

A Standards-Aligned Discussion & Activity Guide for Grades PK-3



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Written by Jody Jensen Shaffer
Illustrated by Stephanie Laberis
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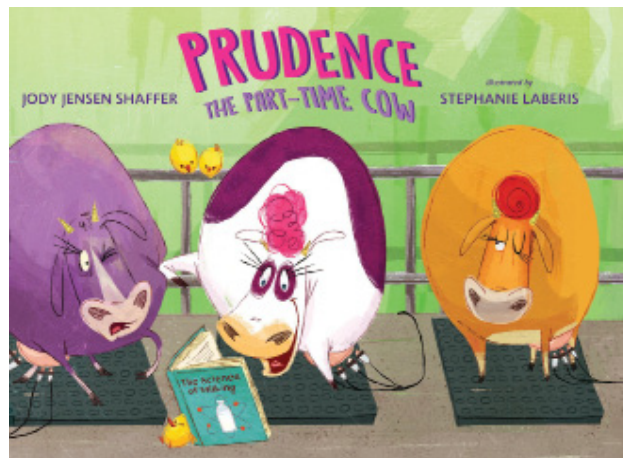
Prudence looks like a full-time cow. She wanders through pastures, she swats flies, and she lines up for supper. But Prudence is a part-time cow. She is also a scientist, an architect, and an inventor; studying and building and dreaming and creating. To the other cows in the herd, Prudence is a bit too part-time. She's just too different to be part of the herd. At first Prudence tries to fit in, suppressing all her scientific smarts and imaginative inventing. But in a moment of inspiration--Cow Power!--Prudence realizes how to show the others that she can be a part-time cow and a full-time member of the herd. Funny and sweet, this is a story for anyone who's ever felt a bit different.

Guide created by Debbie Gonzales, MFA
www.debbiegonzales.com



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Pre-Reading Discussion Questions

Observe the front cover of PRUDENCE THE PART-TIME COW:

- ~ Identify the animals depicted in the illustration.
- ~ Describe the setting. List the clues that suggest the animals' location.
- ~ Examine the title of the book the cow in the middle is reading. Tell how the book relates to the action taking place in this illustration.
- ~ The curved, spiral shape featured on the cover of the cow's book is called an 'electron.' Electrons can be found in most atoms, which are the basic units of matter. Determine why the cow in the center would find electrons and atoms to be interesting.
- ~ Compare and contrast the cow in the center to those beside her. List ways that the cows are different and the same.
- ~ How does the cow in the center feel? List the clues that reveal her emotions.
- ~ Consider the title of the story. Discuss what the term 'part-time' means. Explore what it means to be a 'part-time cow.'
- ~ Predict what this story is going to be about. Identify clues in the illustration that support your prediction.

Meet the author - Jody Jensen Shaffer:

- ~ Both of Ms. Shaffer's parents were teachers. Do you think that her parents being educators influenced her desire to become a writer? How so?
- ~ Ms. Shaffer says that she loves to laugh and enjoys funny things. Point out some things that you find to be funny in the illustration on the front cover.
- ~ Ms. Shaffer says that she can remember the exact moment that she learned how to read. How about you? Talk about your experience with learning how to read.
- ~ What kinds of stories do you like to write? Funny ones? Scientific ones? Or both?
- ~ To learn more about Ms. Shaffer and the other great books she's written access her website at <http://jodyjensenshaffer.com>.



Meet the illustrator - Steph Laberis:

- ~ Ms. Laberis describes herself as being an illustrator and a 'character designer.' The word 'character' means personality, emotions, and spirit. Study the animals featured on the front cover. Describe each creature's personality, emotions, and spirit. Identify details in the illustration that reveal each animal's character.
- ~ Illustrations are pictures that tell stories. Consider the illustration on the front cover. Tell the story that Ms. Laberis's drawing reveals.
- ~ What sorts of stories do your drawings tell? What are some techniques you use when developing characters in your illustrations? Explain your answers.
- ~ Ms. Laberis has illustrated a number of books and has worked for a wide variety of interesting clients. Access her website at <https://stephlaberis.carbonmade.com/> to learn more about Ms. Laberis.



