



Math Projects

GRADES 3-5

Math Projects offer a great way to develop problem solving skills while linking your curriculum with real world situations and applications of math skills and concepts. You can set aside some time each week for students to work on projects collaboratively or use projects aligned with your current math unit for homework. Either way you will be providing opportunities for students to gather, analyze, and organize data; to make decisions, and to solve real life problems while applying key math concepts and skills.

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Math Projects offer a great way to develop problem solving skills while linking your math curriculum with real world situations and applications of math skills and concepts. Send home one project a month aligned with your current unit for students to work on for homework or set aside a regular in class time for students to work on math projects collaboratively. If working on projects in class students may need time beforehand to research information and collect materials.

While students learn how to "do" math, they must also learn how to articulate what they are learning. It is important to provide many opportunities for students to organize and record their work without the structure of a worksheet or template. The Math Projects in this file allow for different strategies and products to emerge. Students should be encouraged to choose their own method of solving problems and presenting their work.

Each Math Project includes a rubric to provide students with a clear understanding of what constitutes excellence and how their work will be evaluated. Encourage students to refer to the rubric regularly as they work on a project in order to ensure that their work is complete and fulfills the criteria. Rubrics can be used for teacher, self or peer assessment. A project checklist is also included. You may choose to use the checklist in place of, or along with, the project rubric.

Tic-Tac-Toe or Choice Boards encourage independent learning and provide a simple way of differentiating homework assignments and projects. Activities are typically presented in the form of a nine square grid with one activity written in each square. Students choose three activities to complete in a row diagonally, vertically, or horizontally. Activities vary in content, process, and product and can be structured to address different levels of student readiness, interests, and learning styles.

Adaptations for Tic-Tac-Toe boards include:

- allowing students to complete any 3 tasks - even if the completed tasks don't make a Tic-Tac-Toe,
- creating different Tic-Tac-Toe boards based on readiness or learning styles,
- creating boards of different sizes (e.g., 4 x 4),
- adding a 'Free Choice' square to the center of the board to allow students to create their own task.

You may choose to use the generic Math Tic-Tac-Toe Board or prefer to create your own board with tasks specific to a particular unit using the blank template provided.

Alignment with the Common Core State Standards: The table on the following page provides a list of possible focus standards for each project. The open ended nature of many of the Math Projects in this eBook allow them to be used with grades 3, 4, and 5 students. Students at different grade levels will select different strategies to solve problems according to their level of thinking. For example, a third grade student calculating costs in the Planning a Birthday Party project may use repeated addition, whereas a fourth grade student may use multiplication. Different levels of sophistication will also be seen in the ways students at different grade levels choose to present their work and explain their thinking.

In addition to the standards that describe content, there are eight Common Core State Standards focusing on mathematical practice which are implicit in many of the Math Projects. The Standards for Mathematical Practice are:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Depending on how students approach each project different Standards for Mathematical Practice will be utilized. For example, the open-ended nature of the projects require students to make sense of the task before selecting a strategy or strategies to complete different components of the project. Students must also make their own decisions as to which mathematical tools are appropriate for a given situation. Many of the projects require that students use a mathematical model (drawings, charts, graphs, equations etc) and/or construct viable arguments by explaining their thinking and justifying their conclusions. If students are given the opportunity to share their projects opportunities arise to critique the reasoning of others. Many of the projects require students to reason abstractly and quantitatively by attending to the meaning of quantities and knowing and flexibly using different properties of operations. The expectation for all projects is that students attend to precision by communicating precisely using mathematical language, equations, and carefully formulated explanations.

Project Display: It is important to value students' work and provide time for them to share their work with their peers. Think ahead of time about how you will display student projects. If you have limited space you may want to set a limit on the size of poster boards or other materials that students may use.

Project Gallery Walk: If you do not have space to display all students' work another option is to have a Project Gallery Walk. On the project due date have students display their work in the classroom. Provide each student with a copy of the project rubric and 2-3 Post-Its. Schedule time for students' to move around the room, view all projects and use the Post-Its to write comments on classmate's projects based on the rubric criteria. Alternatively, schedule time with another class to visit each others' rooms to view projects and post comments.

To see examples of completed student math projects visit our [Math Project Gallery](#) . We invite you to share photographs of your students' completed Math Projects for inclusion in the Math Project Gallery by emailing them to: k5mathteachingresources@gmail.com

Please include the following information with your photo/s :

- teacher name and grade level
- state
- project name

Please note that:

- all photographs must be in .jpg format.
- the maximum image size we are able to accept is 700x600 pixels. If your images are larger than this you can reduce them using any graphics software.
- for privacy reasons we cannot accept photographs showing students' faces.

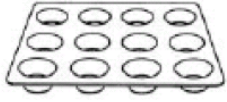
We hope that you enjoy using the math projects in this eBook with your class. For hundreds more free math center activities and resources aligned with the Common Core State Standards visit our website at: <http://www.k-5mathteachingresources.com>

*Use the Bookmarks tab or click on the Project name to go directly to the project page

Pg.	Project	Objective	Possible CCSS
6	Everyday Arrays	To identify and describe arrays in the real world	3.OA.1, 3.OA.3
8	Exploring Area	To calculate and compare the area of rectangular figures using tiling	3.MD.6, 3.MD.7
10	Geometry in Your Neighborhood	To identify and describe geometric features of a building	4.G.1, 4.G.2
12	Planning a Birthday Party	To plan a birthday party using a set budget of \$120.00	3.NBT.2, 3.OA.7, 4.NBT.4, 4.NBT.5
14	Designing a Town Map	To create a town map that includes different types of lines, angles and 2-D shapes	4.G.1, 4.G.2
16	Choose a Number	To describe properties of a number	4.OA.3, 4.OA.4
18	Tessellation Design	To explore side and angle relationships in tessellations	4.G.1, 4.MD.7
20	A Family Outing	To calculate and compare the costs of different family outings and present data in a bar graph	3.MD.3, 3.OA.7, 4.NBT.4, 4.NBT.5
22	Temperatures Across the World	To collect, analyze and plot temperature data on a line graph	4.MD.2
24	Planning a Vacation	To plan an overseas family vacation using a set budget	4.NBT.4, 4.NBT.5, 5.NBT.7
26	A Class Pizza Party	To research and calculate costs for a class pizza party	3.MD.3, 3.OA.7, 4.NBT.4, 4.NBT.5
28	Split the Bill	To calculate the cost of a meal for four friends	4.NBT.6, 5.NBT.7
30	Paint Your Bedroom	To use perimeter and area to calculate the cost to paint a bedroom	4.MD.3, 4.NBT.4
32	Posting a Birthday Gift	To calculate and compare costs of purchasing and mailing gifts overseas	4.NBT.4, 4.NBT.5, 5.NBT.7
34	Build Your Dream Home	To design a dream home based on given measurements and budget constraints	4.MD.3, 4.NBT.4, 4.NBT.5, 5.NBT.7
36	Adjusting a Recipe	To adjust a recipe using operations with fractions	4.NF.4, 5.NF.7
38	Feeding a Family	To calculate the cost of feeding a family of four for one week using healthy food choices	4.NBT.4, 4.NBT.5, 5.NBT.7
40	Tallest Buildings of the World	To research, graph and convert measurements of some of the tallest buildings in the world	3.MD.3, 4.MD.1
42	Longest Bridges of the World	To research, graph and convert measurements of some of the longest bridges in the world	3.MD.3, 4.MD.1
44	A Family Pet	To calculate and compare the costs of keeping different pets	3.NBT.2, 3.MD.3, 4.NBT.5, 5.NBT.7
46	A Class Picnic	To design a schedule and calculate costs for a class picnic	4.NBT.5, 5.NBT.7
48	A Thanksgiving Dinner	To calculate the costs of a family dinner	4.NBT.5, 5.NBT.7
50	Comparing Volumes of Cereal Boxes	To calculate and compare the volume of two cereal boxes	5.MD.5
52	Design a Math Game	To design a game based on a math concept	Gds 3-5 Will vary based on focus selected
54	Create a Math Story Book	To create a book based on a math concept	Gds 3-5 Will vary based on focus selected
56	Famous Mathematicians of the World	To prepare an oral presentation on a famous mathematician of the world	Gds 3-5 Will vary based on focus selected
58	Math Tic-Tac-Toe	To select and complete three activities from a tic-tac-toe board to demonstrate knowledge and understanding of a math topic	Gds 3-5 Will vary based on focus selected

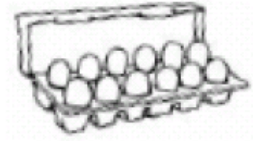
*Use the Bookmarks tab on click on the Project name to go directly to the project page

Pg.	Project	Objective	Possible CCSS
60	A Multiplication and Division Book	To create a multiplication and division book using the multiples 1-10	3.OA.1, 3.OA.2, 3.OA.7
62	Collective Nouns Word Problems	To write and solve multiplication and division word problems using collective nouns	3.OA.3, 3.OA.7
64	Farmer Brown	To use perimeter to design the layout of a farm	3.MD.8
66	How Far Did it Fly?	To build two paper airplanes, measure flight paths and plot data on a line plot	3.MD.4
68	Build a Marble Run	To build a marble run using knowledge of angles and display marble run times in a line plot	3.MD.4, 4.MD.6
70	Design a Playground	To use perimeter and area to design the layout of a playground	4.MD.3
72	Design a Mini Golf Course	To create a four hole mini golf course with given angles	4.MD.6, 4.G.1
74	Let's Go Fly a Kite	To measure the perimeter, line segments and angles of a constructed kite	4.MD.6, 4.G.1
76	Design a Mini City	To use volume and properties of lines to create a 3-dimensional mini city	4.G.1, 5.MD.5b
78	Coordinate Plane Picture	To write the directions for a coordinate plane picture that can be recreated	5.G.1, 5.G.2
80	A Bake Sale	To use operations with whole numbers and fractions to plan a Bake Sale	5.NBT.5, 5.NF.4
82	Math Review Poster	To create a poster on a key math concept for use as a classroom tool	Gds 3-5 Will vary based on focus selected



A 4 by 3 array

Everyday Arrays



A 6 by 2 array

For this project you will look for examples of arrays in the real world.

Requirements:

- Search for 5, or more, arrays in your home, neighborhood or supermarket.
- Record each array and explain where you saw it.
- Describe how many rows, how many objects in each row, and the total number of objects in each array you find.
- Write a number model and a number story for each array.
- Think of a creative way to present your project. You can make a poster, a book, use technology, or come up with your own ideas !

Bring your project to school to share on: _____



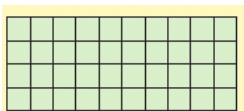
Everyday Arrays Project Rubric

Name:

Date:

Requirements	4	3	2	1
Arrays	More than 5 arrays are clearly represented	5 arrays are clearly represented	Some arrays are clearly represented	No arrays are clearly represented
Description	More than 5 arrays are described accurately	5 arrays are described accurately	Some arrays are described accurately	Array descriptions are missing <u>or</u> incorrect
Number Stories	All number stories are clear and correct	Number stories are clear but contain one error	Number stories are somewhat clear <u>or</u> contain two errors	Number stories are missing, unclear, <u>or</u> contain more than 2 errors
Mechanics . spelling . punctuation . capitalization	No errors in spelling, punctuation, or capitalization	A few minor errors in spelling, punctuation, or capitalization that do not interfere with reader's understanding	Several errors in spelling, punctuation, or capitalization that interfere with reader's understanding	Frequent errors in spelling, punctuation, or capitalization that interfere with reader's understanding
Presentation	Project is presented in a very organized, creative and effective way	Project is presented in an organized, creative and effective way	Some parts of the project are presented in an organized, creative or effective way	Project is not presented in an organized, creative or effective way

Total: /20



Exploring Area



For this project you need to find the area of two rectangular figures in your home using tiling.

Requirements:

- Choose two rectangular figures in your home. For example, you might choose a rug and the top of a table, the front cover of a newspaper and the floor of your kitchen, or any other two rectangular shapes you find.
- Choose a square unit. You can cut square units of the same size from newspaper or use a square unit that you have in your home (e.g. squares from a paper towel roll). Use tiling to cover each rectangular shape without gaps or overlaps using identical square units.
- Record the number of rows of square units, the number of square units in each row, and the number of square units in all that you used to cover each rectangular figure.
- Using pictures, words, and a number model show how you used tiling to find the area of each rectangular figure. Explain how the area is the same as would be found by multiplying the side lengths.
- Compare the area of the two rectangular figures you measured. Which rectangular figure had the larger area? How much larger?

Think of a creative way to present your project!

