Common Core Math at Reed School

How do you support children's mathematical thinking at home?

This booklet contains key ideas and information
about the new Common Core Standards for Mathematics,
including questioning strategies and "I can" statements for parents.

COMMON CORE
STATE STANDARDS INITIATIVE
PREPARING AMERICA'S STUDENTS FOR COLLEGE & CAREER

For more information about the Common Core Math Standards
at Reed and today's presentation, please go to:
http://belairemediacenter.weebly.com/common-core-math.html

Credits: WCSA, San Diego COE, Math Solutions, Modesto CS, CCSS, MBAMP, UCSC

Introduction

PARENT INVOLVEMENT AND STUDENT ACHIEVEMENT

The research is overwhelmingly clear: When parents play a positive role in their children's education, children do better in school.

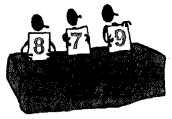
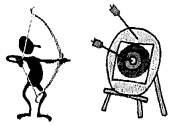
Parents must assure their children that mistakes are perfect opportunities for growth. What counts is that parents help their children gain the confidence that they can learn.

Major benefits of parent involvement include increased mathematical understanding, positive attitudes and behavior, more successful academic programs and more effective schools.

Try to use these questions to help students "think" about their math.

1. How would you describe the problem in your own words? What Information do you have?
2. What do you need to find out?
3. Can you explain what you have done so far? What else is there to do?
4. Why is that true?
5. How did you reach that conclusion? Does that make sense?
6. How would you prove that?
7. Can you convince the rest of us that your answer makes sense?
8. Do you see a pattern? Can you explain the pattern?
9. Can you guess and check?
10. What would happen if... What if not?
11. What tools will help you? ...a hundreds chart? ...blocks?
12. Would it help to create a diagram? Make a table? Draw a picture?
13. Tell me how you got your answer?

The 8 Mathematical Practices

Standard for Mathematical Practice	Student Friendly Language
1. Make sense of problems and persevere in solving them. 	• I can try many times to understand and solve a math problem.
2. Reason abstractly and quantitatively. 	• I can think about the math problem in my head, first.
3. Construct viable arguments and critique the reasoning of others. 	• I can make a plan, called a strategy, to solve the problem and discuss other students' strategies too.
4. Model with mathematics. 	• I can use math symbols and numbers to solve the problem.
5. Use appropriate tools strategically. 	• I can use math tools, pictures, drawings, and objects to solve the problem.
6. Attend to precision. 	• I can check to see if my strategy and calculations are correct.
7. Look for and make use of structure 	• I can use what I already know about math to solve the problem.
8. Look for and express regularity in repeated reasoning. 	• I can use a strategy that I used to solve another math problem.

HELPING AT HOME

Parents ask how they can help their children with mathematics at home.

You can help by asking questions that guide your children without telling them what to do. Good questions will help build your children's confidence and encourage mathematical thinking and communication.

Here are some you might try; notice that none of them can be answered with a simple "yes" or "no."

Getting Started

What do you know?
What do you need to find out?
How might you begin? What do you think you should do first?

While Working

How can you organize your information?
Can you make a drawing (model) to explain your thinking?
What would happen if«?
What do you need to do next?
Do you see any patterns?....Relationships?
Can you predict what the answer might be?
Does this remind you of any other problem you have done before?

Reflecting about the Solution

Is your solution (conclusion) reasonable?
How did you arrive at your answer?
Can you convince me your solution makes sense?
What did you try that didn't work?

Responding

Your response is as important as you initial questions. Continue discussing even after your children have the correct answer. This will give your children a chance to clarify their thinking:
How do you know the answer makes sense?
Do you know another way to solve it?

HOW PARENTS CAN HELP

Listed below are some activities that parents can do over and over again with children of all ages.

Children learn what they live…

☐ Let your children in on your thinking. It will help your children explain their own thinking as they see and hear you do math when it comes up during the day. (Example: count out loud when digging in a pocket for change at the cash register.)