Post-Reading Discussion Questions

**But Prudence was not a full-time cow.
She was a part-time cow.
The rest of the time, she was:
A scientist.
An architect.
An engineer.**

- * To be 'curious' means to desire knowledge and understanding, to be interested in how things work, and to be unique. Explore Prudence's curious nature. Explain how being curious made her uniquely different.
- * Scientists study the natural world. Architects build structures. Engineers design functional things. Consider how and why scientists, architects, and engineers think about life in unusual and different ways. Discuss how thinking in unusual, different, and curious ways helps to make the world a better place.
- * How about you? Does science fascinate you? Do you like to build things or dream of inventions that might benefit others? If so, describe some of your imaginative ideas. Tell how your inventions will be helpful and make the world a better place.

"Cows don't calculate," said Bessie, counting the calves as she hustled them from the pond.

- * To 'calculate' means to measure, compute, and to think deeply. Explain why Prudence's ability to calculate makes her different from the other cows.
- * In this scene, Bessie seems to be bothered by the fact that Prudence is calculating the temperature of water and windspeed. Determine why Prudence's actions are irritating to Bessie.
- * Bessie appears to be fretful as she tries to keep track of the calves. Later in the story, Prudence invents the Cow-culator to help make sure that the calves are accounted for. Consider how Prudence's invention-The Cow-culator- benefits others.
- * Explore the rest of the story to determine how Prudence's inventions and discoveries meet the needs of others. Tell how Prudence's curiosity and her ability to calculate and to think differently improve life on the farm.



**Prudence dragged herself to the farthest tree. A tear ran down her face.
If only I could make them like me for me.**

- * Observe the spread featuring Prudence standing alone beneath the tree. Explain how Prudence is feeling in this illustration. How do you know?
- * List reasons why Prudence is crying. Determine what is troubling her.
- * The word 'misunderstanding' means having the wrong idea about someone or something. Explore the misunderstanding between Prudence and the herd. Explain how the herd has the wrong idea about Prudence and her inventions.
- * The word 'motive' is defined as the reason or purpose behind an action. Explore the motive behind Prudence's inventions. Does she intend to cause the herd to be unhappy with her? Explain your answer.

Cow Power!

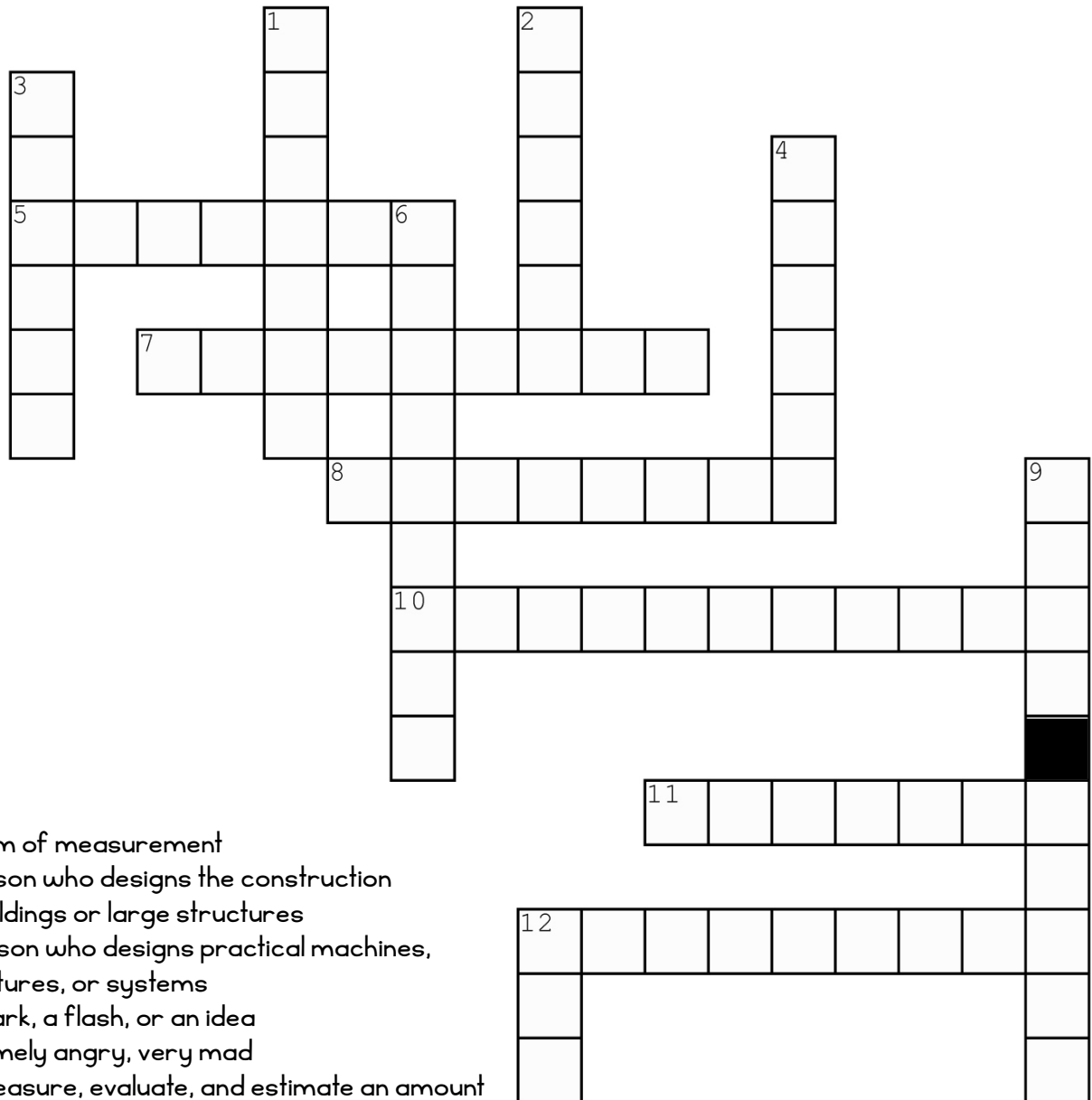
- * The title of the story is PRUDENCE THE PART-TIME COW. Up until this point in the story Prudence's scientific-architectural-engineering part of her personality has been the main focus. Discuss how the inventive side of her personality has caused misunderstandings with the herd. Tell why they cannot relate to this aspect of Prudence's personality.
- * Note that after Prudence "thought and thought and thought," after she tapped into the 'cow' part of her personality, she discovered the enthusiasm and self-confidence required to solve her problem. Discuss how "Cow Power" helped Prudence to earn a place in the herd.