Project Due Date: _____

Exploring Area Rubric

Name:

Date:

Requirements	4	3	2	1
Show Your Work	All work is shown and calculations completed accurately	All work is shown with one minor calculation error	Not all work is shown <u>or</u> work contains several calculation errors	Work is not shown <u>or</u> work contains frequent calculation errors
Square Unit	Selected an efficient square unit to tile and compare selected rectangular figures	Selected an appropriate square unit to tile and compare selected rectangular figures	Unable to compare selected rectangular figures as a different square unit was used to tile each figure	Did not select an appropriate square unit to tile and compare selected rectangular figures
Explanation	Explanation is very clear and logical	Explanation is clear and logical	Parts of the explanation are clear	Explanation is unclear <u>or</u> is not included
Mechanics <ul style="list-style-type: none"> . spelling . punctuation . capitalization 	No errors in spelling, punctuation, or capitalization	Minor errors in spelling, punctuation or capitalization that do not interfere with reader's understanding	Several errors in spelling, punctuation or capitalization that interfere with reader's understanding	Frequent errors in spelling, punctuation or capitalization that interfere with reader's understanding
Presentation	Project is presented in a very organized, creative and effective way	Project is presented in an organized, creative and effective way	Some parts of the project are presented in an organized, creative or effective way	Project is not presented in an organized, creative or effective way

Total: /20



Geometry in Your Neighborhood

For this project you will choose a building in your neighborhood and look closely at its geometric features.

Requirements:

- Look closely at different buildings in your neighborhood. Choose a building with interesting geometric features and explain what it is used for.
- Sketch the building and label the different geometric shapes, lines and angles that you see.
- Explain why the building's geometric features are important. Be sure to use math vocabulary in your explanation. Use a dictionary or the Word Bank to check your spelling.
- Think of a creative way to present your work. You can make a poster, model, book, or multimedia presentation.

Bring your project to school to share on: _____

WORD BANK:

right angle acute angle obtuse angle
perpendicular lines parallel lines intersecting lines
two-dimensional three-dimensional
square rectangle hexagon trapezoid rhombus
triangle
rectangular prism cube cylinder sphere

Geometry in Your Neighborhood Rubric

Name:

Date:

Requirements	4	3	2	1
Sketch of Building	Sketch shows attention to detail	Main features of building are present in sketch	Some features of building are present in sketch	Sketch is incomplete <u>or</u> missing
Labels	All geometric shapes, lines and angles are labeled accurately	Most geometric shapes, lines and angles are labeled accurately	Some geometric shapes, lines and angles are labeled accurately	No geometric shapes, lines and angles are labeled accurately
Explanation	Explanation is very clear	Explanation is clear	Some parts of explanation are clear	Explanation is missing <u>or</u> unclear
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	Strong grasp of all standard writing conventions evident	Strong grasp of standard writing conventions evident. Some minor errors that do not impair readability.	Basic grasp of standard writing conventions evident. Errors impair readability.	Minimal grasp of standard writing conventions apparent. Numerous errors distract or confuse reader.
Presentation	Project is presented in a very creative and effective way	Project is presented in a creative and effective way	Some parts of the project are presented in a creative or effective way	Project is not presented in a creative or effective way

Total: /20



Planning a Birthday Party

You are planning a birthday party. Your parents have agreed that you may invite four friends and will give you \$120.00 to buy everything that you need.

Requirements:

- Use the internet, your local supermarket, or grocery store advertisements to research the cost of a birthday dinner for you and four guests at your house. You must include the cost of invitations, food and drinks, decorations, a birthday cake, and anything else you think you will need.
- Create a shopping list to fit your budget. Try to get as close to \$120.00 as possible.
- Show all your work.
- Write a paragraph explaining how you collected the information you needed and the math you used in completing this project.

Think of a creative way to present your project! You can make a poster, a book, use technology, cut and paste pictures from grocery store catalogues or come up with your own ideas.

Project Due Date: _____

Planning a Birthday Party Rubric

Name:

Date:

Requirements	4	3	2	1
Show Your Work	All work is shown and calculations are completed accurately	All work is shown with one minor mathematical error	Not all work is shown <u>or</u> work contains several calculation errors	Work is not shown <u>or</u> work contains many calculation errors
Explanation (How did you collect your information? What math did you use?)	Explanation is very clear and logical	Explanation is clear and logical	Parts of the explanation are clear	Explanation is unclear <u>or</u> is not included
Budget	Costs fall within \$5.00 of given budget.	Costs fall within \$10.00 of given budget.	Costs fall within \$15.00 of given budget.	Costs are more than \$15.00 above given budget.
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	Strong grasp of all standard writing conventions evident	Strong grasp of standard writing conventions evident. Has some minor errors that do not impair readability.	Basic grasp of standard writing conventions evident. Errors impair readability.	Minimal grasp of standard writing conventions apparent. Numerous errors distract or confuse reader.
Presentation	Project is presented in a very organized, creative and effective way	Project is presented in an organized, creative and effective way	Some parts of the project are presented in an organized, creative or effective way	Project is not presented in an organized, creative or effective way

Total: /20

Designing a Town Map

For this project you will create a map of an imaginary town that includes different kinds of lines, angles, and shapes.

1. Your map must include the following:

- The town name
- A map scale
- At least two sets of streets that are parallel
- At least two sets of streets that are perpendicular
- At least two streets that intersect another to form a right angle
- At least two streets that intersect another to form an obtuse angle
- Eight different 2-dimensional shapes to represent buildings or local attractions (e.g. park, movie theater, town swimming pool). Five of these shapes should be quadrilaterals.
- Names for each street/building/local attraction

2. Create a chart and list the street names or buildings in the correct categories.

Parallel	Perpendicular	Acute Angles	Obtuse Angles	Quadrilaterals	Other 2-D Shapes

3. Write out three sets of clear directions to get from one location to another in your town.

Your completed project is due on: _____

Designing a Town Map Rubric

Name:

Date:

Requirements	4	3	2	1
Map	All required map elements are shown accurately	One required map element is missing <u>or</u> incorrect	Two required map elements are missing <u>or</u> incorrect	More than two required map elements are missing <u>or</u> incorrect
Table	All information in table is presented accurately	Information in table contains one error	Information in table contains two errors	Information in table contains more than two errors
Map Directions	Directions to get from one location to another in town are very clear	Directions to get from one location to another in town are reasonably clear	Some directions to get from one location to another in town are reasonably clear	Directions to get from one place to another in town are unclear <u>or</u> missing
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	Strong grasp of all standard writing conventions evident	Strong grasp of standard writing conventions evident. Has some minor errors that do not impair readability.	Basic grasp of standard writing conventions evident. Errors impair readability.	Minimal grasp of standard writing conventions apparent. Numerous errors distract or confuse reader.
Presentation	Project is presented in a very organized, creative and effective way	Project is presented in an organized, creative and effective way	Some parts of the project are presented in an organized, creative or effective way	Project is not presented in an organized, creative or effective way

Total: /20

Choose a Number

For this project you will choose a whole number that has a special significance to you and create a poster, book, or multi-media presentation about it.

Your finished product must include:

- an explanation of why you chose this number.
- all **factor pairs** for your number .
- a description of your number. For example is it,
 - odd or even?
 - **prime** or **composite**?
 - a **multiple** of 1, 2, 3, 4, 5, 6, 7, 8 or 9 ?
- a pattern in which your number is the **fifth term** in a sequence of ten numbers.
- four different word problems in which your number is the **sum**, the **difference**, the **product** and the **quotient**.
- four different equations in which your number is an **unknown addend**, a **subtrahend**, an **unknown factor** and a **divisor**.
- two **multi-step** word problems featuring your number.
- the written word (and/or symbol) for your number in three foreign languages.
- two statistics or facts involving your number (e.g. a cheetah can run for short distances at 70mph, there are 42 US gallons in a barrel of oil).
Hint: To research this type your number and then the word number in brackets into a search engine, e.g. 70 (number)
- three photographs, drawings, or newspaper/magazine clippings showing where you have recently seen your number used in the real world.
- a drawing or design that you create that represents your number in an unique way.

Be creative in your presentation and be sure to use our classroom resources to check the meaning of any math vocabulary above that you are unsure of.

Project Due Date: _____

Choose a Number Rubric

Name:

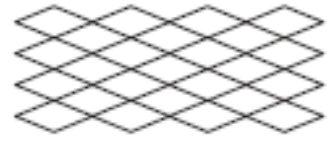
Date:

Requirements	4	3	2	1
Math Requirements	All project components are completed accurately	All project components are completed with 1-2 mathematical errors	One component of the project is missing <u>or</u> the project contains 3-4 mathematical errors	More than one component of the project is missing <u>or</u> the project contains more than 4 mathematical errors
Explanation	Explanation of why number was chosen is very clear	Explanation of why number was chosen is reasonably clear	Some parts of the explanation of why number was chosen are clear	Explanation of why number was chosen is unclear
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	Strong grasp of all standard writing conventions evident	Strong grasp of standard writing conventions evident. Some minor errors that do not impair readability.	Basic grasp of standard writing conventions evident. Errors impair readability.	Minimal grasp of standard writing conventions apparent. Numerous errors distract or confuse reader.
Presentation	Project is presented in a very organized, creative and effective way	Project is presented in an organized, creative and effective way	Some parts of the project are presented in an organized, creative or effective way	Project is not presented in an organized, creative or effective way

Total: /16



Tessellation Design



You are entering a design competition. The winner will create a large wall mural at your local park made from different shaped tiles that tessellate. You must make each tile by hand and create a unique wall mural.

Requirements

- As part of your design process investigate which regular polygons can be used to create a regular tessellation that covers a surface without overlapping or leaving gaps. Use diagrams and words to show what you learned.
- Look closely at the tessellations you drew. What do you notice about the sum of the angle measures around a tessellation vertex? Explain.
- Create one regular and one semi-regular tessellation. Each design should cover a full sheet of paper.
- The mural will be 25 times the size of your samples. Calculate how many tiles of each shape you will need and the total number of tiles for each sample. Show your work.
- Read through your project. Have you used correct spelling, punctuation, capitalization, grammar and paragraphing? Edit your work as needed.

Extra Credit:

The artist M.C. Escher is famous for his drawings that show tessellations. Do some research on this artist and develop an original tessellation in the Escher style.

Regular polygon: a polygon in which all sides are equal length and all angles are equal measure

Regular tessellation: formed using congruent regular polygons that completely cover a surface without overlapping or leaving gaps

Semi-regular tessellation: formed using 2 or more types of regular polygons, each with the same side length. Each vertex has the same pattern of polygons around it.

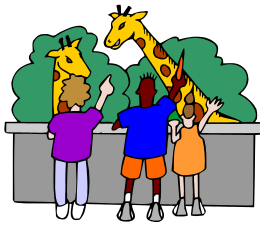
Tessellation Design Rubric

Name:

Date:

Requirements	4	3	2	1
Investigate which regular polygons tessellate	Correctly determines and very clearly explains which regular polygons tessellate	Correctly determines and explains which regular polygons tessellate	Attempts to explain which regular polygons tessellate but includes errors or omissions	Does not identify which regular polygons tessellate
Create one regular and one semi-regular tessellation	Creates two neat, colorful tessellations that each cover a sheet of paper	Creates two tessellations that each cover a sheet of paper	Creates one tessellation only	Does not create a tessellation. Polygons may overlap or leave gaps
Show your Work	All work is shown and calculations completed accurately	All work is shown but calculations contain one mathematical error	All work is shown but calculations contain 2-3 mathematical errors	All work is not shown <u>or</u> calculations include more than 3 mathematical errors
Explanation	Explains the angle relationships in a tessellation using precise math vocabulary	Explains the angle relationships in a tessellation	Attempts to explain the angle relationships in a tessellation but is unclear	No explanation attempted
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	Strong grasp of all standard writing conventions evident	Strong grasp of all standard writing conventions evident. Has some minor errors that do not impair readability.	Basic grasp of standard writing conventions evident. Errors impair readability.	Minimal grasp of standard writing conventions apparent. Numerous errors distract or confuse reader.

Total: /20



A Family Outing

Your parents have asked you to research and compare the cost of different family outings so that you can recommend one with a median price range. Research the costs involved in all members of your immediate family visiting the following venues on a Saturday afternoon: a museum, a zoo, an amusement park, an ice skating rink, or a movie theater.

Requirements:

- Include a break down of the entrance costs for your family for each of the venues you researched and present this information in a bar graph. Be sure to give your graph a title, use an appropriate scale, and label each axis.
- Determine the outing with a median price range and write a recommendation for your parents based on this data
- Write a paragraph explaining how you collected your data and the math you used in completing this project
- Ask a friend or family member to read your project. Have you used correct spelling, punctuation, capitalization, grammar and paragraphing? Edit your work as needed.

Think of a creative way to present your project!

