most appropriate for appropriate some students with IEPs and some English Language Learners.

11. **Performance Assessments: (**aka alternative or authentic assessments) Performance assessments are a form of assessment that requires

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students to perform tasks that generate a more authentic evaluation of a student's knowledge, skills, and abilities. Performance assessments stress the application of knowledge and extend beyond traditional assessments (i.e. multiple-choice question, matching, true & false, etc.).

12. **Standards:** Academic standards, from which the curriculum is built, are statements that of what students "should know" or "be able to do" upon completion of a grade-level or course of study. Educational standards help teachers ensure their students have the skills and knowledge they need to be successful by providing clear goals for student learning.

   o **State:** The New Jersey Student Learning Standards (NJSLSs) include Preschool Teaching and Learning Standards as well as K-12 standards for: *Visual and Performing Arts; Comprehensive Health and Physical Education; Science; Social Studies; World Languages; Technology; 21st-Century Life and Careers; Language Arts Literacy; and, Mathematics*

13. **Summative Assessments:** Summative assessments evaluate student learning at the end of an instructional time period by comparing it against some standard or benchmark. Information from summative assessments can be used formatively when students or faculty use it to guide their efforts and activities in subsequent courses.

14. **21st Century Skills & Themes:** These elements emphasize the growing need to focus on skills that prepare students to successfully compete in a global environment by focusing on the following: learning and innovation skills; information, media and technology skills; and life and career skills. These concepts are embedded in each unit of the curriculum.

Proficiencies and Pacing Guide:

Course Title: STEM Seminar
Prerequisite(s): N/A

Unit Title:	Duration/ Month(s)	Related Standards:	Learning Goals:	Topics and Skills:
Unit 1: Service Learning	2 weeks	9.2.12.C.1 9.2.12.C.2 9.2.12.C.3 9.2.12.C.4 9.2.12.C.5 9.2.12.C.6 9.2.12.C.7 9.2.12.C.8 9.2.12.C.9 CRP1-12	1. Students will learn what service learning is and will then plan and execute a project which encompasses civic duty and STEM content knowledge. After the project, they will reflect upon the effectiveness and implementation of the project. (2 weeks)	1. Students will recognize that they can have an impact in the world; whether this impact is positive or negative is a choice they make. 2. Students will learn project planning and communication skills
Unit 2: Science	4 weeks	9.2.12.C.1 9.2.12.C.2 9.2.12.C.3 9.2.12.C.4 9.2.12.C.5 9.2.12.C.6 9.2.12.C.7 9.2.12.C.8 9.2.12.C.9 9.3.ST-SM.4 CRP1-12	1. Students will be able to distinguish between specific careers in the science field. 2. Students will be able to demonstrate their understandings of careers in the science field through various activities 3. Students will be able to determine a science field that most relates to their interests and investigate deeper.	1. Identify a career in the science field 2. Explore colleges that specialize in science based careers 3. Determine how many years of schooling is required for a specific career 4. Calculate the cost of acquiring a specific degree(s) 5. Research the average base salaries and projected job growth/decline of specific careers in the sciences 6. Present to classmates what a day in the life of a person in a specific job field is like 7. Explore possible service learning projects associated with the sciences 8. Build a resume that would

Unit Title:	Duration/ Month(s)	Related Standards:	Learning Goals:	Topics and Skills:
				appeal to the job market for the sciences.
Unit 3: Technology	4 weeks	9.2.12.C.1 9.2.12.C.2 9.2.12.C.3 9.2.12.C.4 9.2.12.C.5 9.2.12.C.6 9.2.12.C.7 9.2.12.C.8 9.2.12.C.9 9.3.ST-SM.4 CRP1-12	1. Students will be able to distinguish between specific careers in the technology field. 2. Students will be able to demonstrate their understandings of careers in the technology field through various activities 3. Students will be able to determine a technology field that most relates to their interests and investigate deeper.	1. Identify a career in the technology field 2. Explore colleges that specialize in technology based careers 3. Determine how many years of schooling is required for a specific career 4. Calculate the cost of acquiring a specific degree(s) 5. Research the average base salaries and projected job growth/decline of specific careers in the technology 6. Present to classmates what a day in the life of a person in a specific job field is like 7. Explore possible service learning projects associated with the technology 8. Build a resume that would appeal to the job market for technology
Unit 4: Engineering	4 weeks	9.2.12.C.1 9.2.12.C.2 9.2.12.C.3 9.2.12.C.4 9.2.12.C.5 9.2.12.C.6 9.2.12.C.7 9.2.12.C.8 9.2.12.C.9 9.3.ST-SM.4	1. Students will be able to distinguish between specific careers in the engineering field. 2. Students will be able to demonstrate their understandings of careers in the engineering field through various activities 3. Students will be able to determine a engineering field that most relates to their interests and	1. Identify a career in the engineering field 2. Explore colleges that specialize in engineering careers 3. Determine how many years of schooling is required for a specific career 4. Calculate the cost of acquiring a specific degree(s) 5. Research the average base