**The others agreed, "You made all of this...for us?"
Prudence nodded.
"I told you she was one of the herd!"**

- * Being 'thoughtful' means to be caring, kind, and observant. Discuss how inventing and creating the different projects was a thoughtful act by Prudence.
 - ~ Tell how each invention showed how much she cared for others.
 - ~ Explain how Prudence was practicing kindness while making each project.
 - ~ Determine how, by observing the needs of others, Prudence was able to make inventions that would benefit others.
- * The word 'acceptance' means to believe in the goodness of another. Explore how Prudence was eventually able to find acceptance by the herd by being true to her own, unique expression of Cow Power!



Vocabulary Crossword Puzzle



Across

5. A form of measurement
7. A person who designs the construction of buildings or large structures
8. A person who designs practical machines, structures, or systems
10. A spark, a flash, or an idea
11. Extremely angry, very mad
12. To measure, evaluate, and estimate an amount

Down

1. The study of observation, experimentation, and identification of matter and natural things
2. A cow
3. To bunch together
4. Part of a group
6. A person with expert knowledge of science
9. The speed at which the wind moves
12. Bovine



Prudence and the Engineering Method

Objective: To analyze the use of the Engineering Method, both as a literary element in the story and as a practical application in life.

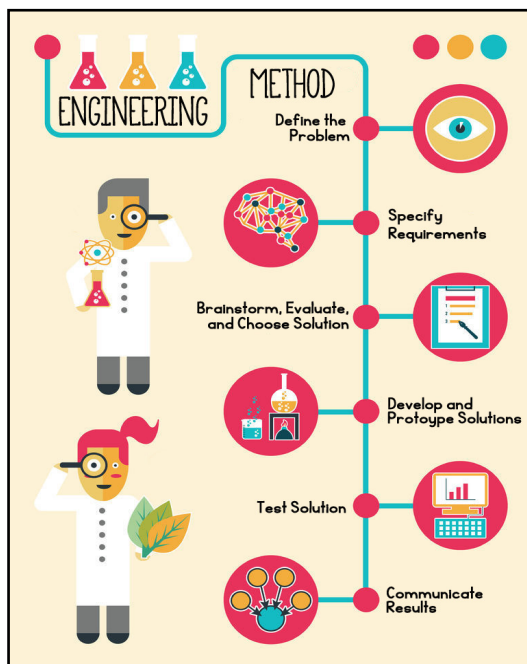
Materials:

- * PRUDENCE THE PART-TIME COW, the book
- * *Prudence & the Engineering Method* print outs (Guide, pg. 9-15)
- * *The Engineering Method and YOU!* (Guide, pg. 16)
- * Pencil
- * Colored markers

Procedure:

- * Instruct students to closely consider the spreads featured on each *Prudence & the Engineering Method* print out. Discuss Prudence's inventions using the Engineering Method as a guide. Students will need to predict and infer aspects of Prudence's prototype development process as they pertain to each of her designs.

