Scrappton

By: Chrissy Hillman

Intended for Grades: 3-6

August 4, 2016

Introduction

Rational:

As teachers, we are charged with preparing our students for the future. Our world is rapidly changing and therefore we need to make sure that our students are ready for what lies ahead. With all the technology available, students no longer need to memorize facts. Instead, they need to be able to think for themselves, collaborate, be innovative, and have good social skills. As teachers, we need to strive to create project-based learning experiences that will engage students in complex, real world experiences and allow them to develop and apply skills and knowledge. This type of learning allows students to develop personal qualities such as confidence, integrity, curiosity, empathy, and reflection. An excellent way to allow this to happen is through STEM (science, technology, engineering, math). By integrating these four areas when learning, it allows students to act like engineers, scientists, and mathematicians. They experience real-world integrated projects in the classroom, which in turn increases college and career readiness,

The Scrappton Unit is an engineering design unit. It is a hands-on, creative, problem solving unit that allows for all students to be successful. In this unit the students learn about the Engineering Design Process. This process is important for students to learn because they can apply it to anything they are doing. Students access and synthesize what they have learned to help them solve real world problems. They research a need or a problem and collect evidence that will help them solve it. Next, they develop an idea, build, and test it. During this process students work collaboratively with others and learn to critique others work, as well as build on their peers' ideas to make their project better. Students also learn how to defend their ideas and solutions based on evidence. This unit allows students to be creative, ask questions, and improve their work as they develop a better understanding of the engineering design process. This unit encompasses social studies, math, language arts, arts integration and problem solving.

Differentiation for Gifted Learners:

This unit was designed with gifted learners in mind. It was designed to challenge, engage, and motivate students, as well as foster the many needs of gifted learners. In this unit students will be successful if they can support, challenge, and celebrate each other's work, as well as give and receive feedback in order to improve upon their work. Students will need to work through understanding the concept of engineering design, the process, and apply what they have learned through a culminating project. Students will move quickly through concepts, as this is only a four day unit. They will focus on why engineers have restraints in the design process, how problem-solving requires planning, and the importance of decision making.

This unit will use tiered instruction, which will provide learners with observation, discovery, exploration, and the ability to gain understanding of the essentials concepts and skills being taught. All students will be supported as they gain knowledge through the hands-on lessons. This unit provides the opportunity for students to develop

argumentative skills and an understanding of social justice through a Kohlberg lesson. These skills will help to develop their moral stage of development and are essential for understandings across many disciplines. Students will develop deeper thinking through level three questioning. This unit's performance task is designed for students to be creative, use all the skills they've learned and to improve as they go along by trial and error. They will need to be flexible and make adjustments as they create their building. There will be no steps for them to follow or models for them to copy. They will need to collaborate and work with the class to create a well-designed town. There will be plenty of opportunities for movement to keep students engaged.

Goal and Outcomes

Content Goals:

1. Students will know the Engineering Design Process.
    Outcomes:
    A. Students will be able to identify the steps in the Engineering Design Process.
    B. Students will be able to identify a problem or need that can be addressed through engineering design process.
    C. Students will be able to apply the engineering design process in a design challenge.
    D. Students will be able to contrast multiple designs for a specific challenge.

Process Goals:

1. Students will be able to support why engineers use problem solving in the design process.
    Outcomes:
    A. Students will be able to identify what problem solving is.
    B. Students will be able to identify cause and effect relationships in regards to problem solving.
    C. Students will be able to justify the need for problem solving in the design process.

Concept Goals:

1. Students will understand the concept of problem solving.
    Outcomes:
    A. Students will be able to recognize and discuss how problem solving is a part of everything we do.
    B. Students will be able to identify why problem solving is important.
    C. Students will be able to determine how problem solving is important in the design process.

Assessment Plan

I will assess students during and after each lesson through informal and formal observations. Students will be assessed during independent work, group work, and class discussions. Students will be given a ticket out the door each day and on performance task during the unit.

Tickets Out the Door

Scrappton Ticket Out the Door 1	Name:
How does problem solving require planning?	

Scrappton Ticket Out the Door 2	Name:
How does problem solving require planning?	

Scrappton Ticket Out the Door 3	Name:
How does problem solving require planning?	

Scrappton Ticket Out the Door 4 Name:
How does problem solving require planning?

Ticket Out the Door Rubric

Score:	Score Explanation
4	The student is exceptionally clear in his/her response to the question and is easy to follow.
3	The student is generally clear in his/her response to the question and the reader is able to follow.
2	The student lacks clarity in his/her response to the question and is difficult to follow.
1	The student is unclear in his/her response to the question and is impossible to follow.

Performance Task

Performance Task
The state of North Carolina has decided that they would like to establish a new town that lies between Durham and Raleigh. They are looking for a team of engineers to help design and build the new town, called Scrappton. You are a young engineer just graduating from a local university and have been learning about architectural and structural engineering, the engineering design process, and advertisement. You will be expected to show what you have learned by working as an engineer to help design, build and advertise Scrappton. Your task is to decide what type of building you would like to design for the new town. You will use the skills you've learned to plan, design, build and advertise your new building. You will need to get your building approved by the state of North Carolina prior to the start of building. Be sure to include your engineering design plan, as well as your reason for adding your building to the city.

Performance Task Rubric

	4	3	2	1
Conceptual Understanding	Student demonstrates a thorough understanding of how problem solving requires planning.	Student demonstrates a substantial understanding of how problem solving requires planning.	Student demonstrates a partial understanding of how problem solving requires planning.	Student demonstrates a misunderstanding of how problem solving requires planning.
Content Knowledge	Student demonstrates a thorough understanding of the Engineering Design Process.	Student demonstrates a substantial understanding of the Engineering Design Process.	Student demonstrates a partial understanding of the Engineering Design Process.	Student demonstrates a misunderstanding of the Engineering Design Process.
Product	Student successfully completes his/her Building using the Engineering Design Process, Independently.	Student successfully completes his/her Building using the Engineering Design Process, with minimal assistance required.	Student successfully completes his/her Building using the Engineering Design Process, with moderate assistance required.	Student successfully completes his/her Building using the Engineering Design Process, considerable assistance required.
Participation & Collaboration	Student demonstrated leadership and fully-supported her/his group.	Student demonstrated full participation and completed her/his assignments.	Student demonstrated a struggle with communication and following instructions.	Student demonstrated minimal or no support/contribution to her/his team.