Project Due Date: _____

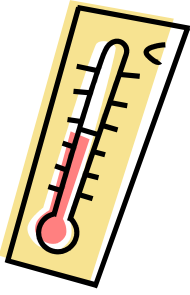
A Family Outing Rubric

Name:

Date:

Requirements	4	3	2	1
Show your work	All work is shown and calculations completed accurately	All work is shown with one minor calculation error	Not all work is shown <u>or</u> work contains several calculation errors	Work is not shown <u>or</u> work contains many calculation errors
Bar Graph	Bar graph includes title, labels on each axis, and appropriate scale. Data is represented accurately.	Bar graph has one feature missing (title, labels on each axis, appropriate scale). Data is represented accurately.	Bar graph has two features missing (title, labels on each axis, appropriate scale) <u>or</u> some data is not represented accurately.	Bar graph has more than two features missing (title, labels on each axis, appropriate scale) <u>or</u> data is not represented accurately.
Explanation and Recommendation	Explanation and recommendation are very clear and based on data	Explanation and recommendation are reasonably clear and based on data	Some parts of explanation and recommendation are clear and based on data	Explanation and recommendation are unclear <u>or</u> not based on data
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	Strong grasp of all standard writing conventions evident	Strong grasp of standard writing conventions evident. Some minor errors that do not impair readability.	Basic grasp of standard writing conventions evident. Errors impair readability.	Minimal grasp of standard writing conventions apparent. Numerous errors distract or confuse reader.
Presentation	Project is presented in a very organized, creative and effective way.	Project is presented in an organized, creative and effective way	Some parts of the project are presented in an organized, creative or effective way	Project is not presented in an organized, creative or effective way

Total: /20



Temperatures Across the World

Choose capital cities in two different countries, one in the **southern hemisphere** and one in the **northern hemisphere**.

Requirements:

- Use the internet, newspapers, or television weather broadcasts to research the temperature in each country over a one week period. Record this information in a chart and plot your data on a double line graph.
- Calculate the mean temperature for each country during this time and explain how you did this.
- Based on your data list ten items you would pack if you were to travel to each country at this time of the year.
- Explain how you collected your data and the math you used in completing this project.
- Ask a friend or family member to read your project. Have you used correct spelling, punctuation, capitalization, grammar and paragraphing? Edit your work as needed.

Be sure to present your project in a creative way!

Project Due Date: _____

Temperatures Across the World Rubric**Name:****Date:**

Requirements	4	3	2	1
Line Graphs	Line graphs include title, labels on each axis, and appropriate scale. Data is plotted accurately	Line graphs have one feature missing (title, labels on each scale, or appropriate scale). Data is plotted accurately	Line graphs have two features missing (title, labels on each axis, appropriate scale) <u>or</u> some data is not plotted correctly	Line graphs have more than two features missing (title, labels on each axis, appropriate scale) <u>or</u> data is not plotted correctly
Show Your Work	Mean temperatures calculated accurately and strategy explained very clearly	Mean temperatures calculated accurately and strategy explained clearly	Minor error made in calculating mean temperatures <u>or</u> explanation of strategy is clear but incomplete	Mean temperatures not calculated correctly <u>or</u> explanation of strategy is unclear
Interpret Data	All listed items relate to data	Most listed items relate to data	Some listed items relate to data	Listed items do not relate to data
Explanation of Data Collection Method	Explanation is very clear and logical	Explanation is reasonably clear and logical	Some parts of explanation are clear	Explanation is unclear <u>or</u> is not included
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	Strong grasp of all standard writing conventions evident	Strong grasp of standard writing conventions evident. Has some minor errors that do not impair readability.	Basic grasp of standard writing conventions evident. Errors impair readability.	Minimal grasp of standard writing conventions apparent. Numerous errors distract or confuse reader.
Presentation	Project is presented in a very organized, creative and effective way	Project is presented in an organized, creative and effective way	Some parts of the project are presented in an organized, creative or effective way	Project is not presented in an organized, creative or effective way

Total: /24



Planning a vacation

Your parents have asked you to plan a two week overseas vacation for your family in July. They have a budget of \$15,000.

Requirements:

- Choose a suitable destination and research the cost of airfares, hotels, daily food allowance, entrance fees to tourist sites, daily travel costs and spending money for all members of your immediate family. Include a breakdown of all costs.
- Use the internet to research currency exchange rates (for \$1, \$10, \$100) and time differences between your home and the country you will visit
- Show all your work, as well as evidence that you stayed within your budget
- Explain how you collected your data and the math you used in completing this project
- Read through your project. Have you used correct spelling, punctuation, capitalization, grammar and paragraphing? Edit your work as needed.

Think of a creative way to present your project!

Project Due Date: _____

Planning a Vacation Rubric

Name:

Date:

Requirements	4	3	2	1
Show your work	All work is shown and calculations completed accurately	All work is shown with one minor calculation error	Not all work is shown <u>or</u> work contains several calculation errors	Work is not shown <u>or</u> work contains many calculation errors
Budget	Holiday costs fall within \$100 of given budget	Holiday costs are within \$500 of given budget	Holiday costs are within \$1,000 of given budget	Holiday costs are more than \$1,000 above given budget
Explanation	Explanation and information about currency rates/time differences is very clear	Explanation and information about currency rates/time differences is reasonably clear	Some parts of explanation and information about currency rates/time differences are clear	Explanation or information about currency rates/time differences is unclear
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	Strong grasp of all standard writing conventions evident	Strong grasp of standard writing conventions evident. Has some minor errors that do not impair readability.	Basic grasp of standard writing conventions evident. Errors impair readability.	Minimal grasp of standard writing conventions apparent. Numerous errors distract or confuse reader.
Presentation	Project is presented in a very organized, creative and effective way	Project is presented in an organized, creative and effective way	Some parts of the project are presented in an organized, creative or effective way	Project is not presented in an organized, creative or effective way

Total: /20

A Class Pizza Party!



Your class has decided to have a pizza party to celebrate the end of the school year. Your teacher will donate plates, cups, and napkins but would like you to research how much each student will need to contribute towards costs.

Requirements:

1. Assume that each person in your class, including the teacher, will eat 3 slices of pizza. Calculate how many pizzas you will need.
2. Assume a 2 liter bottle of juice or soda will serve four people. Calculate how many bottles you will need.
3. Research the cost of delivery charges, drinks, and small, medium and large pizzas with one topping at three local pizzerias to determine the best option. Present your findings in a **table**.
4. Based on your research write a recommendation to your teacher suggesting:
 - where to purchase the pizza and drinks,
 - how much each student will need to contribute to cover the costs.

Be sure to show all your calculations and explain your thinking clearly.

5. Ask a friend or family member to read your project. Have you used correct spelling, punctuation, capitalization, grammar and paragraphing? Edit your work as needed.
6. Present your work in an organized and creative way!

Project Due Date: _____

A Class Pizza Party! Rubric

Name:

Date:

Requirements	4	3	2	1
Show Your Work	All work is shown and calculations completed accurately	All work is shown with 1-2 minor calculation errors	Not all work is shown or work contains several calculation errors	Work is not shown or work contains frequent calculation errors
Table	Information from local pizzerias is presented very clearly in table format with appropriate headings	Information from local pizzerias is presented clearly in table format with appropriate headings	An attempt is made to present information from local pizzerias in a table	Table is not included
Recommendation to Teacher	Recommendation is very clear and based on data	Recommendation is reasonably clear and based on data	Some parts of the recommendation are clear and based on data	Recommendation is unclear or is not based on data
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	Strong grasp of all standard writing conventions evident	Strong grasp of standard writing conventions evident. Some minor errors that do not impair readability.	Basic grasp of standard writing conventions evident. Errors impair readability.	Minimal grasp of standard writing conventions apparent. Numerous errors distract or confuse reader.
Presentation	Project is presented in a very organized, creative and effective way	Project is presented in an organized, creative and effective way	Some parts of the project are presented in an organized, creative and effective way	Project is not presented in an organized, creative, or effective way

Total: /20

Split The Bill



You visit a new restaurant for dinner with three of your friends. After a delicious meal the waiter hands you the guest check so that you can split the bill equally with your friends.

Requirements:

1. Decide on the type of restaurant you will visit. Create a restaurant menu that shows the price for five different drinks, entrees, sides dishes and desserts. Include the following in your prices:

All drink prices end in either 0 or 5

All entree prices end in an odd number

All side dish prices end in an even number

All dessert prices end in 9

2. Create a guest check that shows what each person ordered, the cost of each item and the total cost of the meal.
3. Split the bill equally with your friends. How much money does each person need to pay? Explain your thinking.

Think of a creative way to present your project! You can make a poster, a book, a multimedia presentation, or come up with your own ideas.

Project Due Date: _____

Split the Bill Rubric

Name:

Date:

Requirements	4	3	2	1
Menu and Guest Check	Menu clearly shows the price for 5 different drinks, entrees, side dishes and desserts. Guest check clearly shows what each person ordered, the cost of each item and the total cost of the meal.	Menu or guest check are missing one requirement.	Menu and/or guest check are missing several requirements	Menu or guest check are not included
Show Your Work	All work is shown and calculations completed accurately	All work is shown with 1-2 minor calculation errors	Not all work is shown <u>or</u> the project contains several calculation errors	Work is not shown <u>or</u> the project contains many calculation errors
Explanation	Explanation is very clear and logical	Explanation is clear and logical	Parts of the explanation are clear	Explanation is unclear <u>or</u> is not included
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	Strong grasp of all standard writing conventions evident	Strong grasp of standard writing conventions evident. Has some minor errors that do not impair readability.	Basic grasp of standard writing conventions evident. Errors impair readability.	Minimal grasp of standard writing conventions apparent. Numerous errors distract or confuse reader.
Presentation	Project is presented in a very organized, creative and effective way	Project is presented in an organized, creative and effective way	Some parts of the project are presented in an organized, creative or effective way	Project is not presented in an organized, creative or effective way

Total: /20



Paint Your Bedroom

Your parents have decided to help you paint your bedroom during the summer break. They have asked you to research how much it will cost to paint **two coats of paint** on your bedroom walls and ceiling.

Requirements:

- Visit a hardware store online, or in your local community, and select the color/s that you would like to paint your bedroom walls and ceiling.
- Measure the perimeter of your bedroom. Using the dimensions of the room, calculate the area of the ceiling.
- Draw a floor plan of your bedroom with doors, windows, and dimensions clearly marked.
- Measure and calculate the area of each wall in your bedroom. Remember you are not painting doors or windows.
- Determine how much area one can of paint will cover (you can usually find this information on the can).
- Calculate the number of cans of paint you will need to purchase, the cost of the paint, the cost of any other supplies you think you may need (e.g., paint brushes, tape), and the total cost to paint the ceiling and walls of your bedroom with **two coats of paint**.

Be sure to show all calculations and explain the steps you took to complete this project.

Optional: You may also decide to either:

- a) paint the baseboards and trim a contrasting color, or
- b) purchase a wall paper border.

Include these expenses in your total cost.

Project Due Date: _____

Paint Your Bedroom Rubric**Name:****Date:**

Requirements	4	3	2	1
Show Your Work	All work is shown and calculations completed accurately	All work is shown with 1-2 minor calculation errors	Not all work is shown <u>or</u> work contains several calculation errors	Work is not shown <u>or</u> work contains many calculation errors
Floor Plan	Very clearly presented floor plan showing all details and measurements	Clearly presented floor plan showing all details and measurements	Floor plan is unclear <u>or</u> does not include all measurements	Floor plan is not included
Explanation	Explanation of steps taken to complete project is very clear and logical	Explanation of steps taken to complete project is clear and logical	Explanation of steps taken to complete project is clear in some parts	Explanation is unclear <u>or</u> does not explain the steps taken to complete the project.
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	Strong grasp of all standard writing conventions evident	Strong grasp of standard writing conventions evident. Has some minor errors that do not impair readability.	Basic grasp of standard writing conventions evident. Errors impair readability.	Minimal grasp of standard writing conventions apparent. Numerous errors distract or confuse reader.
Presentation	Project is presented in a very organized, creative and effective way	Project is presented in an organized, creative and effective way	Some parts of the project are presented in an organized, creative or effective way	Project is not presented in an organized, creative or effective way

Total: /20



Posting a Birthday Gift



Your twin cousins, who live in London, will be turning eight in three weeks time. Your parents have asked you to choose a suitable birthday gift for them both. You would like to send them either a basketball or a scooter each but need to research the cost of purchasing and posting these gifts.

Requirements:

1. Research the cost to purchase two basketballs and two scooters suitable for eight year olds from a toy or sports store. You can visit a store, use shopping catalogues or use the internet. Present your findings in a table.
2. Visit a Post Office, in person or online, and research the cost to post the gifts to London. You will need to take into consideration the size and weight of each gift, how you will package them, and the best way to send them so that they will arrive in time for the twin's birthday. Create a table showing two possible options for packaging and posting each type of gift.
3. Based on your research write a recommendation to your parents explaining what you think is the best present to send, the best postage option, and the date the presents need to be posted by. Be sure to include all your calculations and explain your reasoning.
4. Ask a friend or family member to read your project. Have you used correct spelling, punctuation, capitalization, grammar and paragraphing? Edit your work as needed.