Photo Credit: 123RF Stock Photos



~ **Define the Problem** - Discuss how Prudence uses her observational skills to discover a solution for a need to be met. Explain how each design, known as a prototype, helps to improve life on the farm in some way.

~ **Specify Requirements** - List the important characteristics the solution needs to be successful. It is helpful to study the design of other similar products or ideas to gain understanding of the scope of the project and construction ideas.

~ **Brainstorm, Evaluate & Choose a Solution** - Consider lots of options with which to engineer a product design. Good designers try to generate as many solutions as they can before developing a prototype.

~ **Develop & Prototype Solutions** - A prototype is plan or a physical representation of a solution. Oftentimes, engineers discover that there is a need to repeat the development phase of the Engineering Method to assure a successful end product.

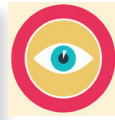
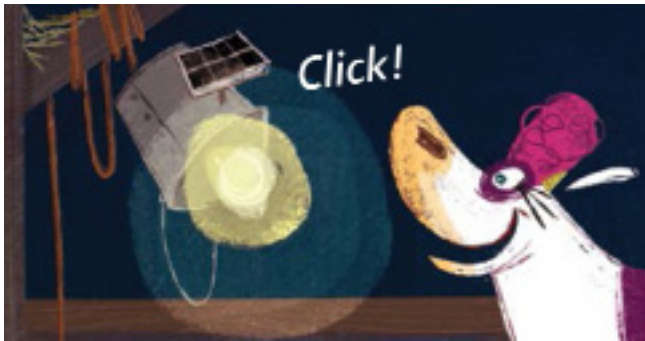
~ **Test Solution** - Engineers repeatedly test solutions, find new problems, and make changes before settling on a final design.

~ **Communicate Results** - Once a project is complete, engineers communicate results to others. They share process documentation and publically present prototypes in such a way that the design can be replicated by others.

- * Instruct students to complete each *Prudence & the Engineering Method* print out to the best of their ability. Encourage them to illustrate their work and share it with the class.



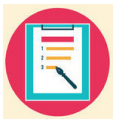
Prudence and the Engineering Method - The Solar Light



DEFINE A PROBLEM: Identify a need. Tell why the project will be helpful or necessary.



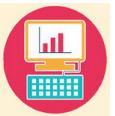
SPECIFY REQUIREMENTS: List important characteristics the prototype will need to successfully solve a problem.



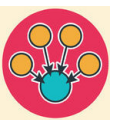
BRAINSTORM, EVALUATE & CHOOSE A SOLUTION: Consider the options available to Prudence on the farm. Identify how she used limited resources to design a prototype to solve a problem.



DEVELOP & PROTOTYPE SOLUTIONS: Describe the developmental process Prudence used to develop this prototype. Explain how it ultimately met a need or solved a problem.



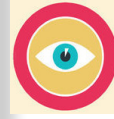
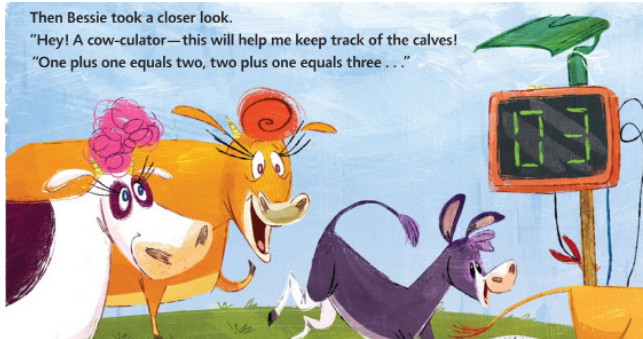
TEST SOLUTION: Evaluate and describe how the design met a specific need. Suggest any changes in the prototype you feel can be made to improve the product design.



COMMUNICATE RESULTS: State if the prototype serves a beneficial solution to a problem. Present your evaluation of the prototype and describe ways to mass manufacture this product in efforts to meet the needs of others.



