TOPIC
Mathematical Connections and Problem Solving

KEY QUESTION
How do you create a procedure for deciding the winner of a summer reading contest based on the number of books read, the variety of books, the difficulty of the books, the length of the books, and the quality of written book reports?

LEARNING GOALS
Students will:
• Use non-numeric data to create a system for assigning reading points
• Consider how to use and exclude data
• Make decisions about whether or not a solution meets the needs of a client
• Communicate the solution clearly to the client

GUIDING DOCUMENTS
This activity has the potential to address many mathematics and science standards. Please see pages 4-6 for a complete list of mathematics and science standards.

RECOMMENDED SUPPLIES FOR ALL MODEL-ELICITING ACTIVITIES
It is recommended to have all of these supplies in a central location in the room. It is recommended to let the students know that they are available, but not to encourage them to use anything in particular.
• Overhead transparencies and transparency markers/pens, whiteboards and markers, posterboards, or other presentation tools such as a document camera.
• Calculators
• Rulers, scissors, tape
• Markers, colored pencils, pencils
• Construction paper, graph paper, lined paper
• Paper towels or tissues (for cleaning transparencies)
• Manila folders or paper clips for collecting the students’ work

• Optional: Computers with programs such as Microsoft Word and Excel

WHAT ARE MODEL-ELICITING ACTIVITIES (MEAs)?
Model-Eliciting Activities are problem activities explicitly designed to help students develop conceptual foundations for deeper and higher order ideas in mathematics, science, engineering, and other disciplines. Each task asks students to mathematically interpret a complex real-world situation and requires the formation of a mathematical description, procedure, or method for the purpose of making a decision for a realistic client. Because teams of students are producing a description, procedure, or method (instead of a one-word or one-number answer), students’ solutions to the task reveal explicitly how they are thinking about the given situation.

THE Summer Reading MEA CONSISTS OF FOUR COMPONENTS:
1) Newspaper article: Students individually read the newspaper article to become familiar with the context of the problem. This handout is on page 7.
2) Readiness questions: Students individually answer these reading comprehension questions about the newspaper article to become even more familiar with the context and beginning thinking about the problem. This handout is on page 8.
3) Problem statement: In teams of three or four, students work on the problem statement for 45 – 90 minutes. This time range depends on the amount of self-reflection and revision you want the students to do. It can be shorter if you are looking for students’ first thoughts, and can be longer if you expect a polished solution and well-written letter. The handouts are on pages 9-12.
4) Process of sharing solutions: Each team writes their solution in a letter or memo to the client. Then, each team presents their solution to the class. Whole class discussion is intermingled
with these presentations to discuss the different solutions, the mathematics involved, and the effectiveness of the different solutions in meeting the needs of the client. In totality, each MEA takes approximately 2-3 class periods to implement, but can be shortened by having students do the individual work during out-of-class time. The Presentation Form can be useful and is explained on page 4 and found on page 14.

**RECOMMENDED PROGRESSION OF THE Summer Reading MEA**

While other implementation options are possible for MEAs, it is recommended that the MEA be implemented in a cooperative learning format. Numerous research studies have proven cooperative learning to be effective at improving student achievement, understanding, and problem solving skills. In this method students will complete work individually (Newspaper article and readiness questions; as well as initial thoughts on the problem statement) and then work together as a group. This is important because brainstorming works best when students have individual time to think before working as a group. Students can be graded on both their individual and group contributions. Social skills’ discussion at the beginning of the MEA and reflection questions at the end of the MEA are also essential aspects of cooperative learning.

**Social Skills (3 - 5 minutes)**

Students must be taught how to communicate and work well in groups. Several social skills that are essential to group work are decision-making, asking questions, and communicating and listening. The teacher can show part of a YouTube video and discuss aspects of these skills before beginning the MEA. (http://www.youtube.com/user/flowmathematics)

**Newspaper Article and Readiness Questions:**

The purpose of the newspaper article and the readiness questions is to introduce the students to the context of the problem.

(10 minutes): Give the article and the questions to the students the day before for homework. Then, in the next class, discuss as a class the answers to the readiness questions before beginning to discuss the problem statement.

