GRADES K-2
MATH PROJECTS
Introduction

The 34 take home Math Projects in this eBook are designed to build connections between home and school while providing opportunities for K-2 students to solve problems, develop key math concepts and strategies, and communicate mathematical thinking and understandings. Send home one project a month for homework and provide valuable opportunities for parents to become involved in their child’s learning.

All projects provide valuable opportunities for students to make their own decisions as to how to organize and record their work without the structure of a worksheet or template, while requiring minimal use of materials other than those commonly found in most homes. Some projects require the support of an adult family member in taking a neighborhood walk, visiting a local store, park or library. A sample letter for parents, explaining the purpose of Math Projects, can be found on the last page of the eBook.

Alignment with the Common Core State Standards: The table on page 4 provides possible focus standards for each project. The open ended nature of many of the projects allow them to be used at more than one grade level. When working on projects students will select different strategies to solve problems according to their level of thinking. For example, a 2nd grade student working on the Going on a Nature Hunt project is likely to use larger numbers and more advanced strategies when creating and solving number stories than a first grader. Different levels of sophistication will also be seen in the ways students at different grade levels present their work and explain their thinking.

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

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

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

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

**Project Gallery Walk:** If you do not have time for each student to present his/her project (or space to display all students' work) another option is to have a Project Gallery Walk. On the project due date have students display their work in the classroom. Allow time for students to move around the room and view all projects, or schedule a time with another class to visit each others' rooms to view projects. 2nd Grade students can be given a few Post-Its to provide written feedback on two other student’s projects. Student to student feedback should focus on describing TWO WAYS THAT YOUR PROJECT GLOWS. Model this beforehand so that students understand what this type of feedback looks and sounds like. At the completion of the Project Gallery Walk projects and feedback can be taken home.

We hope that you enjoy using the Math Projects in this eBook with your class and that they provide a starting point for designing your own projects based on your students’ needs.

For **FREE** math center activities and resources aligned with all K-2 **CCSS** domains visit our website at: [http://www.k-5mathteachingresources.com](http://www.k-5mathteachingresources.com)
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Number Salad

For this project you will practice counting while preparing a healthy snack with a family member.

Requirements:

- Choose 9 ingredients. Below is one possible recipe but substitute ingredients and improvise depending on what you have in your kitchen.

- Gather some small bowls for the ingredients, a cutting board, a child-appropriate knife, and bowls and spoons for mixing and eating.

- Cut your ingredients. Put each ingredient into a separate small bowl.

- Count out the ingredients into a bowl. Stir and eat!

- Draw pictures, or take photographs, to show how you made your Number Salad. Label each picture.

Sample Recipe:  
1 handful coconut  
2 tablespoons orange juice  
3 cherries  
4 slices banana  
5 cubes cheese  
6 slices apple  
7 cubes melon  
8 grapes  
9 raisins  
Stir 10 times!

Bring your project to school to share on: ____________________
Create a Counting Book

For this project you will need to visit your local library to read some Counting Books. You will also create your own Counting Book for our class library.

Requirements:

• Visit your local library with an adult and read some Counting Books. Ask a librarian if you need help finding the Counting Books section.

• Choose a letter of the alphabet. Think of 10 words that begin with this letter. Use the numbers 1-10 and ten different things that begin with the letter you chose to create a counting book. For example, A Counting Book for B might have: 1 bear, 2 bananas, 3 balloons, 4 boys, 5 boxes, 6...).

• Illustrate your Counting Book. You can draw your own pictures or cut and paste pictures from magazines or shopping catalogues.

• Make a title page for your book. Write the name of the author and illustrator (your name) on the cover.

Bring your project to school to share on: ___________
Doubles Hunt

In this project you will look for examples of doubles in your home or neighborhood. A doubles fact has two addends that are the same (e.g. $5 + 5 = 10$)

Requirements:

• Look around your home, or in your neighborhood, for examples of doubles.

• Record each example you find. Explain where you found it and describe what you saw.

• Write the doubles fact for each example you find.

Examples:

I found a carton of eggs in the refrigerator. It had 2 rows of 6 eggs. How many eggs in all?

$6 + 6 = 12$

In the garden I saw a spider with 4 legs on each side of its body. How many legs in all?

$4 + 4 = 8$

• Use whatever materials you have available to create and present your work. You can draw the doubles you find, take photographs of them, or find pictures in magazines, newspapers or grocery fliers. Be creative!

Bring your project to school to share on: ____________________
Neighborhood Number Stories

For this project you will create addition and subtraction number stories about things you see in your neighborhood.

Requirements:

• Make a list of 3 different things that you will count on your way home from school (e.g. dogs, blue cars, bicycles). Make a chart to show how many times you see each thing on your list on two different days (e.g. Monday and Tuesday).

• Use the data you collect to write and solve at least two addition and two subtraction number stories. One addition number story should include three addends. Example: On Monday I counted 25 red cars, 32 black cars and 6 motorbikes on my way home from school. How many vehicles did I see in all? 25 + 32 + 6 = ?

• Record your number stories using pictures, words, and equations. Show how you solved each number story.

• Think of a creative way to present your number stories. You may like to create a Number Story book, a small poster, or come up with your own ideas.

• You will be given 2-3 minutes to share your work with the class. Practice what you will say at home with an adult so that you will feel confident speaking in front of the class

Bring your project to school to share on: ____________________
Counting to 100

For this project you will make a collection of 100 objects and group them in different ways.

Requirements:

• Collect 100 objects (e.g. 100 buttons, 100 paper clips, 100 pieces of pasta etc.)

• Group and count your objects by tens, fives, and tens.