Project Due Date: _____

Posting a Birthday Gift Rubric

Name:

Date:

Requirements	4	3	2	1
Show your work	All work is shown and calculations completed accurately	All work is shown with one minor calculation error	Not all work is shown <u>or</u> work contains several calculation errors	Work is not shown <u>or</u> work contains numerous calculation errors
Tables	Information in both tables is presented very clearly	Information in both tables is presented clearly	Information in one table is presented clearly	Information in tables is unclear <u>or</u> tables are not included
Recommendation	Recommendation is very clear and logical	Recommendation is clear and logical	Parts of the recommendation are clear	Recommendation is unclear <u>or</u> is not included
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	Strong grasp of all standard writing conventions evident	Strong grasp of standard writing conventions evident. Some minor errors that do not impair readability.	Basic grasp of standard writing conventions evident. Errors impair readability.	Minimal grasp of standard writing conventions apparent. Numerous errors distract or confuse reader.
Presentation	Project is presented in a very organized, creative and effective way	Project is presented in an organized, creative and effective way	Some parts of the project are presented in an organized, creative or effective way	Project is not presented in an organized, creative, or effective way

Total: /20

Build Your Dream Home



You have a budget of \$600,000 to buy a block of land and build your own home.

Your house must include:

- at least two bedrooms
- at least one bathroom
- kitchen
- laundry

You may choose to include any other rooms.

1. Draw a plan of your home (including front and backyards). Record the measurements for each room. Calculate the perimeter and area of each room, as well as the total perimeter and area of the house.
2. You need to purchase a block of land to build your house on. Choose a suburb in which to build your house, and calculate how much land you will need to purchase. Show the total cost for your block of land.

Pelican Cove	\$140 per square meter
Blue Lakes	\$252 per square meter
Hoppers Fields	\$275 per square meter
Ocean Boulevard	\$325 per square meter

3. The building costs for your house will be \$199.00 per square meter. Calculate the cost based on the measurements on your plan.
4. Each room in your house needs to have flooring. You may choose tiles, carpet, or wooden floorboards. Research prices and record the cost of flooring for each room, as well as the total cost of all flooring.

Your finished project should include:

- a floor plan of your house, including front and back yards (label all measurements)
 - the perimeter and area of each room
 - the total perimeter and area of your house
 - the total perimeter and area of your block of land
 - the total cost of the land you will purchase
 - the type and cost of flooring chosen (explain how you researched these costs)
 - the total cost of your house showing that you stayed within the given budget
- Be sure to show all calculations!

Optional: You may choose to spend any remaining money on paint, wallpaper, or furniture for your house. Research costs and include this information in your presentation.

Project due date: _____

Build Your Dream Home Rubric**Name:****Date:**

Requirements	4	3	2	1
Floor Plan	The floor plan is very clear. All measurements are labelled.	The floor plan is clear. All measurements are labelled	The floor plan is unclear. Some measurements are labelled.	The floor plan is unclear. No measurements are labelled.
Show all your work (including the perimeter and area of each room, the total perimeter and area of your house and block of land, the total cost of land, and the cost of flooring)	All calculations are shown and completed accurately.	All calculations are shown but contain 1-2 mathematical errors.	Not all calculations are shown <u>or</u> work is shown but includes 3-4 mathematical errors.	Calculations are not shown or include more than 4 mathematical errors.
Budget	Very clearly shows how house was completed within the given budget	Clearly shows how house was completed within the given budget	Attempts to show how house was completed within the given budget, but is unclear	House was not completed within the given budget
Presentation	Project is presented in a very organized, creative and effective way	Project is presented in an organized, creative and effective way	Some parts of the project are presented in an organized, creative or effective way	Project is not presented in an organized, creative or effective way

Total: /16



Adjusting a Recipe Project

- 1. Find a simple recipe in a recipe book or on the internet with at least four fractions in the ingredients list. Write the original recipe.
- 2. Rewrite the recipe for twice as many people. Show your work and explain your strategy.
- 3. Rewrite the recipe for half as many people. Show your work and explain your strategy.
- 4. Explain how you would adjust your recipe to feed everyone in our class (don't forget the teacher!) If the quantity served is not given, estimate how many it will serve and explain what you would do to have enough for us all.
- 5. Use correct spelling.
- 6. Present your information in a CREATIVE way.
- 7. Optional - Make the recipe and bring the results to our Fraction Feast on _____!

Sample Recipe: EASY SUGAR COOKIES (Makes 12)

Ingredients:

- $\frac{2}{3}$ cup flour
- $\frac{1}{4}$ teaspoon baking soda
- $\frac{1}{8}$ teaspoon baking powder
- $\frac{1}{4}$ cup butter, softened
- $\frac{1}{4}$ cup white sugar
- 1 small egg
- $\frac{1}{4}$ teaspoon vanilla extract

Directions: Preheat oven to 375 degrees F (190 degrees C). In a small bowl, stir together flour, baking soda, and baking powder. Set aside. In a large bowl, cream together the butter and sugar until smooth. Beat in egg and vanilla. Gradually blend in the dry ingredients. Roll rounded teaspoonfuls of dough into balls, and place onto ungreased cookie sheets. Bake 8 to 10 minutes in the preheated oven, or until golden. Let stand on cookie sheet two minutes before removing to cool on wire racks.

Adjusting a Recipe Rubric

Name:

Date:

Requirements	4	3	2	1
Show Your Work	All calculations are shown and completed accurately	All calculations are shown but include 1-2 errors	Some work is shown <u>or</u> calculations include several errors	Work is not shown <u>or</u> calculations include many errors
Strategy	Problem solved using efficient strategy	Problem solved using appropriate strategy	Used strategy that was partially useful, but did not lead to a full solution	Inappropriate strategy used
Explanation	Explanation is very clear and logical	Explanation is clear and logical	Some parts of the explanation are clear	Explanation is unclear <u>or</u> is not included
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	Strong grasp of all standard writing conventions evident	Strong grasp of standard writing conventions evident. Some minor errors that do not impair readability.	Basic grasp of standard writing conventions evident. Errors impair readability.	Minimal grasp of standard writing conventions apparent. Numerous errors distract or confuse reader.
Presentation	Project is presented in a very organized, creative and effective way	Project is presented in an organized, creative and effective way	Some parts of the project are presented in an organized, creative or effective way	Project is not presented in an organized, creative or effective way

Total: /16



Feeding a Family Project

Research how much you would need to spend to feed a family of four for one week. Plan 3 meals per day, using **healthy** food choices. You may choose to use internet grocery stores to find the cost of individual food items, visit a supermarket, or use grocery store fliers.

Requirements:

- Create a menu for each day of the week.
- Show all your work, including the costs of individual items, the total costs per day, and the total costs for one week.
- Create a line graph to show total costs for each day of the week.
- Explain how you collected your data, how you made your food choices, and the math you used in completing this project.
- Read through your project. Have you used correct spelling, punctuation, capitalization, grammar and paragraphing? Edit your work as needed.

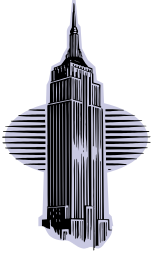
Think of a creative way to present your project!

Project Due Date: _____

Feeding a Family Rubric**Name:****Date:**

Requirements	4	3	2	1
Show Your Work	All work is shown and calculations completed accurately	All work is shown with one minor calculation error	Not all work is shown <u>or</u> work contains several calculation errors	Work is not shown <u>or</u> work contains many calculation errors
Daily Menus	All daily menus show healthy food choices	Most daily menus show healthy food choices	Some daily menus show healthy food choices	Daily menus do not show healthy food choices
Line Graph	Line graph includes title, labels on each axis, and appropriate scale. Data is plotted correctly.	Line graph has one feature missing (title, labels on each axis, or appropriate scale). Data is plotted correctly.	Line graph has two features missing (title, labels on each axis, appropriate scale) <u>or</u> some data is not plotted correctly.	Line graph has more than two features missing (title, labels on each axis, appropriate scale) or data is not plotted correctly.
Explanation	Explanation is very clear and logical	Explanation is clear and logical	Parts of the explanation are clear	Explanation is unclear <u>or</u> is not included
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	Strong grasp of all standard writing conventions evident	Strong grasp of standard writing conventions evident. Has some minor errors that do not impair readability.	Basic grasp of standard writing conventions evident. Errors impair readability.	Minimal grasp of standard writing conventions apparent. Numerous errors distract or confuse reader.
Presentation	Project is presented in a very organized, creative and effective way	Project is presented in an organized, creative and effective way	Some parts of the project are presented in an organized, creative and effective way	Project is not presented in an organized, creative or effective way

Total: /24



Tallest Buildings of the World

In this project you will research some of the world's tallest buildings and the population of the cities where they are located. Round all measurements to the nearest whole number.

Requirements:

- Use the library or internet to research the names of 4-5 of the tallest buildings in the world and mark their locations on a map.
- Record the year each building was constructed and three other interesting facts about it.
- Compare and order the populations of the cities where each building is located. Does the city with the tallest building have the largest population? Discuss.
- Create a bar graph to compare the height of the buildings. Be sure to include a title, use an appropriate scale, and label each axis.
- Create a table in which you show the measurement for each building in centimeters, meters, and kilometers or in feet, yards, and miles. Explain the strategy you used to convert the measurements.
- Be sure to use correct spelling, punctuation, capitalization, and grammar.
- Think of a creative way to present your project! You might like to create a poster, a book, a multimedia presentation, or a scale model.

Project Due Date: _____

Tallest Buildings of the World Rubric

Name:

Date:

Requirements	4	3	2	1
Map and Facts about Buildings	Map and facts about the selected buildings are presented very clearly.	Map and facts about the selected buildings are presented clearly.	Some of the map and/or facts about the selected buildings are presented clearly.	The map and/or facts about the selected buildings are missing or unclear
Bar Graph	Bar graph includes title, labels on each axis, and appropriate scale. Data is represented accurately.	Bar graph has one missing feature (title, labels on each axis, appropriate scale). Data is represented accurately.	Bar graph has two missing features (title, labels on each axis, appropriate scale) <u>or</u> some data is not represented accurately.	Bar graph has more than two missing features (title, labels on each axis, appropriate scale) <u>or</u> data is not represented accurately.
Measurement Conversions Table and Explanation	All measurement conversions are completed accurately. Explanation of strategy is very clear	Measurement conversions include one mathematical error. Explanation of strategy is reasonably clear	Measurement conversions include 2 – 3 mathematical errors. Some parts of strategy explanation are clear.	Measurement conversions include more than 3 mathematical errors. Strategy explanation is unclear.
Writing Conventions <ul style="list-style-type: none"> . spelling . punctuation . capitalization . grammar . paragraphing 	Strong grasp of all standard writing conventions evident.	Strong grasp of standard writing conventions evident. Has some minor errors that do not impair readability.	Basic grasp of standard writing conventions evident. Errors impair readability.	Minimal grasp of standard writing conventions apparent. Numerous errors distract or confuse reader.
Presentation	Project is presented in a very organized, creative and effective way.	Project is presented in an organized, creative and effective way.	Some parts of the project are presented in an organized, creative or effective way.	Project is not presented in an organized, creative or effective way.

Total: /20

Longest Bridges of the World



In this project you will research some of the world's longest bridges and compare their lengths. Round all measurements to the nearest whole number.

Requirements:

- Use the library or internet to research the names of 4-5 of the longest bridges in the world and mark their locations on a map.
- Record the year each bridge was constructed and three other interesting facts about it.
- How many vehicles use each bridge per day on average? List the bridges in order from least to most traffic per day.
- Create a bar graph to compare the lengths of the bridges. Be sure to include a title, use an appropriate scale, and label each axis.
- Create a table in which you show the length of each bridge in centimeters, meters, and kilometers or in feet, yards, and miles. Explain the strategy you used to convert the measurements.
- Be sure to use correct spelling, punctuation, capitalization, and grammar.
- Think of a creative way to present your project! You might like to create a poster, a book, a multimedia presentation, or a scale model.