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Unit Title:	Duration/ Month(s)	Related Standards:	Learning Goals:	Topics and Skills:
		CRP1-12	investigate deeper.	salaries and projected job growth/decline of specific careers in engineering 6. Present to classmates what a day in the life of a person in a specific job field is like 7. Explore possible service learning projects associated with engineering 8. Build a resume that would appeal to the job market for engineering.
Unit 5: Math	4 weeks	9.2.12.C.1 9.2.12.C.2 9.2.12.C.3 9.2.12.C.4 9.2.12.C.5 9.2.12.C.6 9.2.12.C.7 9.2.12.C.8 9.2.12.C.9 9.3.ST-SM.4 CRP1-12	1. Students will be able to distinguish between specific careers in the math field. 2. Students will be able to demonstrate their understandings of careers in the math field through various activities 3. Students will be able to determine a math field that most relates to their interests and investigate deeper.	1. Identify a career in the math field 2. Explore colleges that specialize in math based careers 3. Determine how many years of schooling is required for a specific career 4. Calculate the cost of acquiring a specific degree(s) 5. Research the average base salaries and projected job growth/decline of specific careers in the sciences 6. Present to classmates what a day in the life of a person in a specific job field is like 7. Explore possible service learning projects associated with math 8. Build a resume that would appeal to the job market for math.

Unit 1: Service Learning	Recommended Duration: 4 weeks
Unit Description: During this unit, students will learn about service learning: the purpose, the meaning, and the understanding of how service learning not only creates better connections to the community, but also how service learning provides meaningful interactions between members of the community.	

Essential Questions:	Enduring Understandings:
Why is service learning important to students and society?	Service learning is important to students and society because it enhances student learning by applying STEM concepts in a way that is beneficial to the local or global community.

Relevant Standards:	Learning Goals:	Learning Objectives:
9.2.12.C.1 9.2.12.C.2 9.2.12.C.3 9.2.12.C.4 9.2.12.C.5 9.2.12.C.6 9.2.12.C.7 9.2.12.C.8 9.2.12.C.9	1. Students will learn what service learning is and will then plan and execute a project which encompasses civic duty and STEM content knowledge. After the project, they will reflect upon the effectiveness and implementation of the project.	2. Students will recognize that they can have an impact in the world; whether this impact is positive or negative is a choice they make. 3. Students will learn project planning and communication skills throughout all units in the year.

Formative Assessments	Summative Assessments:	Performance Assessments:	Major Activities/ Assignments (required):
Presentations White board responses Surveys/quizzes Questioning/Discussions (Q&A) Debates Graphic Organizers (Venn diagram) of relationships Think/Pair/Share Homework Reflections	Build Portfolio Career Investigations Projects: Marble run, pom-pom Launcher, virus, brown bags, Magic sand, purify water, Service Learning projects	Writing Tasks Build Resume	Graphic organizers Service Learning Project

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Possible Assessment Modifications /Accommodations/ Differentiation:
Clarification on questions Fewer multiple choice More specific concrete questions Extended time when needed Chunking questions/choices Formatting (Enlarge font/increase spacing/make font bold for emphasis) Eliminating distractors

Instructional Strategies (*Robert Marzano's* 41 Elements):
• Review of syllabus and reinforcement of classroom rules • Student interest survey • Graphic organizers • Pre-tests (for DI grouping) • Service Learning • Chunking • Scaffolding • Research • Student self-evaluation • SMART lunch invitations for reinforcement, revisions and remediation • Friendly controversy- examining errors in reasoning (whiteboard battles) • Direct Instruction • Homework • Note-taking • Investigation

Possible Instructional Modifications /Accommodations/Differentiation:
Monitor and check for understanding Provide individualized instruction when needed Cueing strategies to promote on task behavior Provide organizational support as needed Clarify and repeat directions as needed Provide preferential seating when needed Small group and/or individual instruction provided when needed.