Lesson Plans

TEACHER NAME		Lesson #
Chrissy Hillman		1

MODEL	CONTENT AREA	GRADE LEVEL
Bruner	Engineering Design	4th/5th

CONCEPTUAL LENS	LESSON TOPIC
Problem Solving	Engineers have restraints in the design process

LEARNING OBJECTIVES (from State/Local Curriculum)

Use the engineering design process of ASK-IMAGINE-PLAN-CREATE-IMPROVE

EG 3-5 D1.1 Apply the engineering design process in a design challenge
EG 3-5 D1.2 Identify a problem or need that can be addressed through engineering design
EG 3-5 D1.3 Contrast multiple designs for a specific challenge

THE ESSENTIAL UNDERSTANDING (What is the overarching idea students will understand as a result of this lesson?	THE ESSENTIAL QUESTION (What question will be asked to lead students to "uncover" the Essential Understanding)
Problem solving requires planning.	How does problem solving require planning?

CONTENT KNOWLEDGE (What factual information will students learn in this lesson?)	PROCESS SKILLS (What will students be able to do as a result of this lesson?)
Students will know the concepts of residential, commercial, and community buildings. Students will know the concept of community. Students will know the Engineering Design Process. Students will know that engineers use problem solving in the design process.	Students will be able to assess the differences between residential, commercial and community properties, and interpret the value of each. Students will be able to debate why communities are important. Students will be able to interpret and use the Engineering Design Process. Students will be able to support why engineers use problem solving in the design process.

GUIDING QUESTIONS

What questions will be asked to support instruction?
Include both "lesson plan level" questions as well as questions designed to guide students to the essential understanding

Pre-Lesson Questions:	During Lesson Questions:	Post Lesson Questions:
What is a community? Who are engineers and what do they do? Where might engineers work? What are some characteristics that engineers should possess? What are examples of	Good planning is important, justify why? What would happen if you did not follow the Engineering Design Process? Critique the Engineering Design Process.	What did you learn about being an engineer designer? What are some things you need to think about when deciding what types of buildings a new town should have? Explain how the Engineering Design

different businesses in a community? ***What are examples of different types of buildings in a town or city?*** ***Why is planning important before building?*** ***What do you do if a problem arises during the building process?*** ***Why does problem solving requires planning?*** ***What rules do engineers follow?***	***How did you go about improving on your plan?*** ***Discuss why it might be important to work with other engineers during the Engineering Design Process.*** ***What role does planning and problem solving play in the Engineer Design Process?*** ***What are some characteristics that you have that are similar to Engineers?***	***Process allows for mistakes.*** ***How does problem solving require planning?*** ***What have you learned about being an engineer?*** ***What role did problem-solving and planning play as you practiced being an engineer?***

DIFFERENTIATION

(Describe how the planned learning experience has been modified to meet the needs of gifted learners. Note: Modifications may be in one or more of the areas below. Only provide details for the area(s) that have been differentiated for this lesson.

Content	*Process*	*Product*	*Learning Environment*
	Students will work with an open-ended problem-solving experience.		

LANNED LEARNING EXPERIENCES

(What will the teacher input? What will the students be asked to do? For clarity, please provide detailed instructions)

Engage and Connect - This phase focuses on piquing students' interest and helping them access prior knowledge. This is the introduction to the lesson that motivates or hooks the students.

As students enter the classroom, a blueprint of a town layout will be on the board. The following question will also be posted, "What do structural engineers do?" Students will be given an index card and will each be asked to make a list of what they know about engineers. The list should include: what do engineers do, what are some of the tools engineers' use, where engineers might work, what are some characteristics that engineers should possess?

After 5 minutes of listing, students will be asked to share their thoughts with the class. The teacher will record the responses. Students will be asked to elaborate on their responses.

The teacher then asks the pre-lesson questions. The students will respond to questions in small groups and then share with the entire class.

Explore - In this phase, the students have experiences with the concepts and ideas of the lesson. Students are encouraged to work together without direct instruction from the teacher. The teacher acts as a facilitator. Students observe, question, and investigate the concepts to develop fundamental awareness of the nature of the materials and ideas.

The teacher will show a short video about engineers. Students will learn who engineers are and

what they do. After the video, students are referred back to their original lists. The teacher will ask the students, "What other things would you add to this list?" The students will add new things they learned about engineers to their index cards.
https://www.youtube.com/watch?v=owHF9iLyxic *(who are engineers)*

https://www.youtube.com/watch?v=cKBlaBeBaOE (a day in the life of a structural engineer)

The teacher will explain that engineers follow steps when designing new prototypes (the word prototypes will be discussed). Students will learn that this process is called the Engineering Design Process (EDP). The students will then learn a song about the EDP.
https://www.youtube.com/watch?v=6dR3iKaWUoU

After the video, Students will be given their own copy of the design process. Posters of the process will be placed on the board. The teacher will take notice of the arrows on the posters, showing that the steps don't have to go in order. The teacher will then ask the during lesson questions.

Students will then be divided into groups. The teacher will tell the students that they are going to be engineers. They be given a need and asked to move through the Engineering Design Process with their group. The following problem/need will be presented:

"I like to get to work early each day, so I have enough time to prepare before students begin to arrive. There are some days though, that I do not want to get up and continue to hit the snooze button. My need would be to create an alarm clock that would not let me continue to hit the snooze button, so I oversleep!"

Groups will imagine possible solutions: What can they add to the alarm clock to let us not continue to hit the snooze button. (ex. One that sprays water, one that shines a bright light, one that makes you stand up, etc.) They will then choose one solution to work with and begin drawing out their ideas. They will then plan out their idea by figuring out what they need to make the prototype work. They would then move on to the create part of the EDP. They will not really create the prototype, but will think about what could go wrong when they test and evaluate the prototype.

While the students are working, the teacher will ask during lesson questions to each student.

Explain - Students communicate what they have learned so far and figure out what it means. This phase also provides an opportunity for teachers to directly introduce a concept, process, or skill to guide students toward a deeper understanding.

The teacher will then refer to the blueprint on the board and discuss how they will work together over the next few days, as engineers to help create a town called, Scrappton. The class will then discuss what a community is and why it's important.
The teacher will then place the words: residential, commercial, and community, on the board. The students will then create a list of types of building that might fit into each category. Students will then discuss their lists with the class.

The students will then discuss as a class the different types of buildings that would be important to include in Scrappton. Students will have to validate the importance of each building they talk about.

Post- lesson questions are then posed by the teacher. Students will respond to the questions orally. Answers will be discussed and elaborated on.