Prudence and the Engineering Method - The Cow-culator



DEFINE A PROBLEM: Identify a need. Tell why the project will be helpful or necessary.



SPECIFY REQUIREMENTS: List important characteristics the prototype will need to successfully solve a problem.



BRAINSTORM, EVALUATE & CHOOSE A SOLUTION: Consider the options available to Prudence on the farm. Identify how she used limited resources to design a prototype to solve a problem.



DEVELOP & PROTOTYPE SOLUTIONS: Describe the developmental process Prudence used to develop this prototype. Explain how it ultimately met a need or solved a problem.



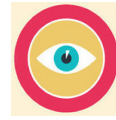
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COMMUNICATE RESULTS: State if the prototype serves a beneficial solution to a problem. Present your evaluation of the prototype and describe ways to mass manufacture this product in efforts to meet the needs of others.



Prudence and the Engineering Method - The Electric Shovel Guitar



DEFINE A PROBLEM: Identify a need. Tell why the project will be helpful or necessary.



SPECIFY REQUIREMENTS: List important characteristics the prototype will need to successfully solve a problem.



BRAINSTORM, EVALUATE & CHOOSE A SOLUTION: Consider the options available to Prudence on the farm. Identify how she used limited resources to design a prototype to solve a problem.



DEVELOP & PROTOTYPE SOLUTIONS: Describe the developmental process Prudence used to develop this prototype. Explain how it ultimately met a need or solved a problem.



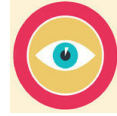
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COMMUNICATE RESULTS: State if the prototype serves a beneficial solution to a problem. Present your evaluation of the prototype and describe ways to mass manufacture this product in efforts to meet the needs of others.



Prudence and the Engineering Method - The Shade Hat



DEFINE A PROBLEM: Identify a need. Tell why the project will be helpful or necessary.



SPECIFY REQUIREMENTS: List important characteristics the prototype will need to successfully solve a problem.



BRAINSTORM, EVALUATE & CHOOSE A SOLUTION: Consider the options available to Prudence on the farm. Identify how she used limited resources to design a prototype to solve a problem.



DEVELOP & PROTOTYPE SOLUTIONS: Describe the developmental process Prudence used to develop this prototype. Explain how it ultimately met a need or solved a problem.



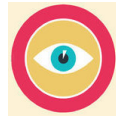
TEST SOLUTION: Evaluate and describe how the design met a specific need. Suggest any changes in the prototype you feel can be made to improve the product design.



COMMUNICATE RESULTS: State if the prototype serves a beneficial solution to a problem. Present your evaluation of the prototype and describe ways to mass manufacture this product in efforts to meet the needs of others.



Prudence and the Engineering Method - The Speaker



DEFINE A PROBLEM: Identify a need. Tell why the project will be helpful or necessary.

SPECIAL NOTE!
Gather two disposable drinking cups, a long piece of string, and a push pin and create this simple-to-make project on your own! For easy-to-follow instructions, access this link to the [Wiki-How](#) website.



SPECIFY REQUIREMENTS: List important characteristics the prototype will need to successfully solve a problem.



BRAINSTORM, EVALUATE & CHOOSE A SOLUTION: Consider the options available to Prudence on the farm. Identify how she used limited resources to design a prototype to solve a problem.



DEVELOP & PROTOTYPE SOLUTIONS: Describe the developmental process Prudence used to develop this prototype. Explain how it ultimately met a need or solved a problem.



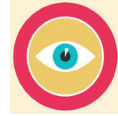
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COMMUNICATE RESULTS: State if the prototype serves a beneficial solution to a problem. Present your evaluation of the prototype and describe ways to mass manufacture this product in efforts to meet the needs of others.



Prudence and the Engineering Method - The Shade Umbrella



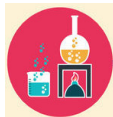
DEFINE A PROBLEM: Identify a need. Tell why the project will be helpful or necessary.



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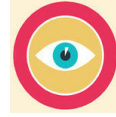
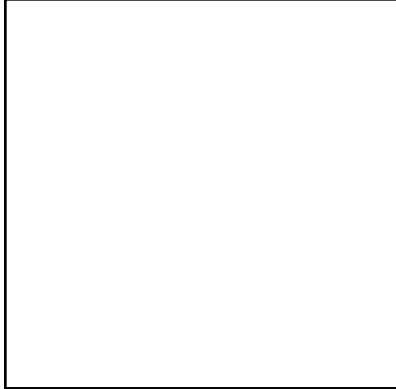


COMMUNICATE RESULTS: State if the prototype serves a beneficial solution to a problem. Present your evaluation of the prototype and describe ways to mass manufacture this product in efforts to meet the needs of others.