• How many different ways can you find to put your objects into equal groups so that there are none leftover? Write an equation for each way you find to express the total as a sum of equal addends (e.g. 20 + 20 + 20 + 20 + 20 + 20 = 100)

• Present your work in a creative way. You can use drawings or photographs, paste your items onto a poster, make a book or a multimedia presentation.

• You will be given 2-3 minutes to share your work. Practice what you will say at home with an adult so that you will feel confident speaking in front of the class.

Bring your project to school to share on: ____________________
Who is the Tallest?

For this project you will measure the height of each member of your family using a non-standard unit (e.g. a set of playing cards, dominoes, paper clips or anything else you have that you can lay out end to end).

Requirements:

• Choose a non-standard unit that you will use to measure the height of your family members. Have each person lie down and measure them from head to toe.

• Show what you used as your measuring unit and how many you used to measure each person.

• Draw a picture of your family members from shortest to tallest. Use math vocabulary to write about what you learned (shortest, tallest, taller than, shorter than). Think of a creative way to present your work!

• You will be given 2-3 minutes to share your work with the class. Practice what you will say at home with an adult so that you will feel confident speaking in front of the class.

Bring your project to school to share on: ______________________
Plant and Measure!

Watching seeds sprout and grow is exciting! For this project you will plant some bean seeds and measure their growth.

Requirements:

• Collect some cotton wool, 2 lima beans and containers to grow them in (use clear plastic cups or soda bottles with the tops cut off so that you can see the roots growing). Soak your beans in water overnight to help them germinate more quickly.

• Stuff some cotton wool into your containers and place one bean seed in each container.

• Water until the cotton wool is damp but not too wet and place the containers on a windowsill or under a light source. Check them daily to see if they need more water.

• Watch for signs of growth. Begin measuring the plants and recording the growth when they first appear.

• Draw pictures, or take photographs, of the plants every 2-3 days. Label each picture with the measurements and parts of the plant as they develop.

• Compare the growth of the two bean plants and make comparisons. Which is taller? How much taller?

Present your project in a neat and creative way!

Bring your project to school to share on: __________________________
Build a Ramp

For this project you will build a ramp and measure the distance a toy car (or marble) rolls across the floor from its base.

Requirements:

• Collect a toy car (or marble), a block, measuring tape or ruler, and a piece of thick cardboard (or rectangular tray or large book).

• Construct a ramp. Roll a toy car (or marble) down the ramp 3 times. Measure the distance it rolls across the floor from the bottom of the ramp each time and record the measurements.

• Roll your toy car (or marble) down the ramp three times from a greater height. Measure and record.

• Roll your toy car (or marble) down the ramp three times from a lower height. Measure and record.

• Create a table to show your data.

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<th>Height</th>
<th>Distance 1</th>
<th>Distance 2</th>
<th>Distance 3</th>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greater Height</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Height</td>
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</tbody>
</table>

• Write three, or more, facts about your data. For example,
  The greater the height, the ________ the car rolls.
  The lower the height, the __________ the car rolls.
  The shortest/longest distance the car rolled was _______
  The difference between the longest and shortest distance was____.

Bring your project to school to share on: ____________________
Let's Recycle!

Recycling is good for the environment. In this project you will count and graph the number of objects that your family collects for recycling in one week.

Requirements:

• Keep track of the number of cans, boxes, plastic bottles, newspapers and other things that your family collects for recycling in one week by writing a list and making tally marks.

• Make a bar graph or picture graph to show how many things your family recycled in one week.

• Write at least 3 sentences describing the data you collected. Use math vocabulary words from the Word Bank to help you.

  Word Bank:

  more      less      fewer      most       least
  sum       difference equal      total

• Think of a creative way to share your findings with the class. You can make a poster, a book, or even a multimedia presentation.

Bring your project to school to share on: ______________
How Much Mail?

For this project you will collect data on your household's mail for one week.

Requirements:

• Every day for one week help an adult sort your family's mail into two piles: junk mail and regular mail. Count how many pieces of mail are in each pile. Record the date, how much regular mail, how much junk mail and the total number of pieces of mail each day.

• Decide on a way to display your data. You can use a chart, a bar graph, a picture graph or come up with your own idea.

• At the end of the week look closely at your data and write about what you notice. Here are some questions to get you started:
  - What types of mail did your family get (bills, letters, magazines, store catalogues)?
  - On what day did your family get the most/least mail?
  - Did you get more junk mail or regular mail? How much more?
  - How many pieces of mail came from another state/another country?

• Measure the height of the pile of junk mail at the end of the week. If you get the same amount of junk mail each week would the pile be shorter or taller than you in one month? Explain your thinking.

• Present your project in a neat and creative way!

Bring your project to school to share on: ___________________
Dear Family,

This year your child will bring home a Math Project once a month to work on with a family member. These projects are designed to build the connection between home and school while providing opportunities for children to solve problems, develop math concepts and strategies, and communicate key mathematical thinking and understandings.

We encourage you to support your child as they work on the monthly project. Some projects may involve taking a neighborhood walk, visiting a local store, park or library or using materials found in your home. Some projects will review math concepts that have been presented in class, some may extend your child’s understanding and some may prepare your child for concepts we will be working on in class in the future.

Your child will be invited to share each Math Project with the class. Please help your child rehearse a short oral presentation describing what they did and what they learned (2-3 minutes).

Completed projects will be displayed in the classroom or hallway to develop a sense of pride and ownership. In order to allow us to display all children’s work please ensure that your child’s projects are of a reasonable size for display purposes.

Thank you for your continued support of your child’s learning.

Sincerely,