**Problem Statement:**

You may want to read the problem statement to the students and then identify as a class: a) the client that the students are working for and b) the product that the students are being asked to produce. Once you have addressed the points above, allow the students to work on the problem statement. Let the students know that they will be sharing their solution to the rest of the class. Tell students you that you will randomly pick a group member to present for each group. Tell the students that they need to make sure that everyone understands their group’s solution so they need to be sure to work together well. The group member who will present can be picked by assigning each group member a number.

**Working on the Problem Statement** (35-50 minutes): Place the students in teams of three or four. Students should begin to work by sharing their initial ideas for solving the problem. If you already use teams in your classroom, it is best if you continue with these same teams since results for MEAs are better when the students have already developed a working relationship with their team members. If you do not use teams in your classroom and classroom management is an issue, the teacher may form the teams. If classroom management is not an issue, the students may form their own teams. You may want to have the students choose a name for their team to promote unity.

**Teachers’ role:** As they work, your role should be one of a facilitator and observer. Avoid questions or comments that steer the students toward a particular solution. Try to answer their questions with questions so that
the student teams figure out their own issues. Also during this time, try to get a sense of how the students are solving the problem so that you can ask them questions about their solutions during their presentations.

**Presentations of Solutions** (15-30 minutes):
The teams present their solutions to the class. There are several options of how you do this. Doing this electronically or assigning students to give feedback as out-of-class work can lessen the time spent on presentations. If you choose to do this in class, which offers the chance for the richest discussions, the following are recommendations for implementation. Each presentation typically takes 3 – 5 minutes. You may want to limit the number of presentations to five or six or limit the number of presentations to the number of original (or significantly different) solutions to the MEA.

Before beginning the presentations, encourage the other students to not only listen to the other teams’ presentations but also to a) **try to understand the other teams’ solutions** and b) **consider how well these other solutions meet the needs of the client**. You may want to offer points to students that ask ‘good’ questions of the other teams, or you may want students to complete a reflection page (explanation – page 4, form – page 14) in which they explain how they would revise their solution after hearing about the other solutions. As students offer their presentations and ask questions, whole class discussions should be intermixed with the presentations in order to address conflicts or differences in solutions. When the presentations are over, collect the student teams’ memos/letters, presentation overheads, and any other work you would like to look over or assess.

**ASSESSMENT OF STUDENTS’ WORK**
You can decide if you wish to evaluate the students’ work. If you decide to do so, you may find the following Assessment Guide Rubric helpful:

Performance Level Effectiveness: Does the solution meet the client’s needs?

**Requires redirection**: The product is on the wrong track. Working longer or harder with this approach will not work. The students may need additional feedback from the teacher.

**Requires major extensions or refinements**: The product is a good start toward meeting the client’s needs, but a lot more work is needed to respond to all of the issues.

**Requires editing and revisions**: The product is on a good track to be used. It still needs modifications, additions or refinements.

**Useful for this specific data given, but not shareable and reusable OR Almost shareable and reusable but requires minor revisions**: No changes will be needed to meet the immediate needs of the client for this set of data, but not generalized OR Small changes needed to meet the generalized needs of the client.

**Share-able or re-usable**: The tool not only works for the immediate solution, but it would be easy for others to modify and use in similar situations. OR The solution goes above and beyond meeting the immediate needs of the client.

**PRESENTATION FORM** (Optional)
As the teams of students present their solutions to the class, you may find it helpful to have each student complete the presentation form on page 14. This form asks students to evaluate and provide feedback about the solutions of at least two teams. It also asks students to consider how they would revise their own solution to the Summer Reading MEA after hearing of the other teams’ solutions.

**STUDENT REFLECTION FORM**
You may find the Student Reflection Form (page 15) useful for concluding the MEA with the students. The form is a debriefing tool, and it
asks students to consider the concepts that they used in solving the MEA and to consider how they would revise their previous solution after hearing of all the different solutions presented by the various teams. Students typically fill out this form after the team presentations.

