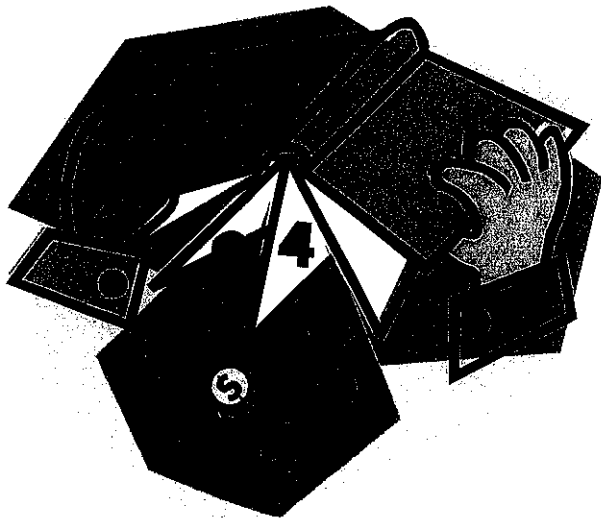


Third Grade Math

Attached please find some information from *Everyday Math* on how you can help your child at home. On the Defer website, under "Quick Links" click on the tab *Everyday Math Links* for more information.





Create a homework routine.

Familiar routines help work go smoothly at school *and* at home. With your child, decide on a time and place to do homework, along with a few rules. A typical routine might be as follows:

Come home, have a snack, clear a space at the table, start math homework. Create a place for homework supplies. Always have a sharp pencil, and circle problems you want help with. Once homework is complete, put it in your book bag.

Read Family Letters and Home Links.

These pages describe what your child is learning so that you can help. They also suggest fun and easy math activities you can do at home. Consider keeping all of these pages in a special folder to refer to later.

Communicate with the teacher.

You are the link between your child and school, and it is your responsibility to share your thoughts and concerns with the teacher. Call or write a note if your child has had trouble with homework, ask questions if you or your child do not understand something, and share good news when you see progress.

Ask your child to explain.

Encourage your child to teach you the day's math lesson using the problems in the Home Links. Ask questions about the steps your child uses to solve a problem, such as *Why did you put that number there?* or *What does that zero mean?*

Use questions to help.

Although it's tempting to give children answers when they're confused, they learn more if you help them discover the answers for themselves. Try doing this with questions such as these:

- ◆ *Have you seen problems like this before? Is there an example anywhere that might help?*
- ◆ *What is the problem asking you to do or to find?*
- ◆ *What's one idea you have for finding an answer?*
- ◆ *Can you draw a picture of the problem? Can you use objects (like coins, beans, and so forth) to show the problem?*

Be accepting of mistakes.

Let your child know that every mistake is an opportunity to learn. When your child makes a mistake, ask him or her to explain how he or she arrived at the answer, give praise for the correct steps or thinking, and gently point out where the error occurred. Then have your child try a similar problem (you may have to make one up) to practice the new understanding.

Play math games.

Games your child brings home from school or store-bought games that involve mathematical thinking will help your child master skills. Your child's teacher can give you a list of popular commercial games with mathematical components.

**Observe a mathematics lesson in your child's classroom, or volunteer to help.**

Visit your child's classroom—it's the best way find out more about *Everyday Mathematics*. When you volunteer to help with activities, you also learn a great deal. Do not worry if you're not a math expert—teachers always appreciate an extra hand and will find ways to use your skills.

Read *My Reference Book (for Grades 1 and 2)* or the *Student Reference Book (for Grade 3)* with your child.

Many schools periodically send home this "math encyclopedia" for families and children to use together. Choose a page or section related to the day's Home Link, and read it together. Try the activities or questions at the end of the section with your child.

Share real-life math situations.

Think about the ways you use math in your everyday life—at work, at the store, at the bank, in the kitchen, and so forth. Invite your child to observe or participate in these activities with you. Encourage your child to think mathematically about common activities, such as folding laundry or taking out the garbage—*How many socks in 12 pairs? About how many pounds does a bag of trash weigh?*

Give gifts that encourage mathematical exploration.

Children love special gadgets and tools, as well as games and activities that challenge their minds. Giving a gift related to math is a good way to reinforce and reward your child's accomplishments. Here are some ideas: a watch, a timer, an hour glass (egg timer), a calendar, a tape measure, a calculator, pattern blocks, books of brainteasers, 3-dimensional building kits, puzzles, maps, and a wide variety of games.

Do-Anytime Activities for Grade 3



These activities are easy and fun to do with your child at home, and they will reinforce the skills and concepts your child is learning in school.