☐ Look for mathematical experiences in your children's real world (geometry, measurement, number, patterns, statistics, probability, algebra).

☐ Share an enjoyment of math. Do not pass on any negative attitude to your children. Avoid talking about math in a negative way or letting them know if you did poorly in math. It simply won't help. Instead, show an attitude of curiosity toward the math your child is learning.

☐ Involve your child in doing math. If you enjoy the closeness of cuddling up and reading with your children, imagine the same sort of closeness with doing math.

☐ Play strategy games.

☐ Be patient with your children. Mathematical understanding develops over time. Watch for and enjoy your children's progress.

Kindergarten

What Students Need to Know by the End of Kindergarten

1. They can count out loud to 100, by 1's and 10's
2. They can continue counting from any number.
3. They can count up to 30 objects.
4. They can match a number symbol to the number of objects (**x x**=2).
5. They can look at groups of objects and tell: Which has more? Which has less? Are they equal?
6. They can write numbers from 0 to 30.
7. They can identify numbers from 0 to 30 even if they are out of order.
8. They can add numbers in a story problem, with objects, to 12.
9. They can subtract numbers in a story problem, with objects, from 12.
10. They can name squares, circles, rectangles, triangles, cubes, spheres, and cones.
11. They can make larger shapes using smaller shapes.
12. They can sort and explain how objects are similar or different.
13. They can compare objects and tell: Which holds more? Which is heavier or lighter? Which is shorter or taller?
14. They can create or extend a simple pattern.
15. They can solve a problem and explain how I know it is correct.

How Parents Can Help

- I can practice counting out loud with my child. I can say a number and my child can keep counting. I can sing counting songs and chant number rhymes to help my child learn counting.
- I can practice counting objects (such as clothing, foods, buttons) with my child.
- I can compare the sizes of objects with my child. I can play dice or domino games with my child.
- I can cut up old calendars or lunch menus and let my child arrange the numbers 1 to 30 in order.
- I can talk about page numbers in books with my child.
- I can play math games such as "Guess My Number" with my child.
- I can talk about our day with my child and ask what we will do first, second, third, fourth, and last.
- I can make up stories with my child (example: there are 4 forks on the table. One falls on the floor. How many forks are left on the table?)
- I can talk about all the numbers and math in my daily routine with my child.
- I can go on a "shape hunt" in the house or neighborhood with my child.
- I can draw basic shapes for my child to cut out and put together into different shapes.
- I can play "I Spy..." with my child.
- I can sort other familiar household items with my child.
- I can sort all the shoes in the closet by type of closure (buckle, Velcro, tie, slip-on) or by color. I can cook with my child and discuss measurement.
- I can help my child notice where the sun and moon is when we talk about time of day.
- I can use mathematical vocabulary with my child. I can point to days of the week on my calendar.
- I can clap or tap patterns together with my child. I can play board games that involve counting spaces or identifying shapes and patterns (such as "Chutes and Ladders") with my child.
- I can think out loud with my child as I do things during my day to show my thinking process.
- I can give my child a pile of objects to sort.
- I can tell my child I have confidence in his or her ability to accomplish math skills by saying "I know you can do this..."

First Grade

What Students Need to Know by the End of First Grade

1. They can count, read and write my numbers 1 to 120, starting with any number less than 120..
2. They know how to use =, < and >.
3. They can read and write numbers between 1 and 120.
4. They can match a number symbol to the number of objects (🍎 🍎 = 2).
5. They can compare and order 2 digit numbers to 100.
6. They can add numbers to 20.
7. They can subtract numbers from 20.
8. They can tell you one more than or one less than any Anumber.
9. They can tell you 10 more than or 10 less than any Anumber.
10. They can count by 10's to 100.
11. They can add three numbers together.
12. They can add and subtract numbers in my head to 20.
13. They can use number sentences to match a problem.
14. They know how to use + , - , and =.
15. They can compare the lengths of different objects.
16. They can tell time by the hour and half hour.
17. They can name squares, circles, rectangles, triangles.
18. They can create and extend shape or number patterns.
19. They can organize information on a graph.
20. They can solve a problem and explain how I know it is correct.
21. They can use the words *halves, fourths, and quarters* and the phrases *half of, fourth of,* and *quarter of.*