The Engineering Method and YOU!

Now it's your turn to design a prototype. Illustrate your idea in the box below or on a larger piece of paper. Using the Engineering Method as a guide, think through your project as a scientist, architect, or an engineer would do. Get creative! Let your imagination soar. COW POWER!



DEFINE A PROBLEM: Identify a need. Tell why your idea will be helpful or necessary.



SPECIFY REQUIREMENTS: List important characteristics the prototype will need to successfully solve a problem.



BRAINSTORM, EVALUATE & CHOOSE A SOLUTION: Consider the options and resources available to you. Identify how you will use limited resources to design a prototype to solve a problem.



DEVELOP & PROTOTYPE SOLUTION: Describe the developmental process needed to develop this prototype. Explain how it will ultimately meet a need or solve a problem.



TEST SOLUTION: Evaluate and describe how the design will meet a specific need. Suggest any changes in the prototype you feel can be made to improve the product design.



COMMUNICATE RESULTS: State if the prototype serves a beneficial solution to a problem. Present your evaluation of the prototype and describe ways to mass manufacture this product in efforts to meet the needs of others.



Academic Standards Alignment

The Common Core State Standards: English Language Arts Standards >> Reading: Literature

		Discussion Questions	Crossword Puzzle	The Engineering Method
CCSS.ELA-Literacy.RL.K.1	With prompting and support, ask and answer questions about key details in a text.	●		●
CCSS.ELA-Literacy.RL.K.3	With prompting and support, identify characters, settings, and major events in a story.	●		●
CCSS.ELA-Literacy.RL.K.4	Ask and answer questions about unknown words in a text.	●	●	
CCSS.ELA-Literacy.RL.K.6	With prompting and support, name the author and illustrator of a story and define the role of each in telling the story.	●		
CCSS.ELA-Literacy.RL.K.7	With prompting and support, describe the relationship between illustrations and the story in which they appear (e.g., what moment in a story an illustration depicts).	●		●
CCSS.ELA-Literacy.RL.K.10	Actively engage in group reading activities with purpose and understanding.	●	●	●
CCSS.ELA-Literacy.RL.1.1	Ask and answer questions about key details in a text.	●		●
CCSS.ELA-Literacy.RL.1.3	Describe characters, settings, and major events in a story, using key details.	●		●
CCSS.ELA-Literacy.RL.1.4	Identify words and phrases in stories or poems that suggest feelings or appeal to the senses.	●		
CCSS.ELA-Literacy.RL.1.7	Use illustrations and details in a story to describe its characters, setting, or events.	●		●
CCSS.ELA-Literacy.RL.1.9	Compare and contrast the adventures and experiences of characters in stories.	●		
CCSS.ELA-Literacy.RL.1.10	With prompting and support, read prose and poetry of appropriate complexity for grade 1.	●	●	●
CCSS.ELA-Literacy.RL.2.1	Ask and answer such questions as <i>who</i> , <i>what</i> , <i>where</i> , <i>when</i> , <i>why</i> , and <i>how</i> to demonstrate understanding of key details in a text.	●		
CCSS.ELA-Literacy.RL.2.3	Describe how characters in a story respond to major events and challenges.	●		
CCSS.ELA-Literacy.RL.2.7	Use information gained from the illustrations and words in a print or digital text to demonstrate understanding of its characters, setting, or plot.	●		●
CCSS.ELA-Literacy.RL.2.10	By the end of the year, read and comprehend literature, including stories and poetry, in the grades 2-3 text complexity band proficiently, with scaffolding as needed at the high end of the range.	●	●	●
CCSS.ELA-Literacy.RL.3.1	Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.	●		
CCSS.ELA-Literacy.RL.3.3	Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.	●		
CCSS.ELA-Literacy.RL.3.7	Explain how specific aspects of a text's illustrations contribute to what is conveyed by the words in a story (e.g., create mood, emphasize aspects of a character or setting).	●		●
CCSS.ELA-Literacy.RL.3.10	By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the grades 2-3 text complexity band independently and proficiently.	●	●	●

