

Parent/Student Resource Packet  
3<sup>rd</sup> Grade Multiplication Unit

Students will know and be able to:

- Interpret products of whole numbers
- Model and skip count objects in equal groups
- Write a repeated addition sentence and multiplication sentence for a model
- Apply multiplication skills to solve word problems within 100
- Represent multiplication problems using arrays, number lines, skip counting, picture models and story problems
- Use a variety of pictures to represent unknown numbers in all positions of the equation.  
Letters are introduced to represent unknowns
- Apply properties in order to multiply (commutative, distributive, associative)
- Accurately & efficiently be proficient with multiplication facts- By the end of 3<sup>rd</sup> grade students must know from memory all products of times tables up through 9)
- Examine mathematical patterns involving both addition and multiplication- Example: finding patterns on the 100's chart to see that even numbers are always divisible by 2, multiples of even numbers are always even numbers
- Explain and reason about products in multiplication

**Vocabulary:** multiply, equal, repeated addition, arrays, multiples, patterns, product, sum, factors, unknown factors, "x" means groups of, associative property, commutative property, property of zero

**\*Parents, please note:** Attached to this packet are **multiplication cards** with explicit directions about how to create them as well as the rational behind why it is a useful and effective tool to use while memorizing multiplication facts. Throughout the unit please assist your child in creating and practicing with these cards.

X	0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9
2	0	2	4	6	8	10	12	14	16	18
3	0	3	6	9	12	15	18	21	24	27
4	0	4	8	12	16	20	24	28	32	36
5	0	5	10	15	20	25	30	35	40	45
6	0	6	12	18	24	30	36	42	48	54
7	0	7	14	21	28	35	42	49	56	63
8	0	8	16	24	32	40	48	56	64	72
9	0	9	18	27	36	45	54	63	72	81


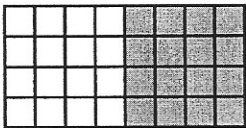


## About the Mathematics in This Unit (page 1 of 2)

Dear Family,

Our class is starting a new mathematics unit about multiplication and division called *Equal Groups*. During this unit, students develop an understanding that we use multiplication to combine a number of equal groups and that we use division to split a quantity into equal groups. By the end of Grade 3, it is expected that students will know and use multiplication combinations with products to 50.

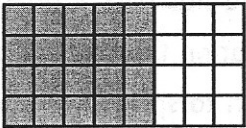
Throughout the unit, students work toward the following goals:

BENCHMARKS/GOALS	EXAMPLES
Demonstrate an understanding of multiplication and division as involving groups of equal groups.	 <p>Here are 3 stars. Each star has 5 points. There are 15 points in all.</p> $3 \times 5 = 15$
Solve multiplication combinations and related division problems using skip counting or known multiplication combinations.	<p>Ms. Wilson's class is counting around the class by 4s. What number will the 8th student say?</p> <p>4, 8, 12, 16, 20, 24, 28, 32</p>  $4 \times 8 = (4 \times 4) + (4 \times 4)$ $4 \times 8 = 16 + 16$ $4 \times 8 = 32$
Interpret and use multiplication and division notation.	<p>There are 35 flowers. Gina wants to put them in bouquets of 5 flowers each. She can make 7 bouquets.</p> $35 \div 5 = 7$

(continued)



## About the Mathematics in This Unit (page 2 of 2)

BENCHMARKS/GOALS	EXAMPLES
Demonstrate fluency with multiplication combinations with products up to 50 (by the end of Grade 3).	 $4 \times 8 = (4 \times 5) + (4 \times 3)$ $4 \times 8 = 20 + 12$ $4 \times 8 = 32$

In our math class, students spend time discussing problems in depth and are asked to share their reasoning and solutions. It is most important that children accurately and efficiently solve math problems in ways that make sense to them. At home, encourage your child to explain his or her math thinking to you.

Please look for more information and activities about *Equal Groups* that will be sent home in the coming weeks.