How Parents Can Help

- I practice counting forward and backward with my child to 120.
- I can keep a monthly calendar and discuss the day, week, month, yesterday, today and tomorrow with my child.
- I can show my child how I keep track of family events on a calendar. I ask my child questions such as “How many days until...?”
- I can roll two or three dice and add the numbers together with my child.
- I can roll two dice and subtract the numbers with my child.AI can gather ten different shoes and put them together in order from smallest to largest with my child.
- I can measure shoes and other objects to the nearest inch with my child.
- I can look for geometric shapes in the world with my child.
- I can demonstrate probability by placing 5 white socks and 1 black sock in a bag. My child will predict and then record what colors are drawn in 10 tries (replace sock after each draw).
- I can talk about our day with my child and ask what we will do first, second, third, fourth, and last.
- I can use mathematical vocabulary with my child.
- I can think out loud with my child as I do things during my day to show my thinking process and encourage my child to do the same.
- I can tell my child I have confidence in his or her ability to accomplish math skills by saying, “I know you can do this…”

Second Grade

What Students Need to Know by the End of Second Grade

1. They can add and subtract to solve word problems.
2. They can fluently add and subtract within 20 in their head.
3. They can recall basic math facts from memory.
4. They can select appropriate tools for measuring length.
5. They can measure the length of an object.
6. They can measure the length of objects using different length units.
7. They can describe the relationship of different length units.
8. They can estimate lengths using inches and feet.
9. They can estimate lengths using centimeters and meters.
10. They can find the difference in length of two objects.
11. They can add to solve word problems that involve length.
12. They can subtract to solve word problems that involve length.
13. They can add using a number line.
14. They can subtract using a number line.
15. They can tell time to the nearest five minutes.
16. They can solve word problems involving money.
17. They can use the $ and ¢ symbols.
18. They can collect data by measuring lengths.
19. They can make a line plot to show data.
20. They can draw a picture graph.
21. They can draw a bar graph.
22. They can solve problems using a bar graph.
23. They can identify shapes based on their attributes.
24. They can draw shapes based on their attributes.
25. They can partition a rectangle into rows and columns of same-size squares and count the total number.
26. They can divide circles and rectangles into equal parts.
27. They can describe equal parts as part of a whole
28. They can recognize equal shares of identical shapes do not have to be the same shape.

How Parents Can Help

- I can play “Mental Math Strings” with my child. (example: Start with 2. Add 5. Subtract 3. Add 4.)
- I can play games to help my child memorize addition and subtraction facts. (example: dice games, card games, dominoes, jacks, etc.)
- I can practice math facts with my child in short bursts (no longer than 5 – 10 minutes).
- I can collect and record data with my child. (example: plant seeds and record growth of plants).
- I can weigh fruits and vegetables (and compare the weights) in the grocery store with my child.
- I can have my child help measure amounts of food when we are cooking.
- I can I can talk about our day with my child and ask what we will do first, second, third, fourth, and last.
- I can look for geometric shapes in buildings, magazines, and stores with my child.
- I can use geometric vocabulary to tell how shapes are alike and different with my child.
- I can sort and classify stuffed animals, books, money and household items with my child.
- I can ask my child to describe the sorting rule (size, shape, function, etc.) we used to sort items.
- I can talk about fractions by cutting up food into equal units.
- I can talk with my child about the events and situations as being likely or unlikely to occur.
- I can provide an analog, as well as a digital clock, and talk about time with my child.
- I can measure objects in the house with my child. I can talk about our day with my child and ask what we will do first, second, third, fourth, and last.
- I can play “License Plate Math” with my child.
- I can use mathematical vocabulary with my child.
- I can think out loud with my child as I do things during my day to show my thinking process and encourage my child to do the same.
- I can tell my child I have confidence in his or her ability to accomplish math skills by saying, “I know you can do this...”