Elaborate —Allow students to use their new knowledge and continue to explore its implications. At this stage students expand on the concepts they have learned, make connections to other related concepts, and apply their understandings to the world around them in new ways

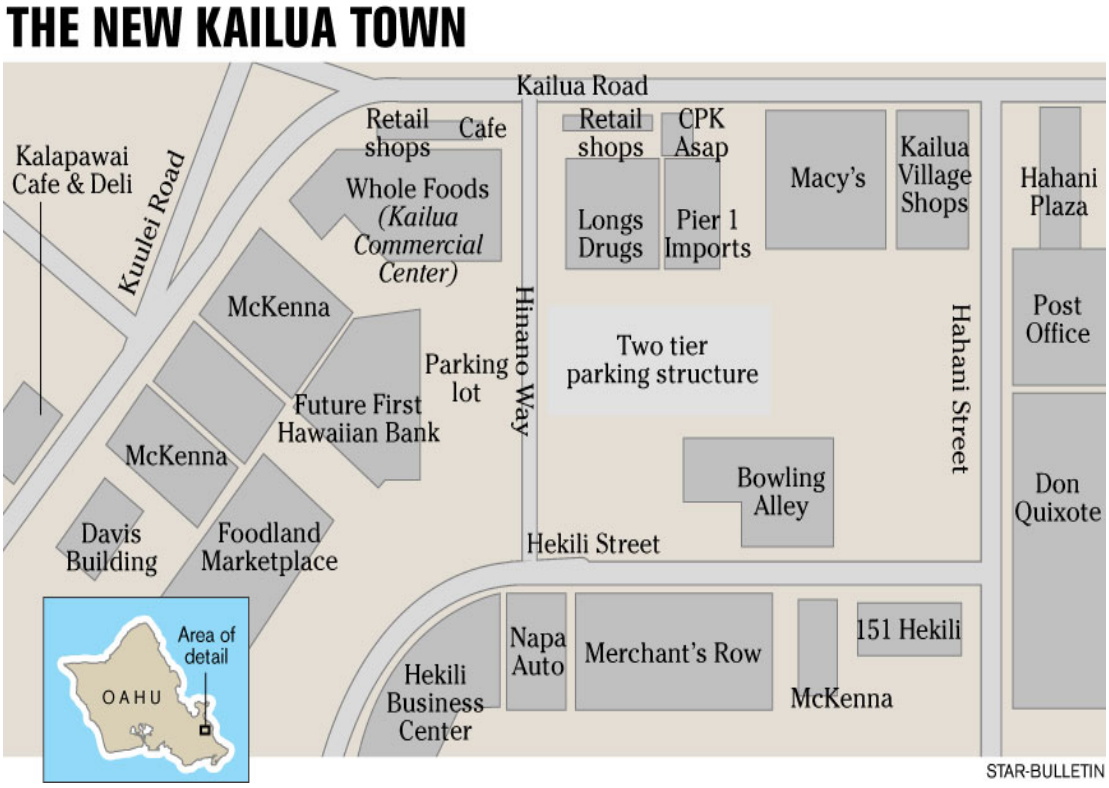
Next, the students will be instructed to pick a token out of a bag. The tokens will either have the word community, commercial, or residential on them.

Students will be divided into groups based on the type of building they picked out of the bag (commercial, residential, or community).
Each group will be provided with chart paper to begin the EDP for Scrappton. Each group will make a list of characteristics that they feel will need to be included in Scrappton and what kinds of buildings they feel the town will need. They will discuss how they went about the process as engineers.

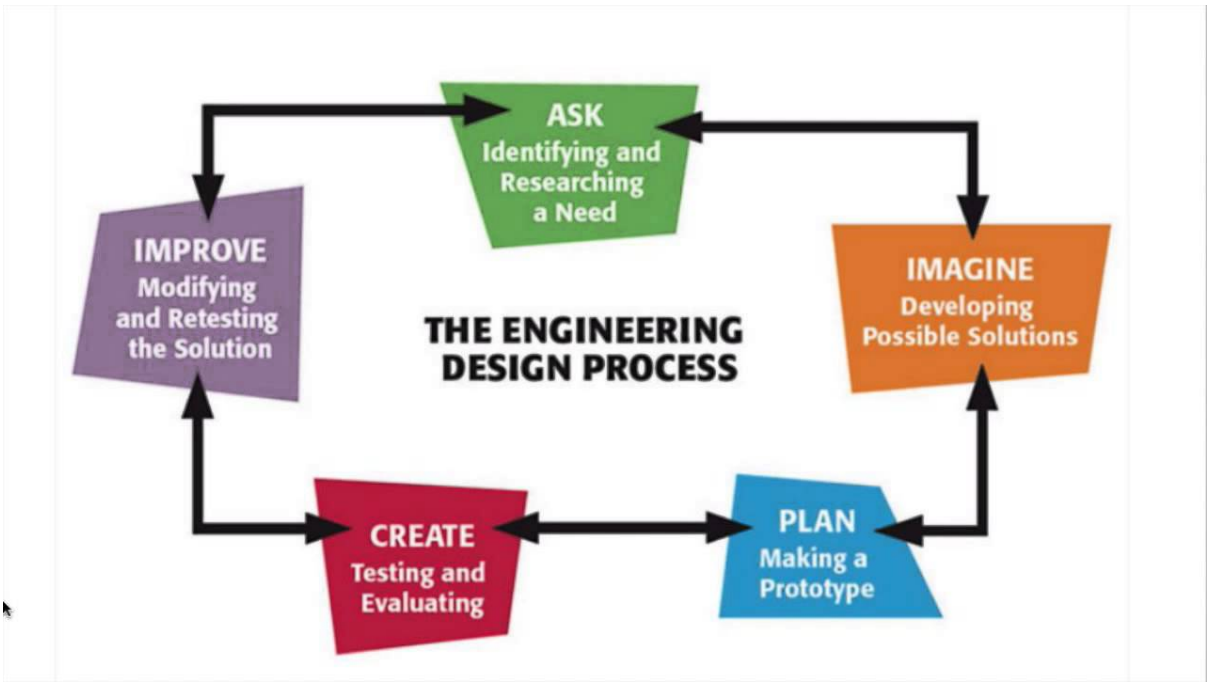
Evaluate: This phase assesses both learning and teaching and can use a wide variety of informal and formal assessment strategies.

Students will be provided with an index card to use as their ticket out the door. They will need to answer the following question: How does problem solving require planning?

Sample Town Layout



Engineering Design Process Handout


ASK
Identifying and Researching a Need
IMAGINE
Developing Possible Solutions
PLAN
Making a Prototype
CREATE
Testing and Evaluating
IMPROVE
Modifying and Retesting the Solution
THE ENGINEERING DESIGN PROCESS

TEACHER NAME	Lesson #
Chrissy Hillman	2

MODEL	CONTENT AREA	GRADE LEVEL
Bruner	Engineering Design	4th/5th

CONCEPTUAL LENS	LESSON TOPIC
Problem Solving	Engineers have restraints in the design process

LEARNING OBJECTIVES (from State/Local Curriculum)

Use the engineering design process of ASK-IMAGINE-PLAN-CREATE-IMPROVE

EG 3-5 D1.1 Apply the engineering design process in a design challenge
EG 3-5 D1.2 Identify a problem or need that can be addressed through engineering design
EG 3-5 D1.3 Contrast multiple designs for a specific challenge

THE ESSENTIAL UNDERSTANDING (What is the overarching idea students will understand as a result of this lesson?	THE ESSENTIAL QUESTION (What question will be asked to lead students to "uncover" the Essential Understanding)
Problem solving requires planning.	How does problem solving require planning?