STANDARDS ADDRESSED

NCTM Mathematics Standards

Numbers and Operations:
• Work flexibly with fractions, decimals, and percents to solve problems
• Understand and use ratios and proportions to represent quantitative relationships
• Understand the meaning and effects of arithmetic operations with fractions, decimals, and integers
• Develop and analyze algorithms for computing with fractions, decimals, and integers and develop fluency in their use
• Judge the reasonableness of numerical computations and their results

Algebra
• Represent, analyze, and generalize a variety of patterns with tables, graphs, words, and, when possible, symbolic rules
• Relate and compare different forms of representation for a relationship
• Model and solve contextualized problems using various representations, such as graphs, tables, and equations
• Use symbolic algebra to represent and explain mathematical relationships
• Identify essential quantitative relationships in a situation and determine the class or classes of functions that might model the relationships
• Draw reasonable conclusions about a situation being modeled

Geometry
• Use Cartesian coordinates and other coordinate systems, such as navigational, polar, or spherical systems, to analyze geometric situations
• Use geometric ideas to solve problems in, and gain insights into, other disciplines and other areas of interest such as art and architecture

Measurement
• Solve simple problems involving rates and derived measurements for such attributes as velocity and density
• Analyze precision, accuracy, and approximate error in measurement situations

• Use common benchmarks to select appropriate methods for estimating measurements

Data Analysis and Probability
• Find, use, and interpret measures of center and spread, including mean and interquartile range
• Discuss and understand the correspondence between data sets and their graphical representations, especially histograms, stem-and-leaf plots, box plots, and scatter plots
• Select, create, and use appropriate graphical representations of data, including histograms, box plots, and scatter plots

Problem Solving
• Build new mathematical knowledge through problem solving
• Solve problems that arise in mathematics and in other contexts
• Apply and adapt a variety of appropriate strategies to solve problems
• Monitor and reflect on the process of mathematical problem solving

Reasoning and Proof
• Develop and evaluate mathematical arguments and proofs
• Make and investigate mathematical arguments and proofs

Communication
• Organize and consolidate their mathematical thinking through communication
• Communicate their mathematical thinking coherently and clearly to peers, teachers, and others
• Analyze and evaluate the mathematical thinking and strategies of others
• Use the language of mathematics to express mathematical ideas precisely

Connections
• Recognize and use connections among mathematical ideas
• Understand how mathematical ideas interconnect and build on one another to produce a coherent whole
• Recognize and apply mathematics in contexts outside of mathematics

Representation
• Create and use representations to organize, record, and communicate mathematical ideas
• Select, apply, and translate among mathematical representations to solve problems
• Use representations to model and interpret physical, social, and mathematical phenomena

NRC Science Standards

Inquiry
• Use appropriate tools and techniques to gather, analyze and interpret data
• Develop descriptions, explanations, predictions, and models using evidence
• Think critically and logically to make the relationships between evidence and explanations
• Recognize and analyze alternative explanations and predictions
• Communicate scientific procedures and explanations
• Use mathematics in all aspects of scientific inquiry

Common Core Math Standards

• 5.G Graph points on the coordinate plane to solve real-world and mathematical problems.
• 5 MD-2: represent and interpret data
• 6 G-1: Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.
• 5 MD-2: represent and interpret data
• 6 NS-8: Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
• 3. Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.
• 7 SP Use random sampling to draw inferences about a population
• 7 EE Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
• 3. Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.
• High School S-ID Summarize, represent, and interpret data on a single count or measurement variable.
  1. Represent data with plots on the real number line (dot plots, histograms, and box plots).
  2. Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.
  3. Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).
• S-ID-1 Understand statistics as a process for making inferences about population parameters based on a random sample from that population.
## Standards for Mathematical Practices integration with MEAs

