



# 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](http://www.k-5mathteachingresources.com)



# 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:**

<b>Requirements</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
<b>Sketch of Building</b>	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
<b>Labels</b>	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
<b>Explanation</b>	Explanation is very clear	Explanation is clear	Some parts of explanation are clear	Explanation is missing <u>or</u> unclear
<b>Writing Conventions</b> . 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.
<b>Presentation</b>	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:**

<b>Requirements</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
<b>Show Your Work</b>	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
<b>Explanation</b> (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
<b>Budget</b>	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.
<b>Writing Conventions</b> . 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.
<b>Presentation</b>	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**

133

55

## Choose a Number

45

89

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
<b>Math Requirements</b>	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
<b>Explanation</b>	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
<b>Writing Conventions</b> . 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.
<b>Presentation</b>	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**

# 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:**

<b>Requirements</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
<b>Floor Plan</b>	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.
<b>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)</b>	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.
<b>Budget</b>	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
<b>Presentation</b>	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**

# 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: \_\_\_\_\_

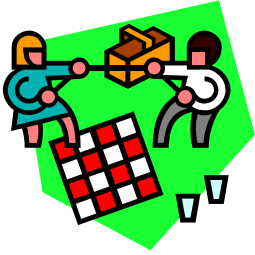
**Longest Bridges of the World Rubric**

**Name:**

**Date:**

<b>Requirements</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
<b>Map and Facts about Bridges</b>	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
<b>Bar Graph</b>	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.
<b>Measurement Conversions Table and Explanation</b>	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.
<b>Writing Conventions</b> <ul style="list-style-type: none"> <li>. spelling</li> <li>. punctuation</li> <li>. capitalization</li> <li>. grammar</li> <li>. paragraphing</li> </ul>	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.
<b>Presentation</b>	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:**

<b>Requirements</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
<b>Show your work</b>	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
<b>Schedule and Map</b>	Schedule and map are presented very clearly	Schedule and map are presented clearly	Schedule and map are somewhat clear	Schedule and map are unclear
<b>Explanation</b>	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
<b>Writing Conventions</b> <ul style="list-style-type: none"> <li>. spelling</li> <li>. punctuation</li> <li>. capitalization</li> <li>. grammar</li> <li>. paragraphing</li> </ul>	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.
<b>Presentation</b>	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:**

<b>Requirements</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
<b>Show Your Work</b>	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
<b>Written Explanation</b>	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
<b>Writing Conventions</b> . 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.
<b>Project Presentation</b>	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
<b>Oral Presentation</b>	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

# 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:

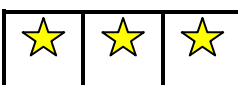
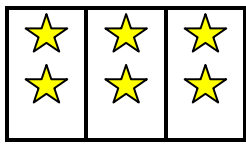
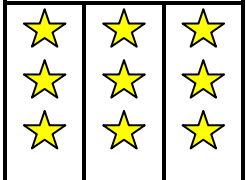
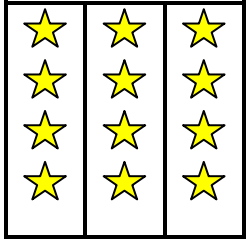
**Multiplication: x 4**

$1 \times 4 = 4$	$6 \times 4 = 24$	 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:**

<b>Requirements</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
<b>Title Page</b>	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
<b>Multiplication Pages</b>	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.
<b>Division Pages</b>	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.
<b>Presentation</b>	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**



# 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:**

<b>Requirements</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
<b>Content</b>	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.
<b>Delivery</b>	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
<b>Eye Contact</b>	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.
<b>Visual Aid</b>	Very original and effective visual aid	Original and effective visual aid	Visual aid is used but lacks originality and effectiveness	No visual aid used
<b>Length of Presentation</b>	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**