Project Due Date: _____

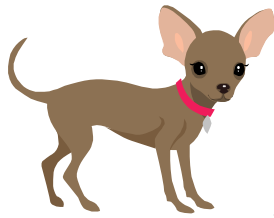
Longest Bridges of the World Rubric

Name:

Date:

Requirements	4	3	2	1
Map and Facts about Bridges	Map and facts about the selected bridges are presented very clearly.	Map and facts about the selected bridges are presented clearly.	Some of the map and/or facts about the selected bridges are presented clearly.	The map and/or facts about the selected bridges are missing or unclear
Bar Graph	Bar graph includes title, labels on each axis, and appropriate scale. Data is represented accurately.	Bar graph has one missing feature (title, labels on each axis, appropriate scale). Data is represented accurately.	Bar graph has two missing features (title, labels on each axis, appropriate scale) <u>or</u> some data is not represented accurately.	Bar graph has more than two missing features (title, labels on each axis, appropriate scale) <u>or</u> data is not represented accurately.
Measurement Conversions Table and Explanation	All measurement conversions are completed accurately. Explanation of strategy is very clear	Measurement conversions include one mathematical error. Explanation of strategy is reasonably clear	Measurement conversions include 2 – 3 mathematical errors. Some parts of strategy explanation are clear.	Measurement conversions include more than 3 mathematical errors. Strategy explanation is unclear.
Writing Conventions <ul style="list-style-type: none"> . spelling . punctuation . capitalization . grammar . paragraphing 	Strong grasp of all standard writing conventions evident.	Strong grasp of standard writing conventions evident. Has some minor errors that do not impair readability.	Basic grasp of standard writing conventions evident. Errors impair readability.	Minimal grasp of standard writing conventions apparent. Numerous errors distract or confuse reader.
Presentation	Project is presented in a very organized, creative and effective way.	Project is presented in an organized, creative and effective way.	Some parts of the project are presented in an organized, creative or effective way.	Project is not presented in an organized, creative or effective way.

Total: /20



A Family Pet

Your parents are considering getting a family pet and have asked you to research how much it would cost to feed a hamster, a small dog, or a cat per year.

Requirements:

- Show all your work.
- Display your data about the costs to feed each pet in a bar graph. Be sure to give your graph a title, use an appropriate scale, and label each axis.
- Write a recommendation for your parents based on your data
- Write a paragraph explaining how you collected your data and the math you used in completing this project
- Ask a friend or family member to read your project. Have you used correct spelling, punctuation, capitalization, grammar and paragraphing? Edit your work as needed.

Think of a creative way to present your project!

Project Due Date: _____

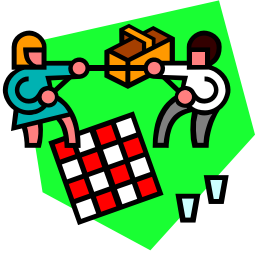
A Family Pet Rubric

Name:

Date:

Requirements	4	3	2	1
Show your work	All work is shown and calculations completed accurately	All work is shown with one minor calculation error	Not all work is shown <u>or</u> work contains several calculation errors	Work is not shown <u>or</u> work contains many calculation errors
Bar Graph	Bar graph includes title, labels on each axis, and appropriate scale. Data is represented accurately.	Bar graph has one feature missing (title, labels on each axis, appropriate scale). Data is represented accurately.	Bar graph has two features missing (title, labels on each axis, appropriate scale) <u>or</u> some data is not represented accurately.	Bar graph has more than two features missing (title, labels on each axis, appropriate scale) <u>or</u> data is not represented accurately.
Explanation and Recommendation	Explanation and recommendation are very clear	Explanation and recommendation are reasonably clear	Some parts of explanation and recommendation are clear	Explanation and recommendation are unclear <u>or</u> not included
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	Strong grasp of all standard writing conventions evident	Strong grasp of standard writing conventions evident. Has some minor errors that do not impair readability.	Basic grasp of standard writing conventions evident. Errors impair readability.	Minimal grasp of standard writing conventions apparent. Numerous errors distract or confuse reader.
Presentation	Project is presented in a very organized, creative and effective way	Project is presented in an organized, creative and effective way	Some parts of the project are presented in an organized, creative or effective way	Project is not presented in an organized, creative or effective way

Total: /20



A CLASS PICNIC

Your teacher has asked you to plan a class picnic to a local park within walking distance of your school. You have \$135 to buy everything that is needed for the 27 students in your class.

Requirements:

1. Create a schedule or timeline for the day.
2. Draw a map or write a list of instructions showing the best way to walk from school to the park you have chosen.
3. Create a shopping list to fit your budget and justify the items and quantities you have chosen.
4. Show all your calculations, as well as evidence that you stayed within your budget.
5. Explain how you collected the information you needed and the math you used in completing this project.
6. Ask a friend or family member to read your project. Have you used correct spelling, punctuation, capitalization, grammar and paragraphing? Edit your work as needed.

Think of a creative way to present your project!

Project Due Date: _____

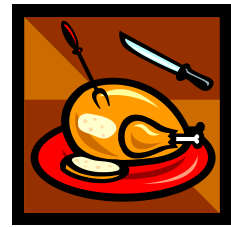
A Class Picnic Rubric

Name:

Date:

Requirements	4	3	2	1
Show your work	All work is shown and calculations completed accurately	All work is shown with one minor calculation error	Not all work is shown <u>or</u> work contains several calculation errors	Work is not shown <u>or</u> work contains numerous calculation errors
Schedule and Map	Schedule and map are presented very clearly	Schedule and map are presented clearly	Schedule and map are somewhat clear	Schedule and map are unclear
Explanation	Explanation is very clear and logical	Explanation is clear and logical	Parts of the explanation are clear	Explanation is unclear <u>or</u> is not included
Writing Conventions <ul style="list-style-type: none"> . spelling . punctuation . capitalization . grammar . paragraphing 	Strong grasp of all standard writing conventions evident	Strong grasp of standard writing conventions evident. Some minor errors that do not impair readability.	Basic grasp of standard writing conventions evident. Errors impair readability.	Minimal grasp of standard writing conventions apparent. Numerous errors distract or confuse reader.
Presentation	Project is presented in a very organized, creative and effective way	Project is presented in an organized, creative and effective way	Some parts of the project are presented in an organized, creative or effective way	Project is not presented in an organized, creative, or effective way

Total: /20



A Thanksgiving Dinner

You are planning a Thanksgiving meal for your extended family. Your guests will bring drinks and side dishes. You will provide a turkey, 4 pounds of apples, 6 pounds of carrots, 8 pounds of potatoes, and 3 large pumpkin pies.

Requirements

1. Determine how big a turkey you will need to buy for your family. Take into account that the suggested weight range for buying a turkey is one to one and a half pounds per adult and three-quarters of a pound per child if you want to have leftovers; or three-quarters of a pound to one pound per adult, and half a pound per child if you do not want to have leftovers. Explain your reasoning.
2. Visit a supermarket, use grocery store catalogues, or an online grocery store to find the total cost of the meal. Show all your work, including the cost per pound for food items where applicable, the total cost for each item, and the total cost of the meal.
3. Research how long it takes to cook a turkey per pound. If your family is planning to eat dinner at 6p.m. what time will you need to start cooking your turkey? Explain your reasoning.
4. Explain how you collected your data and the math you used in completing this project.
5. Present your work in a creative way (e.g. poster, PowerPoint presentation, model, etc.)
6. Ask a friend or family member to read your project. Have you used correct spelling, punctuation, capitalization, grammar and paragraphing? Edit your work as needed.
7. Prepare a short (3-5 minutes) oral presentation in which you will share your project with the class.

Thanksgiving Dinner Rubric

Name:

Date:

Requirements	4	3	2	1
Show Your Work	All work is shown and calculations completed accurately	All work is shown with one minor calculation error	Not all work is shown <u>or</u> work contains several calculation errors	Work is not shown <u>or</u> work contains many calculation errors
Written Explanation	Written explanation is very clear and logical	Written explanation is clear and logical	Parts of the written explanation are clear	Written explanation is unclear <u>or</u> is not included
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	Strong grasp of all standard writing conventions evident	Strong grasp of standard writing conventions evident. Has some minor errors that do not impair readability.	Basic grasp of standard writing conventions evident. Errors impair readability.	Minimal grasp of standard writing conventions apparent. Numerous errors distract or confuse reader.
Project Presentation	Project is presented in a very organized, creative and effective way	Project is presented in an organized, creative and effective way	Some parts of the project are presented in an organized, creative or effective way	Project is not presented in an organized, creative or effective way
Oral Presentation	Student speaks clearly and confidently throughout the presentation	Student speaks clearly and confidently for most of the presentation.	Student speaks clearly and confidently in some sections of the presentation	Student does not speak clearly and confidently in any part of the presentation

Total /20

Comparing Volumes of Cereal Boxes



In this project you will measure the volumes of two different cereal boxes and consider the amount of extra space in each box.

Requirements:

1. Find two unopened cereal boxes of different brands and sizes.
2. Measure the height, width, and depth of each box to the nearest centimeter. Record your data in a table.
3. Calculate the volume of each box. Add this data to your table.
4. Open each cereal box. Mark a line on the outside of the box to show the height of the cereal inside the box. Next, measure the height of the cereal in each box and add this data to your table.
5. Calculate the volume of the cereal in each box using the height of the cereal in Step 4 and the width and depth of the box in Step 2. Add this data to your table.
6. Subtract the amount of cereal in the box from the volume. How many cubic centimeters of empty space are in each box?
7. What is the reason for the empty space in the box? Explain your thinking.

Extra Credit: Design a cereal box that will hold the volume of cereal in one original box with minimal empty space. Write a letter to convince the cereal company why your design is better than the original.

Think of a creative way to present your project!

Project Due Date: _____

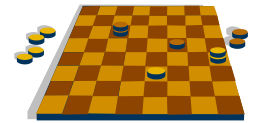
Comparing Volumes of Cereal Boxes

Name:

Date:

Requirements	4	3	2	1
Accuracy	Accurately calculates the volume of the two cereal boxes, the cereal, and the empty space inside each box	Makes one minor calculation error when calculating the volume of the two boxes, the cereal and the empty space inside each box	Not all work is shown <u>or</u> work contains several calculation errors	Work is not shown <u>or</u> work contains many calculation errors
Table	A table is used to present the data effectively All table headings are appropriate (e.g. Height of Box, Width of Box, Depth of Box, Volume of Box, Height of Cereal, Volume of Cereal)	A table is used to present the data effectively Most table headings are appropriate	Some data or sections of the table are missing	A table is not included.
Explanation	Provides a clear and logical explanation for the empty space in the cereal boxes Includes evidence of research on the topic	Provides a clear and logical explanation for the empty space in the cereal boxes	Part of the explanation is clear	Explanation is unclear <u>or</u> is not included
Mechanics . spelling . punctuation . capitalization	No errors in spelling, punctuation or capitalization	1-2 errors in spelling, punctuation or capitalization	3-4 errors in spelling, punctuation or capitalization that interfere with reader's understanding	More than 5 errors in spelling, punctuation or capitalization that interfere with reader's understanding
Presentation	Project is presented in a very organized, creative and effective way Extra credit component is completed effectively	Project is presented in an organized, creative and effective way	Some parts of the project are presented in an organized, creative and effective way	Project is not presented in an organized, creative or effective way

Total: /20



Design a Math Game

You are a board game designer. You are creating a game for your classmates to play. Your game can focus on the concepts we have learned in our current math unit or include concepts from the units we have covered prior to this unit.

Requirements:

- provide clear written directions so players will understand how to play your game
- make an answer key to go with your game so players will be able to check their thinking
- write a brief description explaining how this game can help students improve their math skills and understandings
- use correct spelling, punctuation, grammar and capitalization in all sections of your game and your game description

Be sure to present your game in a creative and engaging way!

Project Due Date: _____

Design a Math Game Rubric

Name:

Date:

Requirements	4	3	2	1
Game Content	All math content is of a suitable level	Most math content is of a suitable level	Some math content is of a suitable level	Math content is not of a suitable level
Game Directions	Game directions are very clear	Game directions are reasonably clear	Some parts of the game directions are clear	Game directions are not clear
Answer Key	Answer key is accurate	Answer key contains 1 error	Answer key contains 2-3 errors	Answer key contains more than 3 errors
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	Strong grasp of all standard writing conventions evident	Strong grasp of most standard writing conventions evident.	Basic grasp of standard writing conventions evident. Errors may impact game.	Minimal grasp of standard writing conventions apparent. Numerous errors distract or confuse players.
Creativity	Game is presented in a very creative and engaging way	Game is presented in a creative and engaging way	Some parts of the game are presented in a creative or engaging way	Game is not presented in a creative or engaging way

Total: /20

Create a Math Story Book



In this project you can choose to create a math story book for our class library or a math story book to donate to a class library for another grade level.

Requirements:

- Choose a math topic and decide on a title for your book (e.g. A Day Without Measurements, The Land of Quadrilaterals, Fraction Frenzy etc.)
- Create your main characters and supporting characters. Give each character a name and personality.
- Write a draft copy of an original math story.

Once you are ready to publish

- Design a cover for your book on cardstock or construction paper that reflects what the story is about. Include the title, author's name and an illustration on the front cover.
- Write a blurb on the back cover explaining how your book will help the reader learn more about math and suggest what grade level it is best suited to.
- Type or neatly print the text of your book.
- Number each page in your book .
- Include at least one illustration on each double page. You may use different mediums such as crayon, marker, colored pencil, computer graphics, magazines, etc.