CONTENT KNOWLEDGE (What factual information will students learn in this lesson?)	PROCESS SKILLS (What will students be able to do as a result of this lesson?)
Students will know that Engineers have to determine the best materials to use when building. Students will know that design is important when planning a new community.	Students will be able to justify why they need a certain material when building. Students will be able to prove why their building design worked. Students will be able to alter and improve their ideas when creating their building.

GUIDING QUESTIONS

What questions will be asked to support instruction?
Include both "lesson plan level" questions as well as questions designed to guide students to the essential understanding

Pre-Lesson Questions:	During Lesson Questions:	Post Lesson Questions:
What are some aspects that will limit what you can build? How does design play into creating a town or city? Why do you need to follow a design process? Why does problem solving require planning?	How did you decide what you are building? How did you decide what materials to use? Justify what adjustments you need to make to your design in order to fit the budget. What types of problems occurred and were you	How did you decide where to place your building in the town? What do you notice about the Scrappton community? How could you determine what buildings are missing from the community? What would you recommend

	prepared to solve them? ***How can you evaluate if your design worked?*** ***How did you plan and problem solve when creating your design.***	***to a new builder, wanting to build in Scrappton?*** ***Assess whether or not the community would a good place to live in?*** ***How important is problem solving when building?*** ***How does problem solving require planning?***

DIFFERENTIATION

(Describe how the planned learning experience has been modified to meet the needs of gifted learners. Note: Modifications may be in one or more of the areas below. Only provide details for the area(s) that have been differentiated for this lesson.

Content	*Process*	*Product*	*Learning Environment*
	Students will work with an open-ended problem-solving experience.		

PLANNED LEARNING EXPERIENCES

(What will the teacher input? What will the students be asked to do? For clarity, please provide detailed instructions)

Engage and Connect - This phase focuses on piquing students' interest and helping them access prior knowledge. This is the introduction to the lesson that motivates or hooks the students.

As students enter the room the teacher will show the students the layout of Scrappton. They will then be given an index card and asked to make a list of what they know about design. They will include anything they learned about the Engineering Design Process from the previous lesson.

After 5 minutes of listing, students will be asked to share their thoughts with the class. The teacher will record the responses. Students will be asked to elaborate on their responses.

The teacher then asks the pre-lesson questions. The students will respond to questions in small groups and then share with the entire class.

Explore - In this phase, the students have experiences with the concepts and ideas of the lesson. Students are encouraged to work together without direct instruction from the teacher. The teacher acts as a facilitator. Students observe, question, and investigate the concepts to develop fundamental awareness of the nature of the materials and ideas.

The teacher will show a short video about design. After the video, students are referred back to their original lists. The teacher will ask the students, "What other things would you add to this list?" The students will add new things they learned about design to their index cards.

Students will them watch the following short video:

https://www.youtube.com/watch?v=CvtbtGk7KSM

The teacher will then ask the during lesson questions.

Explain - Students communicate what they have learned so far and figure out what it means. This phase also provides an opportunity for teachers to directly introduce a concept, process, or skill to guide students toward a deeper understanding.

At this time, the teacher will hand out the performance task, go over it, and answer any questions.

Students will need to write a proposal to the state of North Carolina and then get it approved by them (the teacher), before they may begin building.
When they are given approval, they will work independently in a fluid classroom environment. They will be allowed to move around and ask advice from other engineers in the classroom.

Elaborate —Allow students to use their new knowledge and continue to explore its implications. At this stage students expand on the concepts they have learned, make connections to other related concepts, and apply their understandings to the world around them in new ways

After the students have completed their building, the class will gather to debrief. They will talk with a small group about how their building went. Each group will then share their thoughts. Students will be encouraged to question and add their own thoughts.
The teacher will then pose the post lesson questions.

Evaluate: This phase assesses both learning and teaching and can use a wide variety of informal and formal assessment strategies.

Students will be provided with an index card to use as their ticket out the door. They will need to answer the following question: How does problem solving require planning?

Performance Task

Performance Task

The state of North Carolina has decided that they would like to establish a new town that lies between Durham and Raleigh. They are looking for a team of engineers to help design and build the new town, called Scrappton. You are a young engineer just graduating from a local university and have been learning about architectural and structural engineering, the engineering design process, and advertisement. You will be expected to show what you have learned by working as an engineer to help design, build and advertise Scrappton. Your task is to decide what type of building you would like to design for the new town. You will use the skills you've learned to plan, design, build and advertise your new building. You will need to get your building approved by the state of North Carolina prior to the start of building. Be sure to include your engineering design plan, as well as your reason for adding your building to the city.

TEACHER NAME		Lesson #
Chrissy Hillman		3

MODEL	CONTENT AREA	GRADE LEVEL
Questioning	Engineering Design	4th/5th

CONCEPTUAL LENS	LESSON TOPIC
Problem Solving	Problem solving and persuasion require planning.

LEARNING OBJECTIVES (from State/Local Curriculum)

CCSS.ELA-LITERACY.W.4.1.A
Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose.
CCSS.ELA-LITERACY.W.4.1.B
Provide reasons that are supported by facts and details.
CCSS.ELA-LITERACY.W.4.1.C
Link opinion and reasons using words and phrases (e.g., for instance, in order to, in addition).
CCSS.ELA-LITERACY.W.4.1.D
Provide a concluding statement or section related to the opinion presented.
CCSS.ELA-LITERACY.W.5.1.B
Provide logically ordered reasons that are supported by facts and details.