## Related Activities to Try at Home (page 1 of 2)

Dear Family,

The activities below are related to the mathematics in the multiplication and division unit *Equal Groups*. You can use the activities to enrich your child's mathematical learning experience.

**Things That Come in Groups** Your child has been investigating things that come in equal groups in math class, such as the following examples:

- |                              |                                    |
|------------------------------|------------------------------------|
| Eggs come in a carton of 12. | Juice boxes come in packages of 3. |
| Spiders have 8 legs.         | Cars have 4 tires.                 |

Your family may continue to keep track of what kinds of things come in groups and how many come in a group. Are there some numbers for which many examples exist? Are there some that are very hard to find?

**Skip Counting** One way that your child has explored multiplication is by skip counting. You can continue to build on this work by asking questions such as the following:

- What number would we land on if we counted by 3s (3, 6, 9, and so on) and everyone in our family said one number?
- What would happen if we counted by 3s and everyone had two turns?
- How many people would have to count by 3s to reach 27?  
You can count off by 3s to check.

(continued)



## Related Activities to Try at Home (page 2 of 2)

### Multiplication and Division Problems in Everyday Situations

Your child has also been working on understanding multiplication and division situations. Encourage your child to think about situations that involve equal groups as opportunities arise.

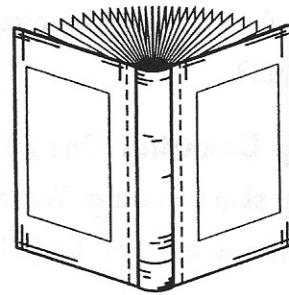
- How many legs are on the seven pigeons we saw in the park?
- How many toes are under the table while we eat dinner?
- If we share this batch of cookies equally, how many cookies will each person in our family get?
- Five pencils cost \$1.00. How many pencils can we buy with \$4.00?

**Math and Literature** Here are some suggestions of children's books that contain relevant mathematical ideas about multiplication and division. Look for these books at your local library.

Giganti, Paul Jr. *Each Orange Had 8 Slices.*

Hong, Lily Toy. *Two of Everything: A Chinese Folktale.*

Pinczes, Elinor J. *One Hundred Hungry Ants.*





## Learning Multiplication Combinations (page 1 of 2)

Dear Family,

To develop good computation strategies, students need to become fluent with the multiplication combinations from  $1 \times 1$  to  $12 \times 12$ , often known as “multiplication facts” or “multiplication tables.” In third grade students begin this work by learning the multiplication combinations with products up to 50. Students are expected to know all the combinations up to  $12 \times 12$  by the end of fourth grade.

It is important for students to recognize that problems such as  $8 \times 3$  and  $3 \times 8$  have the same product. Encourage students to “turn around” a multiplication combination if that makes the problem easier to solve. For example, your child may find it easier to remember the product of  $3 \times 8$  than that of  $8 \times 3$ .

In school, students are sorting a set of Multiplication Cards into “Combinations I Know” and “Combinations I’m Working On.” They write clues on their Multiplication Cards to help them learn the combinations that are difficult for them. Students use a combination that they know that is close to the combination they are solving and then adjust to find the product. Here are some examples.

$$4 \times 8$$

$$8 \times 4$$

Start with 2 × 8

$$4 \times 8 = (2 \times 8) + (2 \times 8)$$

(continued)

**Learning Multiplication Combinations** (page 2 of 2)

$$6 \times 7$$

$$7 \times 6$$

Start with 5 × 5

$$6 \times 7 = (6 \times 5) + (6 \times 2)$$

$$4 \times 9$$

$$9 \times 4$$

Start with 10 × 4

$$9 \times 4 = (10 \times 4) - 4$$

As they use the clues to practice, students gradually come to know the combinations that are difficult for them. To help your child learn the multiplication combinations ("facts"), ask your child questions such as the following:

- Which multiplication combinations are you learning?
- Is there a related combination that you already know?  
Could that be a useful clue?
- Which two or three of the combinations should we focus on this week?