Project Due Date: _____

Create a Math Story Book Rubric

Name:

Date:

Requirements	4	3	2	1
Book Cover	Front cover includes title, author's name and appealing illustration. Back cover includes well written blurb.	Front cover includes title, author's name and illustration. Back cover includes blurb.	One requirement missing from front or back cover	Book cover is not included <u>or</u> has more than one requirement missing
Ideas and Content	Focus topic is clear. Story details show thorough understanding of math topic.	Focus topic is clear. Story details show good understanding of math topic.	Focus topic is somewhat clear. Story details show limited understanding of math topic.	Focus topic is not clear. Story details show little understanding of math topic.
Illustrations	At least one illustration is included on each double page	Most double pages include at least one illustration	Some double pages include at least one illustration	Few <u>or</u> no illustrations are included
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	Strong grasp of all standard writing conventions evident	Strong grasp of standard writing conventions evident. Some minor errors that do not impair readability.	Basic grasp of standard writing conventions evident. Errors impair readability.	Minimal grasp of standard writing conventions apparent. Numerous errors distract or confuse reader.
Presentation	Text is typed or neatly printed. Overall presentation is of a very high standard.	Text is typed or neatly printed. Overall presentation is of a high standard.	Some pages in the book are well presented.	Very few pages in the book are well presented.

Total: /20



Famous Mathematicians of the Past

Use the library or internet to research the life of a mathematician of the past. Your end product will be a short oral presentation in which you will share your findings with the class.

Requirements:

- You must present an important contribution of the person, in addition to his or her life story.
- Create cue cards to use during your talk. Practice your presentation so that you are able to speak confidently and use eye contact with your audience.
- Your oral presentation should be of 5 minutes duration.
- Create a visual aid to add interest to your oral presentation (e.g. PowerPoint, model, poster etc.)
- After your presentation you will have 2 minutes to answer questions from the audience. Be ready to answer your classmates' questions.

Oral Presentation Date: _____

There are many famous mathematicians. Here are a few names to get you started:

Pythagoras
Archimedes
Rene Descartes
Leonhard Euler
Leonardo Fibonacci
Euclid
Blaise Pascal

Famous Mathematicians of the Past Rubric**Name:****Date:**

Requirements	4	3	2	1
Content	Presentation is very well researched. Able to answer all class questions with clear explanations and elaboration.	Presentation is well researched. Able to answer most class questions.	Some parts of presentation are well researched. Able to answer some class questions.	Presentation is not well researched. Unable to answer any class questions.
Delivery	Speaks very confidently and clearly throughout presentation	Speaks confidently and clearly during most of presentation	Speaks clearly In some parts of presentation	Mumbles or speaks too quietly for audience to hear
Eye Contact	Constant eye contact with audience. Presents from memory with no need to refer to cue cards.	Consistent eye contact with audience, seldom looks at cue cards	Displays minimal eye contact with audience. Reads mostly from cue cards.	No eye contact with audience. Reads from cue cards.
Visual Aid	Very original and effective visual aid	Original and effective visual aid	Visual aid is used but lacks originality and effectiveness	No visual aid used
Length of Presentation	Meets time requirements	Completes presentation within 2 minutes of allotted time	Completes presentation within 3 minutes of allotted time	Presentation is too short or goes more than 3 minutes over allotted time.

Total: /20

Math Tic-Tac-Toe

Name _____

Due Date: _____

Directions: Complete 3 activities in a vertical, horizontal, or diagonal line. You may complete more than 3 activities if you wish.

<p style="text-align: center;">VOCABULARY</p> <p>Write the definition of 10 words related to our current unit. Give an example or draw a picture to illustrate each word.</p>	<p style="text-align: center;">CREATE AN ASSESSMENT</p> <p>Create an assessment for our current unit. Include different types of questions (e.g. multiple choice, short answer, and extended response) and an answer key.</p>	<p style="text-align: center;">POSTER</p> <p>Design a poster <u>or</u> comic strip that illustrates an important concept from our current unit.</p>
<p style="text-align: center;">MULTIMEDIA</p> <p>Design a multimedia presentation to demonstrate five key concepts from this unit.</p>	<p style="text-align: center;">REAL WORLD APPLICATION</p> <p>Show examples of how the skills and concepts you have learned in this unit could be used in everyday life.</p>	<p style="text-align: center;">GAME DESIGN</p> <p>Design a game to review skills and concepts from the current unit.</p>
<p style="text-align: center;">REFLECTION</p> <p>Write a letter to a family member explaining what you found easiest and what you found most difficult during this unit.</p>	<p style="text-align: center;">STUDY GUIDE</p> <p>Design a study guide that reviews key concepts from this unit.</p>	<p style="text-align: center;">POETRY</p> <p>Write and illustrate a poem <u>or</u> song about one or more concepts from the current unit.</p>

Math Tic-Tac-Toe

Name _____

Due Date: _____

Directions: Complete 3 activities in a vertical, horizontal, or diagonal line. You may complete more than 3 activities if you wish.

A Multiplication and Division Book

For this project you will create a multiplication and division book as an end of year gift for a second grade student.











Requirements:

Create a multiplication and division book using the multiples 1-10. Your book must include:

- a title page showing the name of the author and illustrator
- 10 multiplication pages showing equations, a word problem and a drawing, diagram or array
- 10 division pages showing equations, a word problem and a drawing, diagram or array

Examples:

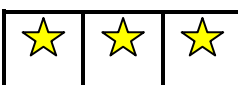
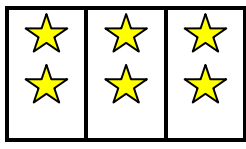
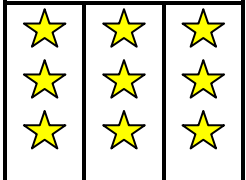
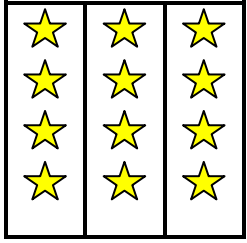
Multiplication: x 4

$1 \times 4 = 4$	$6 \times 4 = 24$	 4	 8	 12	 16	 20
$2 \times 4 = 8$	$7 \times 4 = 28$	 24	 28	 32	 36	 40

I saw 10 cows at the farm. How many cow's legs did I see? $10 \times 4 = ?$

x x x x 4
x x x x 8
x x x x 12
x x x x 16
x x x x 20
x x x x 24
x x x x 28
x x x x 32
x x x x 36
x x x x 40

Division: ÷ 3

$3 \div 3 = 1$	$6 \div 3 = 2$	$9 \div 3 = 3$	$12 \div 3 = 4$
			

3 friends shared 9 star shaped cookies equally. How many star shaped cookies did each friend get? $9 \div 3 = ?$

Diagrams and equations continue

Project Due Date: _____

A Multiplication and Division Book Rubric

Name:

Date:

Requirements	4	3	2	1
Title Page	Highly engaging title page which includes author/illustrator's name	Engaging title page which includes author/illustrator's name	Title page shows is missing author/illustrator's name	Title page shows minimal effort
Multiplication Pages	All multiplication equations are accurate. All pictures match equations. All word problems describe multiplication contexts.	Multiplication equations, pictures or word problems include 1-3 errors.	Multiplication equations, pictures or word problems include 4-5 errors.	Multiplication equations, pictures or word problems include more than 5 errors.
Division Pages	All division equations are accurate. All pictures match equations. All word problems describe division contexts.	Division equations, pictures or word problems include 1-3 errors.	Division equations, pictures or word problems include 4-5 errors.	Division equations, pictures or word problems include more than 5 errors.
Presentation	Book is presented in an organized, creative and highly effective way	Book is presented in an organized and effective way	Some pages in the book are presented in an organized and effective way	Book is missing some multiplication and division pages <u>or</u> shows minimal effort

Total: /16

Collective Nouns Word Problems



In this project you will write and illustrate multiplication and division word problems using collective nouns. A **collective noun** refers to a group of people, animals or objects as a group. For example, in the phrase "a pride of lions", *pride* is a collective noun.

Requirements:

1. Research collective nouns. Make a list of 10-15 collective nouns.
2. Use magazines or the internet to find **five** collective noun images (e.g. pictures of a **colony** of ants, a **herd** of antelope, a **crowd** of people, a **swarm** of bees, and a **flock** of birds). Write a multiplication and a division word problem using each image. You must:
 - use a collective noun instead of the word 'groups' in each word problem
 - write an equation with a symbol for the unknown number to represent each problem
 - include the collective noun image
 - show an equation and one other representation of each problem (e.g. an array, jumps on a number line, equal groups diagram)

Example: Three **colonies** of bats were flying in a cave. Each colony had the same number of bats. If there were 24 bats in the cave, how many bats were in each colony?

Equation: $3 \times a = 24$

Solution: $3 \times 8 = 24$

24 bats were in the cave.

Array:

$x \times x \times x \times x \times x \times x \times x \times x \quad 8$

$x \times x \times x \times x \times x \times x \times x \times x \quad 16$

$x \times x \times x \times x \times x \times x \times x \times x \quad 24$



Project Due Date: _____

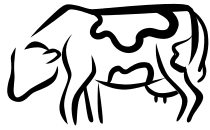
Collective Nouns Word Problems Rubric

Name:

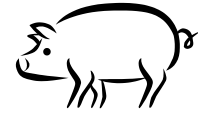
Date:

Requirements	4	3	2	1
Collective Nouns list	List contains more than 10 collective nouns	List contains 10 collective nouns	List contains 8-10 collective nouns	List contains less than 8 collective nouns
Word Problems include: <ul style="list-style-type: none"> . collective noun pictures . collective noun instead of the word 'groups' . equation with a symbol for unknown number . 2 solution strategies 	5 multiplication and 5 division word problems are included. All word problems meet the requirements.	5 multiplication and 5 division word problems are included. One requirement is missing.	Not all required word problems are included. Two requirements are missing.	Not all required word problems are included. More than two requirements are missing.
Accuracy	All equations are accurate	Equations include one error	More than half of the equations are accurate	Less than half of the equations are accurate
Writing Conventions <ul style="list-style-type: none"> . spelling . punctuation . capitalization . grammar . paragraphing 	All word problems are clearly written and demonstrate a strong grasp of standard writing conventions	Word problems are clearly written. May contain some minor writing errors that do not impair readability.	Word problems show basic grasp of standard writing conventions. Errors impair readability.	Word problems show minimal grasp of standard writing conventions. Numerous errors distract or confuse reader.
Presentation	Project is presented in an organized, creative and highly effective way	Project is presented in an organized and effective way	Some parts of the project are presented in an organized and effective way	Project is not organized or shows minimal effort

Total: /20



Farmer Brown's Farm



Farmer Brown needs to build new fencing for her farm. She needs several fenced in areas for her animals as well as enough fencing to go all the way around the perimeter of the farm.

Requirements:

1. Write a list of four different animals that might live on the farm. Decide how many of each type of animal to include.
2. Create a scale drawing or model of Farmer Brown's farm. Decide on a scale (e.g. 1cm = 1 meter). Include the following:
 - a rectangular shaped fence to go around the whole farm
 - a farmhouse, barn and small orchard
 - separate fenced in areas for each type of farm animal you chose (think about which type of animal will need the most and least amount of space)
2. Measure and label the animal fencing. Figure out how much fencing will be needed for each animal pen. Show your work.
3. Figure out how much fencing will be needed for the perimeter of the farm. Show your work.
4. Figure out the total amount of fencing needed. Show your work.
5. If each meter of fencing costs \$2.00 what will be the cost to fence each animal pen? What will be the total cost of fencing for all animal pens and the perimeter of the farm? Show your work.

Project Due Date: _____

Farmer Brown's Farm Rubric

Name:

Date:

Requirements	4	3	2	1
Show your work	All work is shown. Accurately calculates: a) perimeter of each animal pen b) perimeter of farm c) the total amount of fencing needed d) cost of the fencing	All work is shown with 1-2 calculation errors	Not all work is shown <u>or</u> work contains 3-4 calculation errors	Work is not shown <u>or</u> work contains more than 4 calculation errors
Scale Drawing or Model	Drawing or model is well planned and includes all criteria (4 animal pens, farmhouse, barn or orchard) Drawing or plan shows attention to detail	Drawing or model is well planned and includes all criteria	Drawing or model is missing 1-2 criteria	Drawing or model is missing more than 2 criteria
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	All questions are answered in complete sentences. Strong grasp of all standard writing conventions evident.	All questions are answered in complete sentences. Sound grasp of standard writing conventions evident. May have some minor errors that do not impair readability.	Some questions are answered in complete sentences. Basic grasp of standard writing conventions evident. Errors impair readability.	Questions are not answered in complete sentences. Minimal grasp of standard writing conventions evident. Numerous errors distract or confuse reader.
Presentation	Project is presented in an organized, creative and highly effective way	Project is presented in an organized and effective way	Some parts of the project are presented in an organized and effective way	Project is not organized <u>or</u> shows minimal effort

Total: /16



How Far Did it Fly?