THE ESSENTIAL UNDERSTANDING (What is the overarching idea students will understand as a result of this lesson?	THE ESSENTIAL QUESTION (What question will be asked to lead students to "uncover" the Essential Understanding)
Problem solving requires planning.	**How does problem solving require planning?**

CONTENT KNOWLEDGE (What factual information will students learn in this lesson?)	PROCESS SKILLS (What will students be able to do as a result of this lesson?)
Students will know that persuasion is the art of trying to convince someone to do something. **Students will know a variety of strategies that advertisers use to persuade (pathos, logos, ethos)** **Students will know that a billboard is a large sign that tries to persuade someone to learn more about the product shown.** **Students will know that marketing tells the business what, how, and where to sell.**	**Students will be able to use persuasion to promote their building.** **Students will be able to create a billboard to promote their building.**

GUIDING QUESTIONS
What questions will be asked to support instruction?
Include both "lesson plan level" questions as well as questions designed to guide students to the essential understanding

Pre-Lesson Questions:	During Lesson Questions:	Post Lesson Questions:
What is persuasion? **What is a billboard and how does it help with persuasion?** **What does it mean to persuade someone?** **How can you use marketing to persuade other to learn**	**How can you use color to enhance your billboard so people will notice and be persuaded to learn more about your building?** **How does wording on your billboard affect how people will react and be persuaded?** **What should your billboard include to make it stand out.**	**How did persuasion inform your problem-solving around creating a billboard design?** **What other factors influenced you when you created your billboard?** **What role did planning have in the problem-solving process?**

more about your building? How do you know if something is successful or not? *What is the relationship between problem-solving and persuasion?* *How is persuasion like problem solving?* *How does persuasion influence problem solving?*	*and make people want to learn more?* *Justify how the billboards in front of you either persuade or not persuade someone.* *Comparing two billboards, which of the two is most persuasive and why?* *What techniques of persuasion are used in each billboard?* *What type of audience is each billboard most likely to persuade?* *What problem are the creators of the billboards trying to solve?*	*What would you recommend to someone who needs to advertise something?* *How do feelings/emotions impact marketing strategies?* *What role did planning have in the problem-solving process?*

DIFFERENTIATION

(Describe how the planned learning experience has been modified to meet the needs of gifted learners. Note: Modifications may be in one or more of the areas below. Only provide details for the area(s) that have been differentiated for this lesson.

Content	*Process*	*Product*	*Learning Environment*
	Students will work with an open-ended problem-solving experience.		

PLANNED LEARNING EXPERIENCES

(What will the teacher input? What will the students be asked to do? For clarity, please provide detailed instructions)

Engage and Connect - This phase focuses on piquing students' interest and helping them access prior knowledge. This is the introduction to the lesson that motivates or hooks the students.

As students enter the classroom the following billboard will be on the board.

Students will be given a sticky note to write down what make this billboard successful or not successful. The teacher will then lead students to discuss their thoughts.

The teacher will then ask the pre-lesson questions.

After the pre-questions have been answered, students will be given another sticky note to add any new thoughts as to why the shown billboard might be successful or not successful.

Explore - In this phase, the students have experiences with the concepts and ideas of the lesson. Students are encouraged to work together without direct instruction from the teacher. The teacher acts as a facilitator. Students observe, question, and investigate the concepts to develop fundamental awareness of the nature of the materials and ideas.

The teacher will then show a short video about marketing. https://www.youtube.com/watch?v=9tD6OQExL5Q The class will then discuss marketing, what it is and why it's important. The teacher will pose the question, "How does marketing change feeling? How is it related to planning and problem solving?"

The teacher will then go over the marketing terms: : pathos, logos, and ethos

After learning the terms, the students will be given strips of paper with examples of the terms on then. The students will work with a partner to place them into the category. The class will them discuss what they placed where and why.

The teacher will set various examples of billboards on tables. Students will then rotate through the tables and look at the different billboards. Students will then choose their favorite billboard. Students will pair up with other students who chose a different billboard. They will answer the following questions: Which of the two is most persuasive and why? What techniques of persuasion are used? What type of audience is the billboard most likely to persuade? What problem are the creators of the billboards trying to solve?
The teacher will then ask the students to sit in a circle on the carpet. Students will then share with the rest of the class their ideas.

Students will then be referred back to their performance task. They will then be asked to create a prototype of their billboard, following the Engineering Design Process (EDP). Once the prototype is complete and they are satisfied, they will begin to build their actual billboard. The students will need to choose their materials and they may then begin to build. During this time they will work independently in a fluid classroom environment. They will be allowed to move around and to ask for advice from other students.

While the students are working, the teacher will ask during lesson questions to students.

Explain **-** Students communicate what they have learned so far and figure out what it means. This phase also provides an opportunity for teachers to directly introduce a concept, process, or skill to guide students toward a deeper understanding.

After the students have completed their billboard, the class will gather to debrief. They will talk with a small group about how their billboard turned out. They will discuss why it is important and how changing feelings impacts marketing. Each group will then share their thoughts. Students will be encouraged to question other groups and add their own thoughts.

The teacher will then pose the post lesson questions.

Elaborate —Allow students to use their new knowledge and continue to explore its implications. At this stage students expand on the concepts they have learned, make connections to other related concepts, and apply their understandings to the world around them in new ways

Students will be divided into groups based on the type of building that they built (commercial, residential, or community) in the last two lessons. Students will be asked to discuss the EDP and how it related to the performance task, as well as to their individual products. They will also discuss how the EDP could be used in everyday life.

Evaluate: This phase assesses both learning and teaching and can use a wide variety of informal and formal assessment strategies.

Students will be provided with an index card to use as their ticket out the door. They will need to answer the following question: How does problem solving require planning*?*


EAT MOR CHIKIN
Chick-fil-A


Using Crest Whitestrips prevents you from reading this.
Crest
Whitestrips


TAILGATING
ISN'T WORTH IT.
GIVE TRUCKS ROOM.
IT'S THE LAW.
UAC


love
at first sight
baby
GAP
REGENCY


iPad


please do not
eat the
billboard
i'm lovin' it
all white meat chicken
001060

Ethos, Pathos, Logos Examples to Sort

1. A child is shown covered in bug bites after using an inferior bug spray.

2. Tiger Woods endorses Nike.

3. Sprite Zero is 100% sugar-free.

4. A 32oz bottle of Tide holds enough to wash 32 loads.

5. A commercial shows an image of a happy couple riding in a Corvette.

6. Cardiologists recommend Ecotrin more than any other brand of aspirin.

7. Advil Liqui-Gels provide up to 8 hours of continuous pain relief.

8. Miley Cyrus appears in an Oreo advertisement.

9. People who need more energy drink Red Bull Energy Drink.

10. A magazine ad shows people smiling while smoking cigarettes.

TEACHER NAME			Lesson #
Chrissy Hillman			4
MODEL	**CONTENT AREA**	**GRADE LEVEL**	
Kohlberg& Moral Development	ELA	4th	

CONCEPTUAL LENS	LESSON TOPIC
Problem Solving	Decision Making

LEARNING OBJECTIVES (from State/Local Curriculum)

CCSS.ELA-LITERACY.SL.4.1.C
Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.
CCSS.ELA-LITERACY.SL.4.1.D
Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.
CCSS.ELA-LITERACY.SL.4.3
Identify the reasons and evidence a speaker provides to support particular points.
CCSS.ELA-LITERACY.W.4.1
Write opinion pieces on topics or texts, supporting a point of view with reasons and information.