English Language Arts Standards >> Writing

CCSS.ELA-Literacy.W.K.2	Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.			●
CCSS.ELA-Literacy.W.1.2	Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure.			●
CCSS.ELA-Literacy.W.2.2	Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.			●
CCSS.ELA-Literacy.W.3.2	Write informative/explanatory texts to examine a topic and convey ideas and information clearly.			●



English Language Arts Standards >> Speaking & Listening

		Discussion Questions	Crossword Puzzle	The Engineering Method
CCSS.ELA-Literacy.SL.K.1	Participate in collaborative conversations with diverse partners about <i>kindergarten topics and texts</i> with peers and adults in small and larger groups.	●	●	●
CCSS.ELA-Literacy.SL.K.2	Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.	●		●
CCSS.ELA-Literacy.SL.K.3	Ask and answer questions in order to seek help, get information, or clarify something that is not understood.	●	●	●
CCSS.ELA-Literacy.SL.K.4	Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.	●		●
CCSS.ELA-Literacy.SL.K.5	Add drawings or other visual displays to descriptions as desired to provide additional detail.			●
CCSS.ELA-Literacy.SL.K.6	Speak audibly and express thoughts, feelings, and ideas clearly.	●	●	●
CCSS.ELA-Literacy.SL.1.1	Participate in collaborative conversations with diverse partners about <i>grade 1 topics and texts</i> with peers and adults in small and larger groups.	●	●	●
CCSS.ELA-Literacy.SL.1.2	Ask and answer questions about key details in a text read aloud or information presented orally or through other media.	●		●
CCSS.ELA-Literacy.SL.1.4	Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.	●		●
CCSS.ELA-Literacy.SL.1.5	Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.			●
CCSS.ELA-Literacy.SL.1.6	Produce complete sentences when appropriate to task and situation.	●	●	●
CCSS.ELA-Literacy.SL.2.1	Participate in collaborative conversations with diverse partners about <i>grade 2 topics and texts</i> with peers and adults in small and larger groups.	●	●	●
CCSS.ELA-Literacy.SL.2.2	Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.	●		●
CCSS.ELA-Literacy.SL.2.3	Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.	●	●	●
CCSS.ELA-Literacy.SL.2.6	Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification.	●	●	●
CCSS.ELA-Literacy.SL.3.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 3 topics and texts</i> , building on others' ideas and expressing their own clearly.	●	●	●
CCSS.ELA-Literacy.SL.3.2	Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.	●		●
CCSS.ELA-Literacy.SL.3.4	Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.			●
CCSS.ELA-Literacy.SL.3.6	Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.	●	●	●



English Language Arts Standards>>Foundational Skills

		Discussion Questions	Crossword Puzzle	The Engineering Method
CCSS.ELA-Literacy.RF.K.1	Demonstrate understanding of the organization and basic features of print.	●	●	●
CCSS.ELA-Literacy.RF.K.2	Demonstrate understanding of spoken words, syllables, and sounds (phonemes).	●	●	●
CCSS.ELA-Literacy.RF.K.3	Know and apply grade-level phonics and word analysis skills in decoding words.	●	●	●
CCSS.ELA-Literacy.RF.1.1	Demonstrate understanding of the organization and basic features of print.	●	●	●
CCSS.ELA-Literacy.RF.1.2	Demonstrate understanding of spoken words, syllables, and sounds (phonemes).	●	●	●
CCSS.ELA-Literacy.RF.1.3	Know and apply grade-level phonics and word analysis skills in decoding words.	●	●	●
CCSS.ELA-Literacy.RF.1.4	Read with sufficient accuracy and fluency to support comprehension.	●	●	●
CCSS.ELA-Literacy.RF.2.3	Know and apply grade-level phonics and word analysis skills in decoding words.	●	●	●
CCSS.ELA-Literacy.RF.2.4	Read with sufficient accuracy and fluency to support comprehension.	●	●	●
CCSS.ELA-Literacy.RF.3.3	Know and apply grade-level phonics and word analysis skills in decoding words.	●	●	●
CCSS.ELA-Literacy.RF.3.4	Read with sufficient accuracy and fluency to support comprehension.	●	●	●

Next Generation Science Standards:

1-PS4-2	Waves and Their Applications in Technologies for Information Transfer			
	Make observations to construct an evidence-based account that objects in darkness can be seen only when illuminated.			●
K-2-ETS1-1	Engineering Design			
	Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.			●
K-2-ETS1-2	Engineering Design			
	Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.			●