For this project you will fold two paper airplanes and compare how far they fly. You will need the following materials: 2 different sheets of paper (copy, construction, newspaper etc.), ruler or tape measure, chalk or masking tape, paper clips (optional), tape or glue (optional).

Requirements:

1. Research different types of paper airplanes. Decide on a design and make this airplane using copy paper. Next, make the same airplane using a different type of paper. You may like to decorate your airplanes.
2. Test your planes and make adjustments as necessary. Sometimes a paper clip on the nose, a slight adjustment to a wing or a different throwing technique can make a big difference.
3. Ask a friend or family member to measure the distance from the ground to the top of your shoulder. This distance is your launch height.
4. Make a 5 column table with the headings: Plane Number, Launch Number, Paper Type, Launch Height and Approximate Distance Flown.
5. Go outside and use masking tape or chalk to mark the ground in half meter increments. Label the increments: 0m (start line), 1m, $1\frac{1}{2}$ m, 2m and so on until you reach the 6m mark.
6. Throw each airplane six times. Measure the flight path to the nearest half meter from the starting line to the point where the plane first touches the ground. Add this data to your table.
7. Display the flight path data for each plane in a line plot. Give each line plot a title and label the axis.
8. Think of a safe way to change your launch height. Throw each airplane six times from your new launch height. Measure the flight path to the nearest half meter and add this data to your table.
9. Analyze your data. Describe how the different types of paper used, launch heights and other factors impacted on the distance flown.

Project Due Date: _____

How Far Did it Fly? Rubric

Name:

Date:

Requirements	4	3	2	1
Airplanes	Both airplanes are well constructed using different paper types and show attention to detail	Both airplanes are well constructed using different paper types	Both airplanes are made from the same paper type	Only one airplane is included in the project
Table	All flight measurement data is presented clearly in a five column table	Most flight measurement data is presented clearly in a five column table	One set of data <u>or</u> one section of the five column table is missing	More than one set of data <u>or</u> section of the five column table is missing
Line Plots	Line plots accurately display all flight measurement data in fractions of a unit	Line plots contain 1-2 errors	Line plots contain 3-4 errors	Line plots contain more than 4 errors
Writing Conventions <ul style="list-style-type: none"> . spelling . punctuation . capitalization . grammar . paragraphing 	Data analysis is very clear and demonstrates strong grasp of all standard writing conventions	Data analysis is clear and demonstrates sound grasp of standard writing conventions. May contain some minor errors that do not impair readability.	Data analysis demonstrates basic grasp of standard writing conventions. Errors make it difficult to read.	Data analysis demonstrates minimal grasp of standard writing conventions. Numerous errors distract or confuse reader.
Presentation	Project is presented in an organized, creative and highly effective way	Project is presented in an organized, creative and effective way	Some parts of the project are presented in an organized, creative and effective way	Project is not organized <u>or</u> shows minimal effort

Total: /20



Build a Marble Run

In this project you will design and build a freestanding marble run that allows a marble to travel from the top to the bottom of the run without stopping. You can use cardboard, empty boxes, paper towel rolls, paper cups, tape or any other household materials you think may be useful.

Requirements:

1. Design and draw a plan for your marble run. Your plan must include:
 - a) a list of materials you will use to build the marble run
 - b) a scale drawing of the marble run
 - c) at least one right, two obtuse and two acute angles. Use a protractor to measure and label each angle.
2. Build and test your marble run. Make modifications if necessary.
3. Time how many seconds it takes for a marble to run from the top to the bottom of your marble run. Repeat 10 times. Record this data in a two column table with the headings: a) Run Number and b) Seconds.
4. Create a line plot using the data in your table. Write 3 comparative statements about your data.
5. Figure out the average marble run time by adding the seconds from all runs and dividing the result by the number of runs. Show your work.

Build a Marble Run Rubric

Name:

Date:

Requirements	4	3	2	1
Marble Run Plan	All 3 components of marble run plan are presented in a highly effective way: a) list of materials b) scale drawings c) required angles	All 3 components of marble run plan are presented in an effective way	An attempt is made to present all 3 components of the marble run plan but some components are unclear	One or more components of the marble run plan are missing
Marble Run	Marble run is well built and replicates plan. Marble run has some unique elements <u>or</u> makes innovative use of everyday materials.	Marble run is well built and replicates plan	Marble run has some construction flaws but attempts to replicate the plan	Marble run does not replicate plan
Table and Line Plot	Data in two column table is presented clearly Line plot accurately represents data in table	Data in two column table is presented clearly Line plot represents data in table but has one minor error	Data in two column table is unclear <u>or</u> line plot contains more than one error	Table <u>or</u> line plot is missing
Average Marble Run Time	All work is shown and calculations completed accurately	All work is shown with one minor calculation error	Work contains more than one calculation error	Work is not shown
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	Data comparative statements demonstrate strong grasp of all standard writing conventions	Data comparative statements demonstrate sound grasp of standard writing conventions. Some minor errors that do not impair readability.	Data comparative statements demonstrate basic grasp of standard writing conventions. Errors impair readability.	Data comparative statements are missing <u>or</u> demonstrate minimal grasp of standard writing conventions
Presentation	Project is presented in an organized, creative and highly effective way	Project is presented in an organized and effective way	Some parts of the project are presented in an organized and effective way	Project is not organized <u>or</u> shows minimal effort

Total: /24

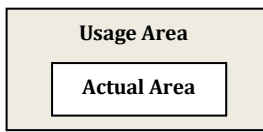
Design a Playground

For this project you will design the layout for a new playground in your local community.

1. You have 70 meters of fencing to enclose the playground. What size rectangle will give the maximum area for this amount of fencing? Show your work.

2. Create a scale drawing or 3D model to show your playground design. Decide on the layout of the playground equipment. Be sure to check the table for the actual area and usage area that each piece of equipment needs.

3. Safety regulations require that recycled rubber mulch is used to cover the usage area around all slides, seesaws and swings.


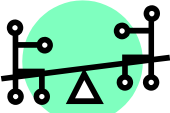







Create a 6 column table with the headings: Equipment, Actual Area, Usage Area, Actual Perimeter, Usage Perimeter and Amount of Rubber Mulch Needed. Calculate and record measures for all playground equipment.

5. Calculate the total amount of recycled rubber mulch needed. If each bag of mulch covers 20 m^2 , how many bags of mulch will be needed? Show your work.

6. If recycled rubber mulch costs \$9.68 per bag, what will be the total cost of the mulch? Show your work.

7. Any area not covered with mulch will be covered in artificial grass. How many square meters of artificial grass will be needed? Show your work.

Equipment	Actual Area	Usage Area
Spiral Slide 	2m x 5m	5m x 8m
Seesaw 	1m x 4m	2m x 4m
Single Swing 	2m x 2m	6m x 6m
Double Swing 	4m x 2m	8m x 9m
Straight Slide 	4m x 1m	6m x 2m
Hopscotch Court 	2m x 4m	2m x 6m
3 Park Benches 	1m x 2m	1m x 2m each

Design a Playground Rubric

Name:

Date:

Requirements	4	3	2	1
Scale Drawing or 3D Model	Usage area and actual size of equipment is accurately shown to scale Layout of all playground equipment adheres to safety regulations	Usage area and actual size of equipment is shown Layout of most playground equipment adheres to safety regulations	Usage area and actual size is shown for some playground equipment Layout of some playground equipment adheres to safety regulations	Usage area and actual size is not shown for any playground equipment Layout of playground equipment does not adhere to safety regulations
Show your work	All work is shown and calculations completed accurately	All work is shown with 1-3 calculation errors	Not all work is shown <u>or</u> work contains 4-5 calculation errors	Work is not shown <u>or</u> work contains more than 5 calculation errors
Six Column Table	Data in table is presented clearly and accurately	Data in table is presented clearly with 1-2 errors	One section of the table is missing <u>or</u> unclear <u>or</u> data has 3-4 errors	Two sections of the table are missing <u>or</u> unclear <u>or</u> data has more than 4 errors
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	All questions are answered in complete sentences. Strong grasp of all standard writing conventions evident	All questions are answered in complete sentences. Sound grasp of standard writing conventions evident. Some minor errors that do not impair readability.	Questions are not answered in complete sentences. Basic grasp of standard writing conventions evident. Errors impair readability.	Minimal grasp of standard writing conventions evident. Numerous errors distract or confuse reader.
Presentation	Project is presented in an organized, creative and highly effective way	Project is presented in an organized and effective way	Some parts of the project are presented in an organized and effective way	Project is not organized <u>or</u> shows minimal effort

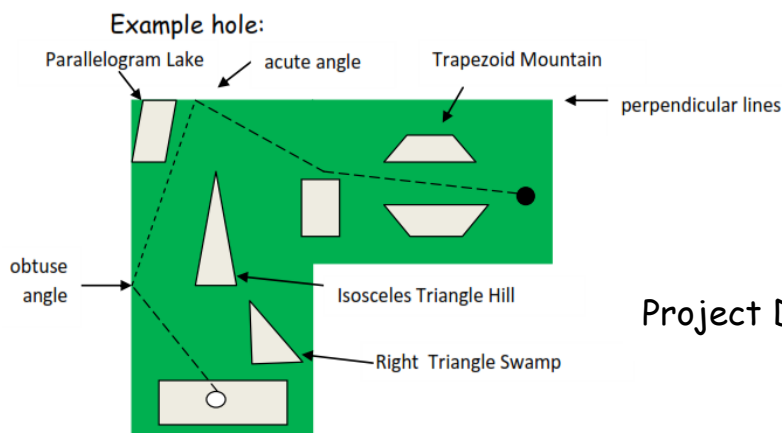
Total: /20



Design a Mini Golf Course

You have decided to enter a competition to design a mini golf course for your local community. Your course must be challenging and can include different kinds of obstacles such as mountains, forests, sand traps and water features.

1. Draw or create a model of a mini golf course that includes:
 - at least **four** different holes with a variety of challenging obstacles
 - at least four pairs of parallel lines
 - at least four examples of perpendicular lines
 - at least five different quadrilaterals and three different types of triangles
 - labels for all shapes and lines
2. Once you have designed the course you need to show how a professional golf player would use angles to hit the ball off the wall to send it towards the hole. In your shots on each golf hole show, measure and label the angles. At least three acute, two right, two straight and three obtuse angles must be included, in total, in the four holes.
3. Write a letter to the competition judges outlining how your entry meets the competition criteria and why you deserve to win.



Project Due Date: _____

Design a Mini Golf Course Rubric

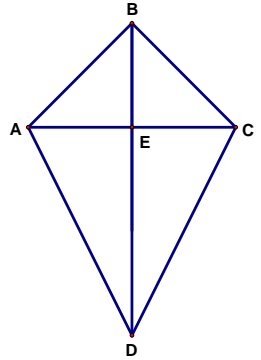
Name:

Date:

Requirements	4	3	2	1
Mini Golf Course	Design meets all given criteria in a highly effective way. More than four holes are included with required lines and shapes.	Design meets all given criteria in an effective way. Four holes are included with required lines and shapes.	One design criteria is missing	More than one design criteria is missing
Angles	All required angles are clearly shown and measured	All angles are clearly shown but 1-2 are measured incorrectly	Some angles are shown but 3-4 are measured incorrectly	More than 4 angles are measured incorrectly
Writing Conventions <ul style="list-style-type: none"> . spelling . punctuation . capitalization . grammar . paragraphing 	Letter to the judges demonstrates a strong grasp of all standard writing conventions	Letter to the judges contains some minor writing convention errors that do not impair readability	Letter to the judges shows basic grasp of standard writing conventions. Errors impair readability.	Letter to the judges shows minimal grasp of standard writing conventions. Numerous errors distract or confuse reader.
Presentation	Project is presented in an organized, creative and highly effective way	Project is presented in an organized and effective way	Some parts of the project are presented in an organized and effective way	Project is not organized <u>or</u> shows minimal effort

Total: /16

Let's Go Fly a Kite



For this project you will plan, construct, measure and fly a kite. A kite is a quadrilateral where the two shorter sides are congruent ($AB = CB$) and the two longer sides are congruent ($AD = CD$).

1. Create a plan for your kite. Your plan must include:

- a scale drawing of your kite. Label all vertices and the intersection of the diagonals and make sure the scale factor is clearly visible.
- a list of materials used to construct your kite

2. Measure the following to the nearest centimeter or degree:

- Segment length: $AB, BC, CD, AD, AE, CE, BE, DE, AC, BD$
- Angle measure: $\angle ABC, \angle BCD, \angle CDA, \angle DAB, \angle ABE, \angle BEA, \angle EAB, \angle BEC, \angle ECB, \angle ADE, \angle DEA, \angle EAD, \angle CDE, \angle DEC, \angle ECD$
- Kite Perimeter: $ABCD$
- Triangle Perimeter: $\triangle ABC, \triangle ADC, \triangle ABD, \triangle CBD, \triangle ABE, \triangle CBE, \triangle ADE$ and $\triangle CDE$.
- How many different types of triangles are in the kite? Explain your thinking.