<table>
<thead>
<tr>
<th>Mathematical Practice</th>
<th>How it occurs in MEAs</th>
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</thead>
<tbody>
<tr>
<td>1. Make sense of problems and persevere in solving them.</td>
<td>As participants work through iterations of their models they continue to gain new insights into ways to use mathematics to develop their models. The structure of MEAs allows for participants to stay engaged and to have sustained problem solving experiences.</td>
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<tr>
<td>2. Reason abstractly and quantitatively</td>
<td>MEAs allow participants to both contextualize, by focusing on the real world context of the situation, and decontextualize by representing a situation symbolically.</td>
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<td>3. Construct viable arguments and critique the reasoning of others.</td>
<td>Throughout MEAs while groups are working and presenting their models.</td>
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<tr>
<td>4. Model with mathematics.</td>
<td>This is the essential focus of MEAs; for participants to apply the mathematics that they know to solve problems in everyday life, society, or the workplace. This is done through iterative cycles of model construction, evaluation, and revision.</td>
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<tr>
<td>5. Use appropriate tools strategically.</td>
<td>Materials are made available for groups as they work on MEAs including graph paper, graphing calculators, computers, applets, dynamic software, spreadsheets, and measuring devices.</td>
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<tr>
<td>6. Attend to precision.</td>
<td>Precise communication is essential in MEAs and participants develop the ability to communicate their mathematical understanding through different representations including written, verbal, symbolic, graphical, pictorial, concrete, and realistic.</td>
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<tr>
<td>7. Look for and make use of structure.</td>
<td>Participants in MEAs can use their knowledge of mathematical properties and algebraic expressions to develop their solutions.</td>
</tr>
<tr>
<td>8. Look for and express regularity in repeated reasoning.</td>
<td>As participants develop their models the patterns they notice can assist in their model development.</td>
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</table>
Summer Excitement Strikes the Library

Morgantown- While a long, hot summer may be ahead, the Morgantown Public Library is offering a chance for its younger patrons to stay cool. The annual summer reading program, this year titled “Reading is Radical” will officially start at noon on June 1st in the Beatrice Reading Room. Mayor Carol Hathaway will kick off the program by reading a book to local elementary school students.

The library is celebrating the 25th year of the summer reading program. This program, which was started by three schoolteachers in the 1970s, has blossomed. Students of all ages participate annually. Over the years, several people from the community have taken part in it.

Students participating in the contest choose from an approved collection of books. The approved books have been classified by grade level, difficulty of the book, length, and genre. Students may read any of the books, regardless of their current grade level. All Morgantown students may sign up to participate in the program throughout the summer. Each student will receive a special library card to use when they sign out books for the program.

Each school has teamed up with the library to award prizes. In honor of the program’s 25th year, the Morgantown Middle School Parent Teacher Organization will be awarding a five hundred dollar college scholarship to the overall winner. Numerous other prizes such as T-shirts, meals from local restaurants, computer programs, and books are available for each grade level winner.

The contest begins on June 1st and ends August 12th to give the organizers time to tabulate the points. Typically, tabulating the point totals and selecting the winners has taken a long time, so winners usually are not announced until early September. This has caused participation in the program to drop significantly in the last four years. Margaret Scott, the program director, mentioned that this year they would try to announce the winners much earlier.

Ready to go: The books are all shelved at the Morgantown Public Library. Participating students can choose from over 250 books for this year’s summer reading program.
Summer Reading Program Readiness Questions

Read the article and the tables to answer the following questions.

1. When is the program?
2. Why do the local students participate in the program?
3. What is special about the program this year?
4. Should a student receive the same number of points for The Tell-Tale Heart and Roll of Thunder, Hear My Cry? Why or why not?
5. If a sixth grader and a ninth grader both read A Tale of Two Cities, should they both earn the same number of points? Why or why not?
6. If a student reads Jurassic Park and Much Ado About Nothing, should the student get the same number of points for each? Why or why not?
7. Drew read The Tell-Tale Heart and Roll of Thunder, Hear My Cry. Should he receive the same number of points for each book? Why or why not?
8. If a sixth grader and a ninth grader both read A Tale of Two Cities, should they both earn the same number of points? Why or why not?
9. If Shelly reads Jurassic Park and Much Ado About Nothing, should she get the same number of points for each?
10. Mark read Home Run Hero and The Scarlet Letter. Should Mark receive the same number of points for both books?
# EXAMPLES OF APPROVED BOOKS