Unit Vocabulary:
Essential: service learning, reflection, civic duty, community, collaboration, understanding
Non-Essential:

Interdisciplinary Connections (Applicable Standards):	Integration of Technology:	21st Century Themes:	21st Century Skills:

E/LA:
 	
Mathematics:
  9.3.ST-SM.3
Technology:
  9.3.ST.4
  9.3.ST.5
  9.3.ST.6
21st Century Life and Careers:
  9.1.12.A.6
  9.1.12.A.7
  CRP 1-12
	Google Docs
	Google Classroom
	Chrome books
	Teacher websites with resources
		__x__ Global Awareness
		__x__ Civic Literacy
		__x__ Financial, Economic, Business, & Entrepreneurial Literacy
		____ Health Literacy
			__x__ Creativity & Innovation
			__x__ Media Literacy
			__x__ Critical Thinking and Problem Solving
			__x__ Life and Career Skills
			__x__ Information & Communication Technologies Literacy
			__x__ Communication & Collaboration
			____ Information Literacy

Resources:
Texts/Materials: NONE Leveled Reading-

Unit 2: Science	Recommended Duration: 4 weeks

Unit Description: During this unit, students will explore careers in the sciences (excluding technology, engineering, and math). This will include medical, biological, veterinary, social, behavioral, earth, and space sciences. They will explore colleges, majors, and skills, and job opportunities associated with this portion of STEM.

Essential Questions:	Enduring Understandings:
How could a career in science have an impact in society? How could a career in science impact a student's life?	A career in science would impact society in a socio, cultural and economic aspect of life A career in science would impact a student's life in a variety of ways including salary, job security and enjoyment, lifestyle, and educational experiences.

Relevant Standards:	Learning Goals:	Learning Objectives:
9.2.12.C.1 9.2.12.C.2 9.2.12.C.3 9.2.12.C.4 9.2.12.C.5 9.2.12.C.6 9.2.12.C.7 9.2.12.C.8 9.2.12.C.9	1. Students will be able to distinguish between specific careers in the science field. 2. Students will be able to demonstrate their understandings of careers in the science field through various activities 3. Students will be able to determine a science field that most relates to their interests and investigate deeper.	1. Identify a career in the science field 2. Explore colleges that specialize in science based careers 3. Determine how many years of schooling is required for a specific career 4. Calculate the cost of acquiring a specific degree(s) 5. Research the average base salaries and projected job growth/decline of specific careers in the sciences 6. Present to classmates what a day in the life of a person in a specific job field is like 7. Explore possible service learning projects associated with the sciences 8. Build a resume that would appeal to the job market for the sciences.

Formative Assessments	Summative Assessments:	Performance Assessments:	Major Activities/ Assignments (required):
Presentations White board responses Surveys/quizzes Questioning/Discussions (Q &A, A&Q) Debates Graphic Organizers (Venn diagram) of relationships Think/Pair/Share Homework	Build Portfolio Career Investigations	Writing Tasks Build Resume	Graphic organizers Service Learning Project

Possible Assessment Modifications /Accommodations/ Differentiation:

Clarification on questions
Fewer multiple choice
More specific concrete questions
Extended time when needed
Chunking questions/choices
Formatting (Enlarge font/increase spacing/make font bold for emphasis)
Eliminating distractors

Instructional Strategies (*Robert Marzano's* 41 Elements):

- Review of syllabus and reinforcement of classroom rules
- Student interest survey
- Graphic organizers
- Pre-tests (for DI grouping)
- Service Learning
- Chunking
- Scaffolding
- Research
- Student self-evaluation
- SMART lunch invitations for reinforcement, revisions and remediation
- Friendly controversy- examining errors in reasoning (whiteboard battles)
- Direct Instruction

Instructional Strategies (*Robert Marzano's* 41 Elements):

- Homework
- Note-taking
- Investigation

Possible Instructional Modifications /Accommodations/Differentiation:

Monitor and check for understanding
Provide individualized instruction when needed
Cueing strategies to promote on task behavior
Provide organizational support as needed
Clarify and repeat directions as needed
Provide preferential seating when needed
Small group and/or individual instruction provided when needed.