THE ESSENTIAL UNDERSTANDING (What is the overarching idea students will understand as a result of this lesson?	THE ESSENTIAL QUESTION (What question will be asked to lead students to "uncover" the Essential Understanding)
Problem Solving requires planning.	How does problem solving require planning?

CONTENT KNOWLEDGE (What factual information will students learn in this lesson?)	PROCESS SKILLS (What will students be able to do as a result of this lesson?)
• Students will learn that a dilemma is a situation in which you have to make a difficult choice. • Students will learn what morals are (a person's standards of behavior or beliefs concerning what is and is not acceptable for them to do) • Students will learn that a character's moral development can affect how they make decisions. • Students will be able to list examples of morals (obedience, honesty, respect, politeness, responsibility, etc.). • Students will understand that moral development focuses on the emergence, change, and understanding of morality from infancy through adulthood.	• Students will be able to analyze the moral development of a character. • Students will be able to evaluate a character's response to a certain situation. • Students will be able to explain their own ideas about the character's response, verbally and written. • Students will be able to identify the reasons and evidence other students provide to support particular points in a moral discussion. • Students will be able to write a persuasive piece of writing on the topic. • Students will be able to define what morals and dilemmas are.

GUIDING QUESTIONS
What questions will be asked to support instruction?
Include both "lesson plan level" questions as well as questions designed to guide students to the essential understanding

Pre-Lesson Questions:	*During Lesson Questions:*	*Post Lesson Questions:*
What is a dilemma? ***What are some examples of dilemmas?*** ***Why might dilemmas be difficult?*** ***How could you solve a dilemma?*** ***What are morals?*** ***What are some examples of morals?*** ***How are morals and dilemmas related to each other?*** ***How are dilemmas and problem solving related?*** ***When do people use their morals?*** ***When faced with a dilemma how does problem solving come into play?*** ***When faced with a dilemma how does planning come into play?*** ***What is the relationship between problem solving and planning?*** ***Why is it important to plan and problem solve when faced with a dilemma? How can you plan for the road you decide to take in decision making?***	***Who will be affected by Jenny's decision and why?*** ***How will they be affected and why?*** ***How might Jenny feel about her choice? Explain your thinking.*** ***What do you think Jenny's boss would say if she explained why she didn't want to do the billboard? Explain your thinking.*** ***What should Jenny do? Give reasons why you feel this way.*** ***How would problem solving and planning help Jenny?*** ***Why would it be important for Jenny to plan before she faces her dilemma?*** ***What are some of the problems Jenny may face when planning her response to the dilemma?*** ***What road did you decide to take when faced with Jenny's problem and how did decision making come into play?***	***What choices could Jenny have made to solve the dilemma?*** ***What morals came in to play in this scenario?*** ***What did you learn about Jenny's character? Explain*** ***How do you think the people that are affected feel, and why?*** ***What did you learn from Ben's situation? Explain*** ***Trade places with Jenny. What would you do? Explain*** ***How do you think moral development affects decision making?*** ***How does problem solving require planning? (ticket out the door)***

IFFERENTIATION

(Describe how the planned learning experience has been modified to meet the needs of gifted learners. Note: Modifications may be in one or more of the areas below. Only provide details for the area(s) that have been differentiated for this lesson.

Content	*Process*	*Product*	*Learning Environment*

	Kohlberg's stages of moral development require students to engage in advanced reasoning skills.		

PLANNED LEARNING EXPERIENCES

(What will the teacher input? What will the students be asked to do? For clarity, please provide detailed instructions)

Engage and Connect - This phase focuses on piquing students' interest and helping them access prior knowledge. This is the introduction to the lesson that motivates or hooks the students.

As the students enter the classroom, they will see the following picture displayed on the board.

The following questions will be posed?

What do you see in the picture?
What is going on in the picture?
Who is the person?
What might the person be thinking?

Students will discuss with elbow partners and then partners will share out answers.
The teacher will then ask the "pre-lesson" questions.

Explore - In this phase, the students have experiences with the concepts and ideas of the lesson. Students are encouraged to work together without direct instruction from the teacher. The teacher acts as a facilitator. Students observe, question, and investigate the concepts to develop fundamental awareness of the nature of the materials and ideas.

The teacher will provide the students with a copy of "Jenny's Dilemma." The students will read the dilemma and then be asked to orally summarize it.

"Jenny has been working at an advertising firm for the past 2 years. She has been promised that if she does a really good job on the next project, that she will receive a promotion with a huge raise. She was tasked with creating a billboard to market how healthy cigarettes are. Jenny knows that cigarettes are not healthy and can cause cancer. She could really use the money the raise would give her, but she also knows that smoking is not good for you. If she does not do what was asked of her, she may lose her job. What should she do?"

The students will then be asked to choose what they think Jenny will do. They will write this down along with their reasons.

The teacher will then separate the students into groups, based on what they think Jenny should do, create the billboard or not create it. The teacher will then create smaller groups of 3 to 5 students. In their groups, students will be asked to write down reason as to why they believe their choice is the right choice. Students should be given 3 to 5 minutes to record their answers. The class will then come back together and share thoughts.

Explain - Students communicate what they have learned so far and figure out what it means. This phase also provides an opportunity for teachers to directly introduce a concept, process, or skill to guide students toward a deeper understanding.

The students will come together on the carpet for a whole group discussion. The "During Lesson" questions will be asked.

Students will be given a large post-it note. They will write their final decision as to what Jenny should do. They will be required to list two reasons for their choice. Students will then place their post-it on the board either under, "Create the Billboard" or "Not Create the Billboard."

Elaborate —Allow students to use their new knowledge and continue to explore its implications. At this stage students expand on the concepts they have learned, make connections to other related concepts, and apply their understandings to the world around them in new ways

The teacher will ask the "Post-Lesson" questions.

The teacher will pose the following question to the class: What choice have you made that might affect more people than just you. Imagine that everyone in the world made that same choice. How would that choice affect the world? Is this a world that you would want to live in?

Students will discuss and share in groups.

The students will then finish their billboards from the last lesson.

Evaluate: This phase assesses both learning and teaching and can use a wide variety of informal and formal assessment strategies.

The students will be given an exit ticket to complete. The exit ticket will ask, "How does problem solving require planning?"