<table>
<thead>
<tr>
<th>TITLE</th>
<th>AUTHOR</th>
<th>READING LEVEL (BY GRADE)</th>
<th>PAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sarah, Plain and Tall</td>
<td>Patricia MacLachlan</td>
<td>4</td>
<td>58</td>
</tr>
<tr>
<td>Are You There God? It's Me Margaret.</td>
<td>Judy Blume</td>
<td>4</td>
<td>149</td>
</tr>
<tr>
<td>The Sign of the Beaver</td>
<td>Elizabeth George Spear</td>
<td>4</td>
<td>135</td>
</tr>
<tr>
<td>Awesome Athletes</td>
<td>Multiple Authors</td>
<td>5</td>
<td>288</td>
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<tr>
<td>Star Wars Jedi Apprentice: Death of Hope</td>
<td>Jude Watson</td>
<td>5</td>
<td>152</td>
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<tr>
<td>Encyclopedia Brown and the Case of Pablo's Nose</td>
<td>Donald J. Sobol</td>
<td>5</td>
<td>80</td>
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<tr>
<td>Get Real (Sweet Valley Jr. High, No.1)</td>
<td>Francine Pascal, Jamie Suzanne</td>
<td></td>
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<tr>
<td>Roll of Thunder, Hear My Cry</td>
<td>Mildred Taylor</td>
<td>6</td>
<td>276</td>
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<tr>
<td>The Tell-Tale Heart</td>
<td>Edgar Allan Poe</td>
<td>6</td>
<td>64</td>
</tr>
<tr>
<td>Talking Bout Friends</td>
<td>Multiple Authors</td>
<td>6</td>
<td>90</td>
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<tr>
<td>Harry Potter and the Goblet of Fire</td>
<td>J. K. Rowling</td>
<td>7</td>
<td>734</td>
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<tr>
<td>Little Women</td>
<td>Louisa Mae Alcott</td>
<td>7</td>
<td>388</td>
</tr>
<tr>
<td>The Scarlet Letter</td>
<td>Nathaniel Hawthorne</td>
<td>7</td>
<td>202</td>
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<tr>
<td>Home Run Hero: Sammy Sosa</td>
<td>Bill Gutman</td>
<td>7</td>
<td>144</td>
</tr>
<tr>
<td>Left Behind The Kids: Discovering New Believers</td>
<td>J. Jenkins, T. Lahaye</td>
<td>7</td>
<td>146</td>
</tr>
<tr>
<td>Aftershock (Sweet Valley High)</td>
<td>Kate Williams, Francine Pascal</td>
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<tr>
<td>Jurassic Park</td>
<td>Michael Crichton</td>
<td>8</td>
<td>400</td>
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<tr>
<td>Keeping the Moon</td>
<td>Sarah Dessen</td>
<td>8</td>
<td>228</td>
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<tr>
<td>In My Hands: Memories of a Holocaust Rescuer</td>
<td>Irene Gut Opdyke</td>
<td>8</td>
<td>248</td>
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<tr>
<td>A Tale of Two Cities</td>
<td>Charles Dickens</td>
<td>9</td>
<td>384</td>
</tr>
<tr>
<td>Lord of the Flies</td>
<td>William Golding</td>
<td>9</td>
<td>184</td>
</tr>
<tr>
<td>Title</td>
<td>Author</td>
<td>Year</td>
<td>Pages</td>
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<td>-----------------------------------------</td>
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<tr>
<td>To Kill A Mockingbird</td>
<td>Harper Lee</td>
<td>9</td>
<td>281</td>
</tr>
<tr>
<td>You Come Too</td>
<td>Robert Frost</td>
<td>9</td>
<td>91</td>
</tr>
<tr>
<td>Adventures of Don Quixote</td>
<td>M. Cervantes</td>
<td>10</td>
<td>940</td>
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<tr>
<td>The Lost Beatles Interviews</td>
<td>G. Giuliano, V. Devi</td>
<td>10</td>
<td>382</td>
</tr>
<tr>
<td>Traveling Light</td>
<td>Max Lucado</td>
<td>10</td>
<td>164</td>
</tr>
<tr>
<td>Much Ado About Nothing</td>
<td>William Shakespeare</td>
<td>10</td>
<td>75</td>
</tr>
<tr>
<td>TITLE</td>
<td>BRIEF DESCRIPTION OF BOOK</td>
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<tr>
<td><strong>Sarah, Plain and Tall</strong></td>
<td>When their father invites a mail-order bride to come and live with them in their prairie home, Caleb and Anna are captivated by their new mother and hope that she will stay.</td>
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<tr>
<td><strong>Are You There God? It’s Me Margaret</strong></td>
<td>Faced with the difficulties of growing up and choosing a religion, a twelve-year-old girl talks over her problems with her own private God.</td>
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<tr>
<td><strong>The Sign of the Beaver</strong></td>
<td>When Matt and his father complete the construction of their new cabin in Maine, his father leaves Matt to go retrieve the rest of the family. Matt meets new Indian friends in his adventures alone.</td>
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<tr>
<td><strong>Awesome Athletes</strong></td>
<td>Sports Illustrated for Kids</td>
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</tr>
<tr>
<td><strong>Star Wars Jedi Apprentice: Death of Hope</strong></td>
<td>A Star Wars science fiction story for kids</td>
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<tr>