Unit Vocabulary:

Essential: social sciences, behavioral sciences, biological sciences, resume, consumer, college credit, degree, salary, job growth, healthcare
Non-Essential: performance, scholarship, laboratory, research

Interdisciplinary Connections (Applicable Standards):	Integration of Technology:	21st Century Themes:	21st Century Skills:

E/LA:
Mathematics:
   9.3.ST-SM.3
Technology:
   9.3.ST.4
   9.3.ST.5
   9.3.ST.6
21st Century Life and Careers:
   9.1.12.A.6
   9.1.12.A.7
   CRP 1-12
	Google Docs
	
	Google Classroom
	
	Chrome books
	
	Teacher websites with resources
		__x__ Global Awareness
		__x__ Civic Literacy
		__x__ Financial, Economic, Business, & Entrepreneurial Literacy
			__x__ Creativity & Innovation
			__x__ Media Literacy
			__x__ Critical Thinking and Problem Solving
			__x__ Life and Career Skills
			__x__ Information & Communication Technologies Literacy
			__x__ Communication & Collaboration

Resources:
Texts/Materials: NONE
Leveled Reading-

Unit 3: Technology	Recommended Duration: 4 weeks
Unit Description: During this unit, students will explore careers in technology (excluding engineering). This will include careers such as computer science, programming, photonics, architecture. They will explore colleges, majors, and skills, and job opportunities associated with this portion of STEM.	

Essential Questions:	Enduring Understandings:
How could a career in technology have an impact in society? How could a career in technology impact a student's life?	A career in technology would impact society in a socio, cultural and economic aspect of life A career in technology would impact a student's life in a variety of ways including salary, job security and enjoyment, lifestyle, and educational experiences.

Relevant Standards:	Learning Goals:	Learning Objectives:
9.2.12.C.1 9.2.12.C.2 9.2.12.C.3 9.2.12.C.4 9.2.12.C.5 9.2.12.C.6 9.2.12.C.7 9.2.12.C.8 9.2.12.C.9	1. Students will be able to distinguish between specific careers in the technology field. 2. Students will be able to demonstrate their understandings of careers in the technology field through various activities 3. Students will be able to determine a technology field that most relates to their interests and investigate deeper.	1. Identify a career in the technology field 2. Explore colleges that specialize in technology based careers 3. Determine how many years of schooling is required for a specific career 4. Calculate the cost of acquiring a specific degree(s) 5. Research the average base salaries and projected job growth/decline of specific careers in the technology 6. Present to classmates what a day in the life of a person in a specific job field is like 7. Explore possible service learning projects associated with the technology 8. Build a resume that would appeal to the job market for technology

Formative Assessments	Summative Assessments:	Performance Assessments:	Major Activities/ Assignments (required):
Presentations White board responses Surveys/quizzes Questioning/Discussions (Q &A,	Build Portfolio Career Investigations Projects: create an app, coding	Writing Tasks Build Resume	Graphic organizers Service Learning Project

Formative Assessments	Summative Assessments:	Performance Assessments:	Major Activities/ Assignments (required):
A&Q) Debates Graphic Organizers (Venn diagram) of relationships Think/Pair/Share Homework Reflections			

Possible Assessment Modifications /Accommodations/ Differentiation:

Clarification on questions
Fewer multiple choice
More specific concrete questions
Extended time when needed
Chunking questions/choices
Formatting (Enlarge font/increase spacing/make font bold for emphasis)
Eliminating distractors

Instructional Strategies (*Robert Marzano's* 41 Elements):

- Review of syllabus and reinforcement of classroom rules
- Student interest survey
- Graphic organizers
- Pre-tests (for DI grouping)
- Checks for understanding
- Chunking
- Scaffolding
- Research
- Student self-evaluation
- SMART lunch invitations for reinforcement, revisions and remediation
- Friendly controversy- examining errors in reasoning (whiteboard battles)
- Direct Instruction
- Homework
- Note-taking
- Investigation

Possible Instructional Modifications /Accommodations/Differentiation:
Monitor and check for understanding
Provide individualized instruction when needed
Cueing strategies to promote on task behavior
Provide organizational support as needed
Clarify and repeat directions as needed
Provide preferential seating when needed
Small group and/or individual instruction provided when needed

Unit Vocabulary:
Essential: computers, software, processing, communication, programming, coding
Non-Essential: servers, internet, connection

Interdisciplinary Connections (Applicable Standards):	**Integration of Technology:**	**21st Century Themes:**	**21st Century Skills:**