Jenny's Dilemma

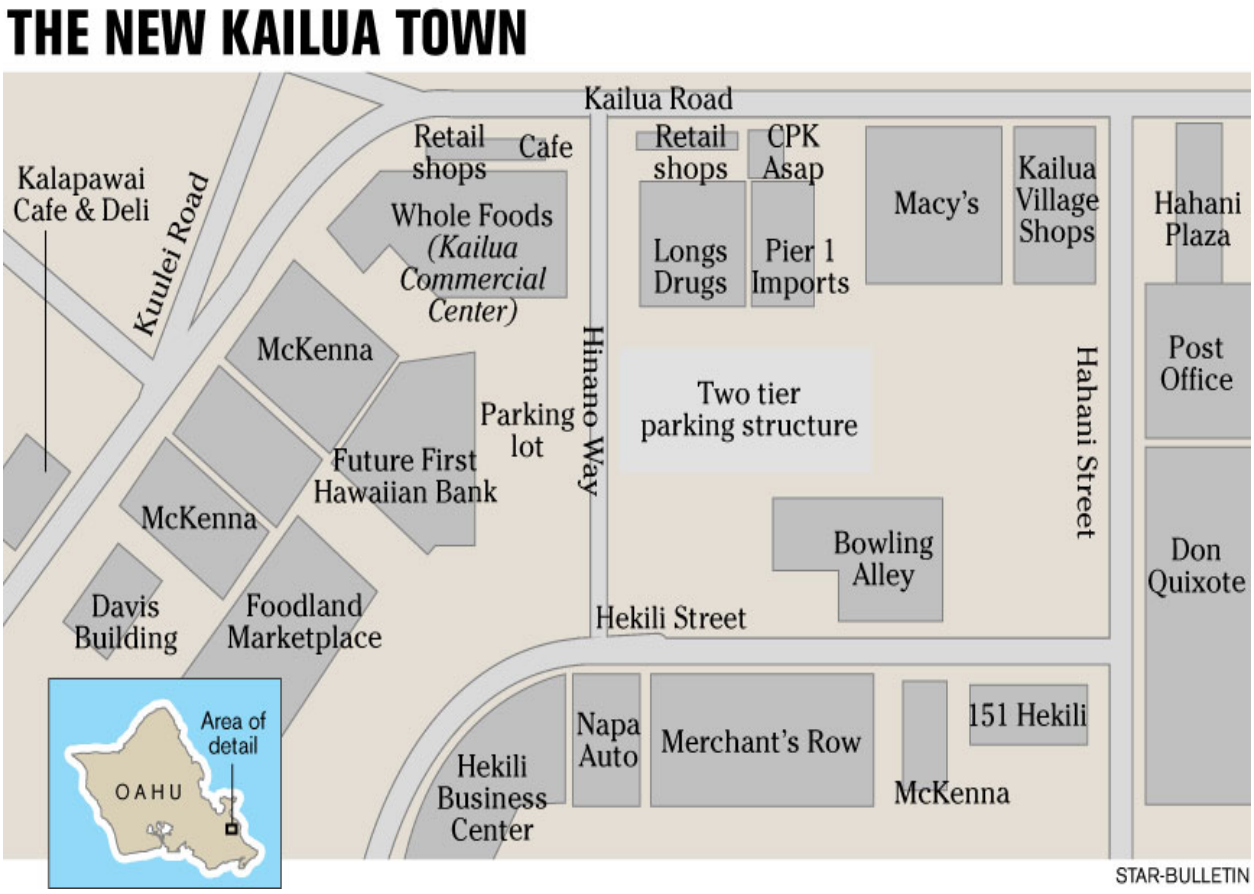
Jenny has been working at an advertising firm for the past 2 years. She has been promised that if she does a really good job on the next project, that she will receive a promotion with a huge raise. She was tasked with creating a billboard to market how healthy cigarettes are. Jenny knows that cigarettes are not healthy and can cause cancer. She could really use the money the raise would give her, but she also knows that smoking is not good for you. If she does not do what was asked of her, she may lose her job. What should she do?

Unit Resources

Optional PPT-

You may copy and paste them into Powerpoint, ActivInspire, Smartboard, or any other program that you choose .

Lesson 1



Who are engineers and what do they do? (create a list with students)

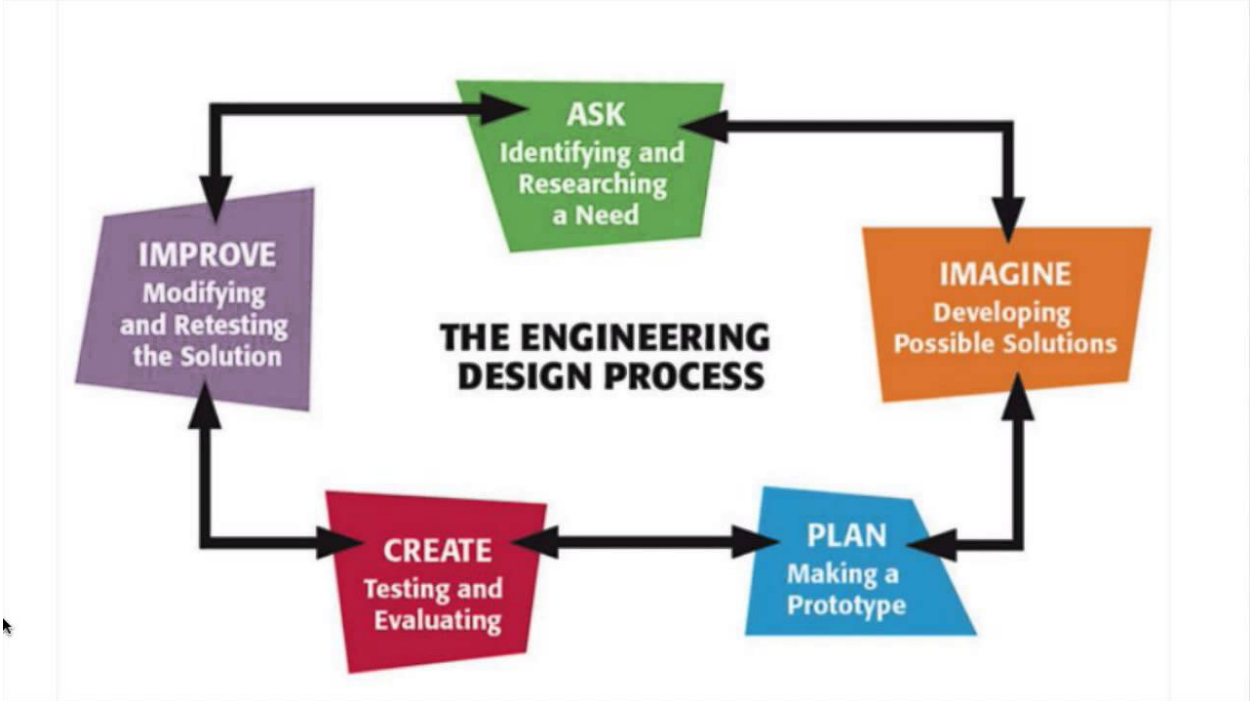
Who are engineers?

