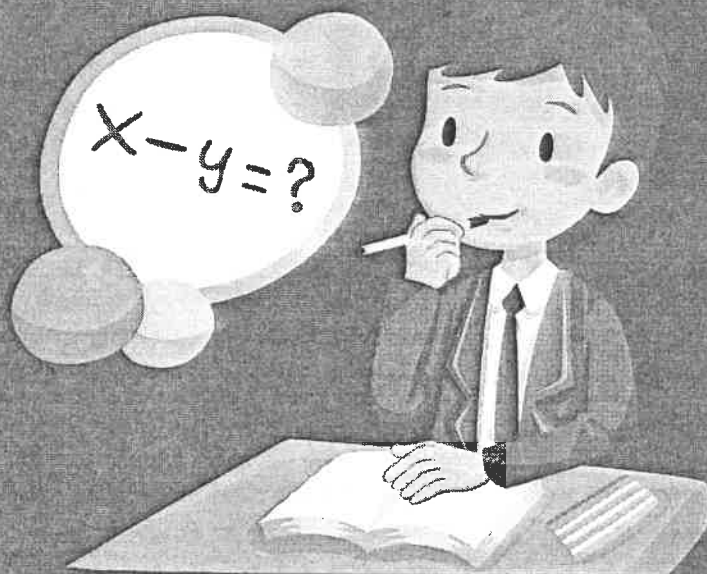




Math Projects

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.

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

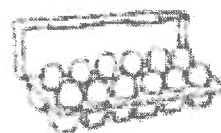
*Use the Bookmarks tab on click on the Project name to go directly to the project page

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: _____



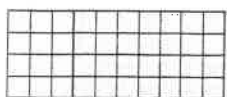
Everyday Arrays Project Rubric

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 • 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 or 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 or 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

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: _____

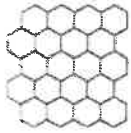
Designing a Town Map Rubric

Name: _____

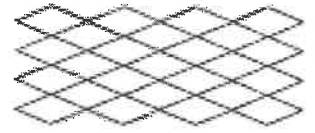
Date: _____

Requirements		4	3	2	1
Map	All required map elements are shown accurately	One required map element is missing or incorrect	Two required map elements are missing or incorrect	More than two required map elements are missing or incorrect	
	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 or 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



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.

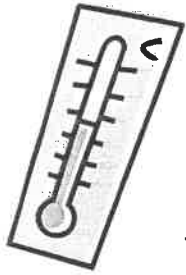
Tessellation Design Rubric

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 or 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



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. 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



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.

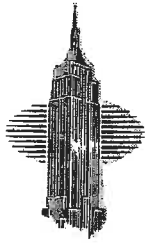
Adjusting a Recipe Rubric

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. 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



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: _____

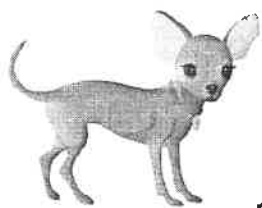
Tallest Buildings of the World Rubric

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) or some data is not represented accurately.	Bar graph has more than two missing features (title, labels on each axis, appropriate scale) or 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 • 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 or work contains several calculation errors	Work is not shown or 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) or some data is not represented accurately.	Bar graph has more than two features missing (title, labels on each axis, appropriate scale) or 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 or 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 or work contains several calculation errors	Work is not shown or 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 or 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



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

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 or 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 or 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

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: $\times 4$

$1 \times 4 = 4$	$6 \times 4 = 24$						$\times \times \times \times 4$ $\times \times \times \times 8$ $\times \times \times \times 12$ $\times \times \times \times 16$ $\times \times \times \times 20$ $\times \times \times \times 24$ $\times \times \times \times 28$ $\times \times \times \times 32$ $\times \times \times \times 36$ $\times \times \times \times 40$
$2 \times 4 = 8$	$7 \times 4 = 28$	4	8	12	16	20	
$3 \times 4 = 12$	$8 \times 4 = 32$						
$4 \times 4 = 16$	$9 \times 4 = 36$	24	28	32	36	40	
$5 \times 4 = 20$	$10 \times 4 = 40$						

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

Division: $\div 3$

$3 \div 3 = 1$

$6 \div 3 = 2$

$9 \div 3 = 3$

$12 \div 3 = 4$

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: $3 \times 8 = 24$

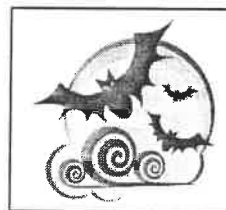
24 bats were in the cave.

Array:

x x x x x x x x 8

x x x x x x x x 16

x x x x x x x x 24



Project Due Date: _____

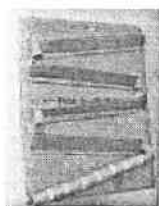
Collective Nouns Word Problems Rubric

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: - 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 - 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: 1/20



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 All work is shown and calculations completed accurately	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 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

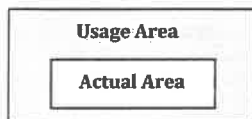
Design a Playground

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.

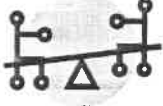
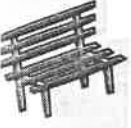


Create a 6 column table with the headings: Equipment, Actual Area, Usage Area, Actual Perimeter, Usage Perimeter and Amount of Rubber Mulch Needed. Calculate and record measures for all playground equipment.

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:

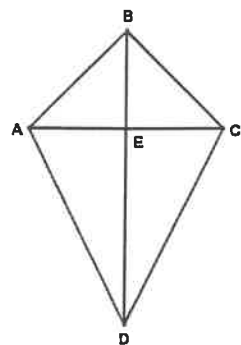
Date:

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 or work contains 4-5 calculation errors	Work is not shown or 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 or unclear or data has 3-4 errors	Two sections of the table are missing or unclear or 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 or shows minimal effort

Total: /20

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) a scale drawing of your kite. Label all vertices and the intersection of the diagonals and make sure the scale factor is clearly visible.
 - b) a list of materials used to construct your kite
2. Measure the following to the nearest centimeter or degree:
 - a) Segment length: $AB, BC, CD, AD, AE, CE, BE, DE, AC, BD$
 - b) Angle measure: $\angle ABC, \angle BCD, \angle CDA, \angle DAB, \angle ABE, \angle BEA, \angle EAB, \angle BEC, \angle ECB, \angle ADE, \angle DEA, \angle EAD, \angle CDE, \angle DEC, \angle ECD$
 - c) Kite Perimeter: $ABCD$
 - d) Triangle Perimeter: $\triangle ABC, \triangle ADC, \triangle ABD, \triangle CBD, \triangle ABE, \triangle CBE, \triangle ADE$ and $\triangle CDE$.
 - e) 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

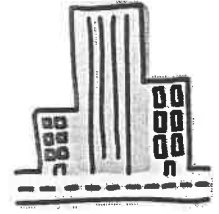
Name: _____

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 or 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 angle

Paste 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 • 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