E/LA:
Mathematics:
  9.3.ST-SM.3
Technology:
  9.3.ST.4
  9.3.ST.5
  9.3.ST.6
21st Century Life and Careers:
  9.1.12.A.6
  9.1.12.A.7
  CRP 1-12
	Google Docs
	Google Classroom
	Chrome books
	Teacher websites with resources
		__x__ Global Awareness
		__x__ Civic Literacy
		__x__ Financial, Economic, Business, & Entrepreneurial Literacy
			__x__ Creativity & Innovation
			__x__ Media Literacy
			__x__ Critical Thinking and Problem Solving
			__x__ Life and Career Skills
			__x__ Information & Communication Technologies Literacy
			__x__ Communication & Collaboration

Resources:
Texts/Materials: NONE
Leveled Reading-

Unit 4: Engineering	Recommended Duration: 4 weeks
Unit Description: During this unit, students will explore careers in engineering. This will include the various types of engineering such as civil, biomedical, mechanical, and electrical. They will explore colleges, majors, skills, and job opportunities associated with this portion of STEM.	

Essential Questions:	Enduring Understandings:
How could a career in engineering have an impact in society? How could a career in engineering impact a student's life?	A career in engineering would impact society in a socio, cultural and economic aspect of life A career in engineering would impact a student's life in a variety of ways including salary, job security and enjoyment, lifestyle, and educational experiences.

Relevant Standards:	Learning Goals:	Learning Objectives:
9.2.12.C.1 9.2.12.C.2 9.2.12.C.3 9.2.12.C.4 9.2.12.C.5 9.2.12.C.6 9.2.12.C.7 9.2.12.C.8 9.2.12.C.9	1. Students will be able to distinguish between specific careers in the engineering field. 2. Students will be able to demonstrate their understandings of careers in the engineering field through various activities 3. Students will be able to determine a engineering field that most relates to their interests and investigate deeper.	1. Identify a career in the engineering field 2. Explore colleges that specialize in engineering based careers 3. Determine how many years of schooling is required for a specific career 4. Calculate the cost of acquiring a specific degree(s) 5. Research the average base salaries and projected job growth/decline of specific careers in engineering 6. Present to classmates what a day in the life of a person in a specific job field is like 7. Explore possible service learning projects associated with engineering 8. Build a resume that would appeal to the job market for engineering.

Formative Assessments	Summative Assessments:	Performance Assessments:	Major Activities/ Assignments (required):
Presentations White board responses Surveys/quizzes Questioning/Discussions (Q &A,	Build Portfolio Career Investigations Projects: : build a bridge, reverse Engineer a camera, build	Writing Tasks Build Resume	Graphic organizers Service Learning Project

Formative Assessments	Summative Assessments:	Performance Assessments:	Major Activities/ Assignments (required):
A&Q) Debates Graphic Organizers (Venn diagram) of relationships Think/Pair/Share Homework Reflection	structures		

Possible Assessment Modifications /Accommodations/ Differentiation:

Clarification on questions
Fewer multiple choice
More specific concrete questions
Extended time when needed
Chunking questions/choices
Formatting (Enlarge font/increase spacing/make font bold for emphasis)
Eliminating distractors

Instructional Strategies (*Robert Marzano's* 41 Elements):

- Review of syllabus and reinforcement of classroom rules
- Student interest survey
- Graphic organizers
- Pre-tests (for DI grouping)
- Checks for understanding
- Chunking
- Scaffolding
- Research
- Student self-evaluation
- SMART lunch invitations for reinforcement, revisions and remediation
- Friendly controversy- examining errors in reasoning (whiteboard battles)
- Direct Instruction
- Homework
- Note-taking
- Investigation

Possible Instructional Modifications /Accommodations/Differentiation:
Monitor and check for understanding
Provide individualized instruction when needed
Cueing strategies to promote on task behavior
Provide organizational support as needed
Clarify and repeat directions as needed
Provide preferential seating when needed
Small group and/or individual instruction provided when needed

Unit Vocabulary:
Essential: engineer, architecture, blueprints, understandings, groups, standards, efficiency, code,
Non-Essential: visual, programs, connection

Interdisciplinary Connections (Applicable Standards):	Integration of Technology:	21st Century Themes:	21st Century Skills:

E/LA:
Mathematics:
   9.3.ST-SM.3
Technology:
   9.3.ST.4
   9.3.ST.5
   9.3.ST.6
21st Century Life and Careers:
   9.1.12.A.6
   9.1.12.A.7
   CRP 1-12
	Google Docs
	Google Classroom
	Chrome books
	Teacher websites with resources
		__x__ Global Awareness
		__x__ Civic Literacy
		__x__ Financial, Economic, Business, & Entrepreneurial Literacy
			__x__ Creativity & Innovation
			__x__ Media Literacy
			__x__ Critical Thinking and Problem Solving
			__x__ Life and Career Skills
			__x__ Information & Communication Technologies Literacy
			__x__ Communication & Collaboration

Resources:
Texts/Materials: NONE
Leveled Reading-

Unit 5: Math	Recommended Duration: 4 weeks
Unit Description: During this unit, students will explore careers in math. This will include careers such as actuarial sciences, statistics, and accounting. They will explore colleges, majors, skills, and job opportunities associated with this portion of STEM.	