https://www.youtube.com/watch?v=owHF9iLyxic

What do structural engineers do?

https://www.youtube.com/watch?v=cKBlaBeBaOE

What is EDP?



https://www.youtube.com/watch?v=6dR3iKaWUoU

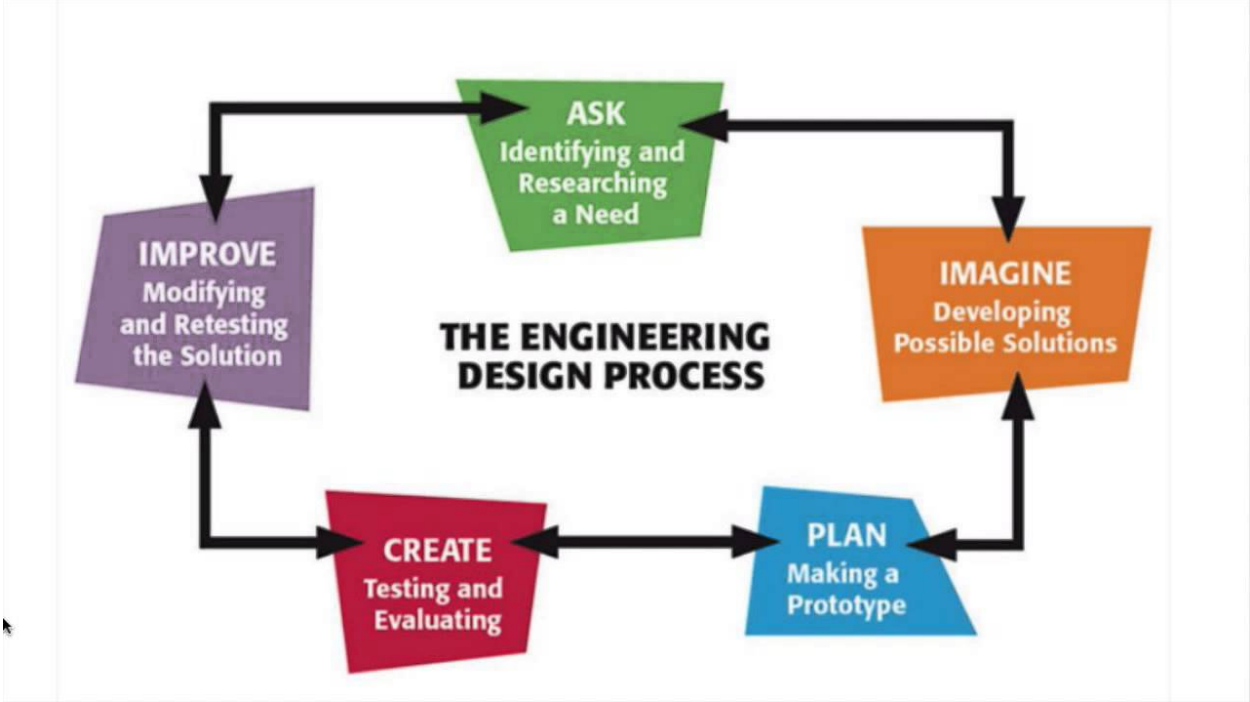
I like to get to work early each day, so I have enough time to prepare before students begin to arrive. There are some days though, that I do not want to get up and continue to hit the snooze button. My need would be to create an alarm clock that would not let me continue to hit the snooze button, so I oversleep!

Day 2

What is a community?

Why are communities important?

What is EDP?



https://www.youtube.com/watch?v=6dR3iKaWUoU

The Design Process

https://www.youtube.com/watch?v=CvtbtGk7KSM

Performance Task

The state of North Carolina has decided that they would like to establish a new town that lies between Durham and Raleigh. They are looking for a team of engineers to help design and build the new town, called Scrappton. You are a young engineer just graduating from a local university and have been learning about architectural and structural engineering, the engineering design process, and advertisement. You will be expected to show what you have learned by working as an engineer to help design, build and advertise Scrappton. Your task is to decide what type of building you would like to design for the new town. You will use the skills you've learned to plan, design, build and advertise your new building. You will need to get your building approved by the state of North Carolina prior to the start of building. Be sure to include your engineering design plan, as well as your reason for adding your building to the city.

Day 3

What is marketing?

https://www.youtube.com/watch?v=9tD6OQExL5Q

Logos, Pathos, Ethos

http://www.readwritethink.org/classroom-resources/lesson-plans/convince-developing-persuasive-writing-56.html

Day 4

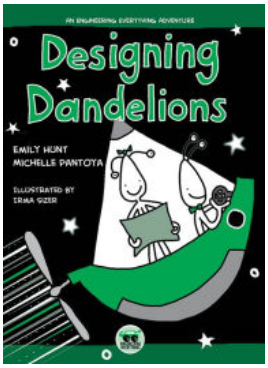
Jenny's Dilemma

Jenny has been working at an advertising firm for the past 2 years. She has been promised that if she does a really good job on the next project, that she will receive a promotion with a huge raise. She was tasked with creating a billboard to market how healthy cigarettes are. Jenny knows that cigarettes are not healthy and can cause cancer. She could really use the money the raise would give her, but she also knows that smoking is not good for you. If she does not do what was asked of her, she may lose her job. What should she do?

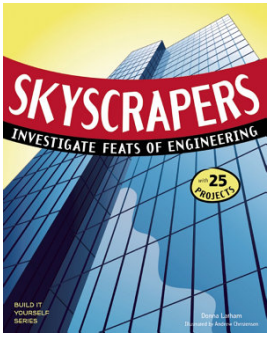
Create the billboard

Not Create the billboard

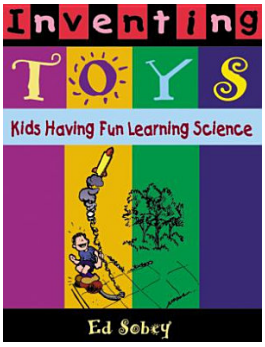
Books for Teachers and Kids



By: Emily Hunt, Michelle Pantoya, Irma Sizer

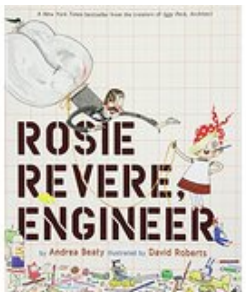


By: Donna Latham



By: Ed Sobey

By: M. Taboubi



By: Andrea Beaty and David Roberts

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What Is the Engineering Design Process?. Retrieved from http://www.pbslearningmedia.org/resource/phy03.sci.engin.design.desprocess/what-is-the-engineering-design-process/