<td><strong>Encyclopedia Brown and The Case of Pablo’s Nose</strong></td>
<td>America’s Sherlock Holmes in sneakers continues his war on crime in ten more cases.</td>
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<tr>
<td><strong>Get Real (Sweet Valley Jr. High, No. 1)</strong></td>
<td>Describes the trials and tribulations of twins that moved to a new junior high school.</td>
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<tr>
<td><strong>Roll of Thunder, Hear My Cry</strong></td>
<td>A black family living in the South during the 1930s is faced with prejudice and discrimination that its children do not understand.</td>
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<tr>
<td><strong>The Tell-Tale Heart</strong></td>
<td>The murder of an old man is revealed by the continuous beating of his heart.</td>
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<tr>
<td><strong>Harry Potter and the Goblet of Fire</strong></td>
<td>Harry, now 14, has only two more weeks with his Muggle relatives before returning to Hogwarts School of Witchcraft and Wizardry.</td>
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<tr>
<td><strong>Talking About Friends</strong></td>
<td>Girl advice and topics related to girls’ concerns</td>
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<tr>
<td><strong>Little Women</strong></td>
<td>A story of family, of hope, of dreams, and of growing up as four devoted sisters search for romance and find maturity in Civil-War era 19th century New England.</td>
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</tr>
<tr>
<td><strong>The Scarlet Letter</strong></td>
<td>Hawthorne’s masterpiece about Hester Prynne, hapless victim of sin, guilt and hypocrisy in Puritan New England.</td>
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</tr>
<tr>
<td><strong>Home Run Hero: Sammy Sosa</strong></td>
<td>Biography of Sammy Sosa</td>
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</tr>
<tr>
<td><strong>Left Behind The Kids: Discovering New Believers</strong></td>
<td>The kids Left Behind series. A fictional account of end times appropriate for kids.</td>
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<tr>
<td><strong>Aftershock</strong></td>
<td>Twins deal with the pain and shock of an earthquake.</td>
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<tr>
<td><strong>Jurassic Park</strong></td>
<td>A modern-day scientist brings to life a horde of prehistoric animals and dinosaurs.</td>
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</tr>
<tr>
<td><strong>Keeping the Moon</strong></td>
<td>Colie expects the worst when she’s sent to spend the summer with her eccentric Aunt Mira in sleepy Colby, North Carolina, while her mom is touring Europe.</td>
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<td></td>
</tr>
<tr>
<td><strong>In My Hands: Memories of a Holocaust Rescuer</strong></td>
<td>Irene’s experiences while still in her teens remind adolescents everywhere that their actions count, that the power to make a difference is in their hands.</td>
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</tr>
<tr>
<td><strong>A Tale of Two Cities</strong></td>
<td>A highly charged examination of human suffering and human sacrifice, private experience and public history, during the French Revolution.</td>
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<td><strong>Lord of the Flies</strong></td>
<td>The classic tale of a group of English school boys who are left stranded on an unpopulated island.</td>
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<td><strong>To Kill A Mockingbird</strong></td>
<td>Set in Maycomb, Alabama, during the Depression, this book follows three years in the life of 8-year-old Scout, her brother, Jem, and their father, Atticus—three years punctuated by the arrest and eventual trial of a young black</td>
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<td><strong>You Come Too</strong></td>
<td>Poems by Robert Frost</td>
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<td><strong>Adventures of Don Quixote</strong></td>
<td>The adventures humorously mock contemporary Spanish literature while at the same time giving the reader a glimpse into Spain and the rest of the 16th century world with various stories from Barbary and the Americas included in the plot.</td>
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<td><strong>The Lost Beatles Interviews</strong></td>
<td>Previously untold stories from interviews with members of the rock group The Beatles</td>
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<td><strong>Traveling Light</strong></td>
<td>Inspirational reading</td>
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<tr>
<td><strong>Much Ado About Nothing</strong></td>
<td>Shakespeare comedy.</td>
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Summer Reading Program