Essential Questions:	Enduring Understandings:
How could a career in math have an impact in society? How could a career in math impact a student's life?	A career in math would impact society in a socio, cultural and economic aspect of life A career in math would impact a student's life in a variety of ways including salary, job security and enjoyment, lifestyle, and educational experiences.

Relevant Standards:	Learning Goals:	Learning Objectives:
9.2.12.C.1 9.2.12.C.2 9.2.12.C.3 9.2.12.C.4 9.2.12.C.5 9.2.12.C.6 9.2.12.C.7 9.2.12.C.8 9.2.12.C.9	1. Students will be able to distinguish between specific careers in the math field. 2. Students will be able to demonstrate their understandings of careers in the math field through various activities 3. Students will be able to determine a math field that most relates to their interests and investigate deeper.	1. Identify a career in the math field 2. Explore colleges that specialize in math based careers 3. Determine how many years of schooling is required for a specific career 4. Calculate the cost of acquiring a specific degree(s) 5. Research the average base salaries and projected job growth/decline of specific careers in math 6. Present to classmates what a day in the life of a person in a specific job field is like 7. Explore possible service learning projects associated with math 8. Build a resume that would appeal to the job market for math

Formative Assessments	Summative Assessments:	Performance Assessments:	Major Activities/ Assignments (required):
Presentations White board responses Surveys/quizzes	Build Portfolio Career Investigations Projects: pixar	Writing Tasks Build Resume	Graphic organizers Service Learning Project

Formative Assessments	Summative Assessments:	Performance Assessments:	Major Activities/ Assignments (required):
Questioning/Discussions (Q &A, A&Q) Debates Graphic Organizers (Venn diagram) of relationships Think/Pair/Share Homework Reflection			

Possible Assessment Modifications /Accommodations/ Differentiation:

Clarification on questions
Fewer multiple choice
More specific concrete questions
Extended time when needed
Chunking questions/choices
Formatting (Enlarge font/increase spacing/make font bold for emphasis)
Eliminating distractors

Instructional Strategies (*Robert Marzano's* 41 Elements):

- Review of syllabus and reinforcement of classroom rules
- Student interest survey
- Graphic organizers
- Pre-tests (for DI grouping)
- Checks for understanding
- Chunking
- Scaffolding
- Research
- Student self-evaluation
- SMART lunch invitations for reinforcement, revisions and remediation
- Friendly controversy- examining errors in reasoning (whiteboard battles)
- Direct Instruction
- Homework
- Note-taking
- Investigation

Possible Instructional Modifications /Accommodations/Differentiation:
Monitor and check for understanding
Provide individualized instruction when needed
Cueing strategies to promote on task behavior
Provide organizational support as needed
Clarify and repeat directions as needed
Provide preferential seating when needed
Small group and/or individual instruction provided when needed

Unit Vocabulary:
Essential: integers, accounting, control, calculus, linear, auditing, actuary, statistics
Non-Essential: research, math, outline

Interdisciplinary Connections (Applicable Standards):	Integration of Technology:	21st Century Themes:	21st Century Skills:

E/LA:
Mathematics:
   9.3.ST-SM.3
Technology:
   9.3.ST.4
   9.3.ST.5
   9.3.ST.6
21st Century Life and Careers:
   9.1.12.A.6
   9.1.12.A.7
   CRP 1-12
	Google Docs
	Google Classroom
	Chrome books
	Teacher websites with resources
		__x__ Global Awareness
		__x__ Civic Literacy
		__x__ Financial, Economic, Business, & Entrepreneurial Literacy
			__x__ Creativity & Innovation
			__x__ Media Literacy
			__x__ Critical Thinking and Problem Solving
			__x__ Life and Career Skills
			__x__ Information & Communication Technologies Literacy
			__x__ Communication & Collaboration

Resources:
Texts/Materials: NONE
Leveled Reading-