3. Build your kite using whatever suitable materials you have available.

4. Make a tail twice the length of the kite's width and attach this to the bottom of the kite.

5. Before testing the kite do some research on the internet or at the library on kite safety. Write a short report explaining the three most important things you learn.

6. Test your kite outdoors in a large open space.

7. Describe your kite flying experience. Did your kite fly? Why or why not? What changes, if any, would you make to the kite design?

Project Due Date: _____

Let's Go Fly a Kite Rubric

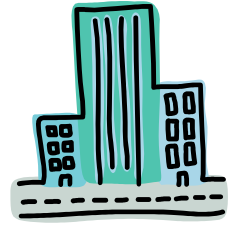
Name:

Date:

Requirements	4	3	2	1
Kite Plan	All components of kite plan are presented in a highly effective way: a) labelled scale drawing b) list of materials	All components of kite plan are presented in an effective way:	An attempt is made to present all components of the kite plan but some components are unclear	One or more components of the kite plan are missing
Kite Build	Kite is well built and replicates plan Noticeable effort has gone into building and decorating the kite	Kite is well built and replicates plan	Kite has some construction flaws but attempts to meet the plan	Kite has major construction flaws
Kite Measurement	All measurements are accurate	All measurements are shown with 1-3 errors	All measurements are shown with 4-5 errors	Not all measurements are shown <u>or</u> work contains more than 5 errors
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	Information on kite safety and kite flying experiences is clear and demonstrate a strong grasp of all standard writing conventions	Information on kite safety and kite flying experiences contains some minor writing convention errors that do not impair readability.	Information on kite safety and kite flying experiences shows basic grasp of standard writing conventions. Errors impair readability.	Information on kite safety and kite flying experiences shows minimal grasp of standard writing conventions. Numerous errors distract or confuse reader.
Presentation	Project is presented in a organized, creative and highly effective way	Project is presented in an organized and effective way	Some parts of the project are presented in an organized and effective way	Project is not organized <u>or</u> shows minimal effort

Total: /20

Design a Mini City



For this project you will design a mini city of 3-dimensional buildings.

1. Draw, color, label and cut out 4 rectangular prisms with the following dimensions:
 - a) Bank - $5\text{cm} \times 3\text{cm} \times 6\text{cm}$
 - b) Restaurant - $5\text{cm} \times 3\text{cm} \times 4\text{cm}$
 - c) Toy Store - $4\text{cm} \times 4\text{cm} \times 3\text{cm}$
 - d) Supermarket - $6\text{cm} \times 3\text{cm} \times 5\text{cm}$
2. Draw, color, label and cut out 3 buildings with the following volumes:
 - a) Bookstore - 50 cm^3 ; b) Food Mall - 60 cm^3 ; c) Office Building - 72 cm^3
3. Design, color, label and cut out 3 buildings with dimensions of your own choosing.
4. Draw a map of a mini city that includes:
 - a) five streets that are parallel to one another
 - b) two sets of streets that are perpendicular
 - c) one street that intersects another street to form an obtuse angle
 - d) one street that intersects another street to form an acute anglePaste your buildings along the streets of your map.
5. Calculate and record the volume of all 10 buildings in a three column table with the following headings: a) Building Name, b) Dimensions, c) Volume. Write 3-5 comparative statements about the data in your table.
6. Read the rubric and edit your work as needed. Share your project with a friend or family member. Do they have any suggestions as to how you can improve your work?

Project Due Date: _____

Design a Mini City Rubric

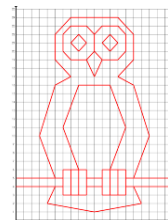
Name:

Date:

Requirements	4	3	2	1
Buildings	All buildings are constructed with accurate dimensions	Most buildings are constructed with accurate dimensions	Some buildings are constructed with accurate dimensions	No buildings are constructed with accurate dimensions
Map	Map includes all listed criteria	Map is missing one of the listed criteria	Map is missing two of the listed criteria	Map is missing more than two of the listed criteria
Table	All necessary information is presented neatly in table. All calculations are correct.	All necessary information is presented neatly in table with 1-2 calculation errors	Table has 3-4 calculation errors	Table has missing information <u>or</u> more than 4 calculation errors
Writing Conventions <ul style="list-style-type: none"> . spelling . punctuation . capitalization . grammar . paragraphing 	All comparative statements are accurate and demonstrate a strong grasp of standard writing conventions	Comparative statements are correct but contain some minor writing errors that do not impair readability.	Comparative statements are not correct <u>or</u> contain writing errors that impair readability	Numerous errors in comparative statements distract or confuse reader
Presentation	Project is presented in an organized, creative and highly effective way	Project is presented in an organized and effective way	Some parts of the project are presented in an organized and effective way	Project is not organized <u>or</u> shows minimal effort

Total: /20

Coordinate Plane Picture



In this project you will produce a picture in the first quadrant of the coordinate plane with a set of directions to recreate it.

Materials: ruler, graph paper

1. Set up an x-axis and a y-axis on the graph paper.
2. Create a coordinate plane picture . Your picture must:
 - be located in the first quadrant of the coordinate plane
 - use only straight lines between points
 - use at least 35 ordered pairs
 - include at least four different shapes
 - be colorful
3. Create a table for each shape in your picture and list each ordered pair that you plot. Your directions should be clear enough to enable another person to accurately recreate your picture. Be sure to indicate where it is necessary to lift the pencil and where it is necessary to connect each point to the next one in the order that you have them listed.

Example: Shape 1

Step	Ordered Pair
1	(1, 3)
2	(4, 0)
3	(2, 4)
4	(5, 3)

and so on

4. Name three different careers which involve use of the coordinate plane. Give examples of how the coordinate plane is used in each career.

Project Due Date: _____

Coordinate Plane Picture Rubric

Name:

Date:

Requirements	4	3	2	1
Accuracy of Directions	The directions are accurate. All ordered pairs are identified correctly.	The directions are mostly accurate. Less than 5 ordered pairs are identified incorrectly.	The directions are somewhat accurate. 6-10 ordered pairs are identified incorrectly.	The directions are not accurate. More than 10 ordered pairs are identified incorrectly.
Complexity of Picture	The picture uses more than 35 ordered pairs and more than 4 different shapes	The picture uses 35 ordered pairs and 4 different shapes	The picture uses less than 35 ordered pairs <u>or</u> less than 4 different shapes	The picture uses less than 35 ordered pairs and less than 4 different shapes
Presentation	All directions are presented neatly. The coordinate plane picture is colored and uses only straight lines between points.	All directions are presented neatly. The coordinate plane picture is not colored <u>or</u> uses curves between some points .	Some directions are presented legibly. The coordinate plane picture is not colored and uses curves between some points .	The directions are not legible. The coordinate plane picture is not colored and uses curves between some points
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	Description of three different careers which involve use of the coordinate plane demonstrates a strong grasp of standard writing conventions	Description of three different careers which involve use of the coordinate plane contains minor writing errors that do not impair readability.	Description of three different careers which involve use of the coordinate plane demonstrates basic grasp of standard writing conventions. Errors impair readability.	Description of three different careers which involve use of the coordinate plane demonstrates minimal grasp of standard writing conventions

Total: /20

A Bake Sale



You have decided to hold a Bake Sale with a friend to raise money for charity. Your goal is to raise between \$140.00 - \$150.00 selling two different types of muffins. A local supermarket has kindly agreed to donate all the ingredients you will need.

Requirements:

1. Decide how much you will charge per muffin. Select a price that is more than 75 cents but less than one dollar. Based on this price how many muffins will you need to sell to reach your fundraising goal?
2. Use the internet, cookbooks or family recipes to research and select two different muffin recipes that have at least three fractions in the ingredients list. Calculate how many batches of each type of muffin you will need to bake.
3. Write out the two original recipes. Calculate how much of each ingredient you will need for the number of muffins you will bake. Write a letter to the supermarket manager with a list of the ingredients you will need.
4. Determine how long it will take to bake all batches of muffins. Show what time you will begin baking and what time you will end.
5. Create a two column table with the following headings: a) Fraction of Muffins Sold, b) Amount Raised. Calculate how much money you will raise if you sell $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, all of the muffins you bake and include this data in your table.

Project Due Date: _____

A Bake Sale Rubric

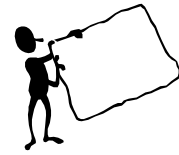
Name:

Date:

Requirements	4	3	2	1
Show your work	All work is shown and calculations completed accurately	All work is shown with one calculation error	Not all work is shown <u>or</u> work contains 2-3 calculation errors	Work is not shown <u>or</u> work contains more than 3 calculation errors
Table	Data in table is presented clearly and accurately	Data in table is presented clearly with 1-2 errors	One section of the table is missing <u>or</u> table includes 3-4 errors	More than one section of the table is missing <u>or</u> table includes more than 4 errors
Writing Conventions <ul style="list-style-type: none"> . spelling . punctuation . capitalization . grammar . paragraphing 	Letter to the supermarket manager is well written and demonstrates strong grasp of all standard writing conventions	Letter to the supermarket manager is well written and demonstrates sound grasp of standard writing conventions. May contain some minor errors that do not impair readability.	Letter to the supermarket manager demonstrates basic grasp of standard writing conventions. Errors impair readability.	Letter to the supermarket manager demonstrates minimal grasp of standard writing conventions. Numerous errors distract or confuse reader.
Presentation	Project is presented in an organized, creative and highly effective way	Project is presented in an organized and effective way	Some parts of the project are presented in an organized and effective way	Project is not organized <u>or</u> shows minimal effort

Total: /16

Math Review Poster



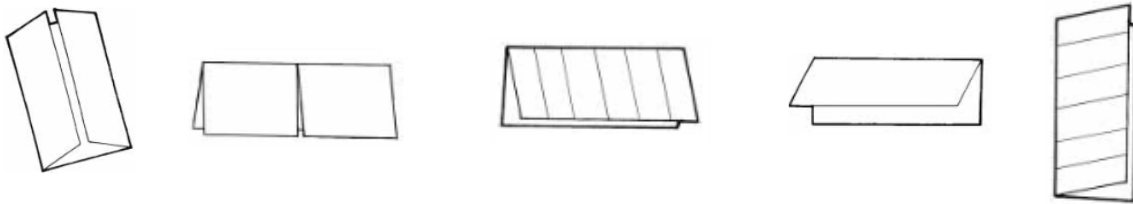
For this project you will create a poster based on one key concept we have studied so far in math this year. We will meet to decide on topics before you begin the project.

Materials: colored pencils, markers, copy paper, colored paper, index cards, glue

Requirements

Your poster should be well organized and must include:

- a title
- key vocabulary with definitions
- example problems that you create and solve in clearly written steps
- 2-3 original word problems that you create and solve
- at least 2 different types of interactive graphic organizers to present information



Refer back to the work you have done in class on this topic. Be neat and creative! Your poster will be displayed in the classroom for others to use as a reference tool so it is important that all work is accurate.

Project Due Date: _____

Math Review Poster Rubric

Name:

Date:

Requirements	4	3	2	1
Key Vocabulary	All key vocabulary for topic is included with accurate definitions	Some key vocabulary for topic is included with accurate definitions	Some key vocabulary for topic is included but definitions are not accurate	Vocabulary is not relevant to topic
Example Problems	Example problems match topic, are solved correctly and explained precisely	Example problems match topic but include 1-2 solution errors	Example problems match topic but include more than two solution errors	Example problems do not match topic
Word Problems	Example word problems match topic, are solved correctly and explained precisely	Example word problems match topic but include one solution error	Example word problems match topic but include two or more solution errors	Example word problems do not match topic <u>or</u> do not make sense
Interactive Graphic Organizers	More than two different types of interactive graphic organizers are included	Two different types of interactive graphic organizers are included	One interactive graphic organizer is included	No interactive graphic organizers are included
Writing Conventions . spelling . punctuation . capitalization . grammar . paragraphing	Project demonstrates strong grasp of all standard writing conventions	Project demonstrates sound grasp of standard writing conventions. Some minor errors that do not impair readability.	Project demonstrates basic grasp of standard writing conventions. Errors impair readability.	Project demonstrates minimal grasp of standard writing conventions.
Presentation	Project is presented in a organized, creative and highly effective way	Project is presented in an organized and effective way	Some parts of the project are presented in an organized and effective way	Project is not organized <u>or</u> shows minimal effort

Total: /24

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