Information: The Morgantown Public Library and Morgantown Middle School are teaming up to provide some of the prizes for the "Reading is Radical" summer reading contest. Participating Morgantown Middle School students in grades 6-9 will read books and prepare written reports about each book to collect points and win prizes. The winner of each grade level will be the student who has earned the most reading points. The overall winner will be the student that earned the most points. A collection of approved books has already been selected. See the previous page for a sample of this collection.

Students who enroll in the program often read between ten and twenty books over the summer. The contest committee is trying to figure out a fair way to assign points to each student. Margaret Scott, the program director, said, “Whatever procedure is used, we want to take into account: (a) the number of books, (b) the variety of the books, (c) the difficulty of the books, (d) the lengths of the books, and (e) the quality of the written reports.

Note: The students are given grades of A+, A, A-, B+, B, B-, C+, C, C-, D, or F for the quality of their written reports.

Your Mission . . .

Create a system for assigning points based on the requirements listed above. The system should be one that will allow the organizers to quickly and accurately assign and tabulate the points for each student that participates. Next, write a letter to Margaret Scott explaining how your system works. Ms. Scott hopes to find a system that will replace the current one. Please be clear and complete in your explanation.
OBSERVATION FORM FOR TEACHER-MEA

Team: ________________________________

Math Concepts Used:
What mathematical concepts and skills did the students use to solve the problem?

Team Interactions:
How did the students interact within their team or share insights with each other?

Data Organization & Problem Perspective:
How did the students organize the problem data? How did the students interpret the task? What perspective did they take?

Tools:
What tools did the students use? How did they use these tools?

Miscellaneous Comments about the team functionality or the problem:

Cycles of Assessment & Justification:
How did the students question their problem-solving processes and their results? How did they justify their assumptions and results? What cycles did they go through?
PRESENTATION FORM – Summer Reading MEA

Name______________________________

While the presentations are happening, choose TWO teams to evaluate. Look for things that you like about their solution and/or things that you would change in their solution. You are not evaluating their style of presenting. For example, don’t write, “They should have organized their presentation better.” Evaluate their solution only.

Team ______________________________

What I liked about their solution:

What I didn’t like about their solution:

Team ______________________________

What I liked about their solution:

What I didn’t like about their solution:

After seeing the other presentations, how would you change your solution? If you would not change your solution, give reasons why your solution does not need changes.
STUDENT REFLECTION FORM – Summer Reading MEA

Name
__________________________ Date________________________

1. What mathematical or scientific concepts and skills (e.g. ratios, proportions, forces, etc.) did you use to solve this problem?

2. How well did you understand the concepts you used?

   Not at all       A little bit       Some       Most of it       All of it

   Explain your choice:

3. How well did your team work together? How could you improve your teamwork?

4. Did this activity change how you think about mathematics?