Unit 1	<ul style="list-style-type: none"> ◆ Draw an analog clock face with the hour and minute hands showing 8 o'clock. Ask your child to write the time shown. Repeat with other times such as 3:30, 11:45, and 7:10. If you don't want to draw a clock face each time, use craft sticks or toothpicks for the hour and minute hands. ◆ Make combinations of bills and coins using money from your wallet or a piggy bank. Have your child write the amount shown using a dollar sign and a decimal point. For example, suggest 4 dollar bills, 3 dimes, and 2 pennies. Your child would write \$4.32.
Unit 2	<ul style="list-style-type: none"> ◆ Practice addition and subtraction fact extensions, for example, $6 + 7 = 13$; $60 + 70 = 130$; $600 + 700 = 1,300$. ◆ Use Fact Triangles to practice multiplication by covering the product. Practice division by covering one of the other numbers. Make this brief and fun.
Unit 3	<ul style="list-style-type: none"> ◆ Measure various items with your child with each of you using personal measures, such as paces or hand spans. Discuss why, for example, the width of your living room is only 15 of your paces but 25 of your child's. Talk about why standard units are useful. ◆ Draw three different polygons such as a square, a rectangle, and a triangle. Ask your child to estimate which has the largest and which one has the smallest perimeter. Then, help your child measure the sides with a ruler and determine the exact perimeter of each polygon. Compare your child's estimate with the actual perimeters.
Unit 4	<ul style="list-style-type: none"> ◆ Ask questions that involve multiples of equal groups. For example, say "Pencils are packaged in boxes of 8. There are 3 boxes. How many pencils are there?" ◆ Ask questions that involve equal sharing. For example, say "Seven children share 49 baseball cards. How many cards does each child get? How many cards are left over?"
Unit 5	<ul style="list-style-type: none"> ◆ Write decimals for your child to read aloud, such as 0.32 (thirty-two hundredths) or 0.9 (nine-tenths). ◆ Write down two 4- or 5-digit numbers. Ask your child to tell which is larger and explain why. Try a few more and then switch roles.



What is an algorithm?

An algorithm is a well-defined procedure or set of rules guaranteed to achieve a certain objective. You use an algorithm every time you follow the directions to put together a new toy, use a recipe to make cookies, or defrost something in the microwave.

In mathematics, an algorithm is a specific series of steps that will give you the correct answer every time. For example, in grade school, you and your classmates probably learned and memorized a certain algorithm for multiplying. Chances are, no one knew why it worked, but it did!

In *Everyday Mathematics*, children first learn to understand the mathematics behind the problems they solve. Then, quite often, they come up with their own unique working algorithms that prove that they “get it.” Through this process, they discover that there is more than one algorithm for computing answers to addition, subtraction, multiplication, and division problems. Having children become comfortable with algorithms is essential to their growth and development as problem solvers.

How do children learn to use algorithms for computation?

Ideally, children should develop a variety of computational methods and the flexibility to choose the procedure that is most appropriate in a given situation. *Everyday Mathematics* includes a variety of standard computational algorithms as well as children’s invented procedures. The program leads children through three phases as they learn each mathematical operation (addition, subtraction, multiplication, and division).

Algorithm Invention

In the early phases of learning an operation, children are encouraged to invent their own methods for solving problems. This approach requires children to focus on the meaning of the operation. They learn to think and use their common sense, as well as new skills and knowledge. Children who invent their own procedures:

- ◆ learn that their intuitive methods are valid and that mathematics makes sense.
- ◆ become more proficient with mental arithmetic.
- ◆ are motivated because they understand their own methods, as opposed to learning by rote.
- ◆ become skilled at representing ideas with objects, words, pictures, and symbols.
- ◆ develop persistence and confidence in dealing with challenging problems.

Addition Algorithms

This section presents just a few of the possible algorithms for adding whole numbers.

Focus Algorithm: Partial-Sums Addition

You can add two numbers by calculating partial sums, working one place-value column at a time, and then adding all the sums to find the total.

Example: Partial-Sums

	268
	+ 483
Add the hundreds (200 + 400).	600
Add the tens (60 + 80).	140
Add the ones (8 + 3).	+ 11
Add the partial sums (600 + 140 + 11).	751

Column Addition

To add using the column-addition algorithm, draw vertical lines to separate the ones, tens, hundreds, and so on. Add the digits in each column, and then adjust the results.

For some children, the above process becomes so automatic that they start at the left and write the answer column by column, adjusting as they go without writing any of the intermediate steps. If asked to explain, they might say something like this:

“200 plus 400 is 600. But (looking at the next column) I need to adjust that, so I write 7. 60 and 80 is 140. But that needs adjusting, so I write 5. 8 and 3 is 11. With no more to do, I can just write 1.”

Example: Column Addition

	hundreds	tens	ones
Add the digits in each column.	2	6	8
	+ 4	8	3
	6	14	11

Since 14 tens is 1 hundred plus 4 tens, add 1 to the hundreds column, and change the number in the tens column to 4.

	hundreds	tens	ones
	2	6	8
	+ 4	8	3
	7	4	11

Since 11 ones is 1 ten plus 1 one, add 1 to the tens column, and change the number in the ones column to 1.

	hundreds	tens	ones
	2	6	8
	+ 4	8	3
	7	5	1