

BISHOP SCHOOL

K - 5

MATH FACTS

GUIDE

# INTRODUCTION

This math fact guide is an outcome of several math related discussions among the staff.

There is an agreement that the children need to know their math facts to facilitate a deeper understanding of math concepts. We agree that each grade level has an obligation to introduce, reinforce, expect mastery, and review skills that are developmentally appropriate for the children's level. We also recognize the necessary connection between home and school. This guide will provide information, strategies, and directions, so that you can help support our goal of teaching math facts. It is important that we work together to help the children achieve automaticity of math facts, and we encourage you to support your child's learning by working with them at home. This guide will outline some books, web sites you can access, and suggested activities that you can use to help children practice math facts at home.

## Vocabulary used in the guide:

Introduce - first presentation of the concept

Reinforce - strengthen and develop skills, which have been previously introduced

Master - skills are used automatically

Review - skills are practiced to maintain fluency

# GRADE LEVEL RESPONSIBILITIES

The following outline represents the end of the year expected outcomes for students at each grade level.

## Kindergarten

- Identify, read, and write the numbers 1-25
- Count to 100
- Introduce addition facts 1-10
- Introduce skip counting by 2, 5, 10

## Grade One

- Master addition and subtraction facts 1-10
- Introduce addition facts 11-20
- Introduce subtraction facts 1-20
- Reinforce and expect mastery of skip counting numbers 2, 5, 10

## Grade Two

- Master addition facts 1-20
- Master subtraction facts 1-20
- Review skip counting numbers 2, 5, 10

### Grade Three

- Review addition facts 1-20
- Review subtraction facts 1-20
- Introduce and reinforce multiplication facts
- Introduce and reinforce division facts
- Master multiplication facts 0-12

### Grade Four

- Review addition and subtraction facts
- Reinforce, Master, and review multiplication and division facts 0-12

### Grade Five

- Review addition and subtraction facts
- Review multiplication and division facts 0-12

# Activities used in classrooms to practice math facts

- **Kindergarten**
  - Calendar meeting
    - Calendar meeting is used for number identification and rote counting
  - Number Line Game
    - This game is used to introduce simple addition problems
  - Pin the Marker on the Number
    - Using the numbers 1-25 the children place a bingo marker on a number designated by the teacher
  - Bingo
    - Used for practice in number identification
- **Grade 1**
  - Flashcards and fact sheet practice
  - Race to the Top (see directions in the Activities at Home section)
  - Compare/Double Compare - played like the card game "War"
  - Roll 2 dice and record total on a number grid
  - Roll and Record - roll 2 dice, record the algorithm and the total
- **Grade 2**
  - TERC math games:
    - 10's Go Fish - similar to the traditional Go Fish game using pairs of numbers that equal 10
    - Turn Over 10 - similar to the game of Concentration; the children turn over number cards and collect combinations of 10
  - Logic math
    - Problem solving using addition and subtraction

- Quilt math
  - Computation/math fact worksheet that is self-correcting with color code and patterns
- Whip around
  - Using index cards the children identify addition, subtraction facts and sums and differences
- Math Bingo
  - The traditional game of Bingo using addition and subtraction facts
- Read It, Draw It, Solve It
  - Read a problem, draw a picture, solve using an equation
- Fact Families
  - $2, 3, 5 - 2+3 = 5, 3+2 = 5, 5-3 = 2, 5-2 = 3$
- ***Grade 3***
  - Quilt math
    - Computation/math fact worksheet that is self-correcting with color code and patterns
  - Timed tests
  - Skip counting practice
  - Dice Multiplication
  - Whip Around
  - Multiplication Tic Tac Toe
  - TERC math games
  - Close to 100
  - Math Centers
- ***Grade 4 - Students are required to practice their facts as part of their homework 5 to 10 minutes each night, including weekends.***
  - One, Two, Three, Salute! card game
    - See "At Home Activities" for instructions
  - Multiplication Bingo
    - See "At Home Activities" for instructions
  - Timed math fact quiz
    - Time appropriate for fourth grade - children practice/demonstrate mastery of math facts

- Math fact practice log
  - Weekly recording of how math facts have been practiced
- Math centers
  - Variety of centers to give students hands-on practice with different math concepts
- ***Grade 5***
  - Multiplication Bingo
    - See "At Home Activities" for instructions
  - Timed math fact quiz
  - Time appropriate for fifth grade - children practice/demonstrate mastery of math facts
  - Math fact practice log
    - Weekly recording of how math facts have been practiced
  - Math centers
    - (Variety of centers to give students hands-on practice with different math concepts)
  - Math Mates
  - Math War
  - Flashcards
  - Dice games

# ACTIVITIES TO USE AT HOME TO PRACTICE MATH FACTS

- We encourage consistent communication from the grade levels about math facts work
- Review work from school
- Review math log (if your child's grade uses one) and provide signature
- Flash cards
  - Kindergarten - #1-25 - Have children identify and read the numbers
  - Grade 1 & 2 - Use 3X5 index cards cut in half. Write addition and subtraction facts on one half and answer on the other half of cards. Place face down in two piles. Each player turns two cards and the goal is to match problem and answer.
  - Grade 3 - Create flash cards for facts being taught in class. Write the problem on one side, and the answer on the opposite side. Practice the facts with your child and place them in two piles, one pile they know and the other pile they need to continue to practice for understanding.
  - Grade 4 & 5- Use flash cards with the problem on the front and answer on the back. If your child can answer the problem in 3 seconds or less the fact is mastered. If not, retain for continued practice. (Ask your child's teacher for more information.)
  - Grade 5 - Blank timed tests will be sent home for practice upon request.
- Web sites
  - Grades K-5 - Use the sites designated for your child's grade.
- Mental math

- **Grade K-5** - Verbally review math facts at opportune times such as driving in the car, shopping, etc.
- **Games**
  - **Kindergarten** - Play the traditional 'Go Fish' game to identify numbers
  - **Kindergarten** - Roll & Play - Roll 2 dice and have the children identify the numbers. Then decide what number is greater - children can add the dice together
  - **Kindergarten** - Compare and Double Compare - TERC math game (Directions and playing cards will be provided by the teacher upon request)
  - **Grade 1** - Race to the Top - Use game board provided by teachers. Roll 2 dice and add the numbers together. Record the fact in the correct box or color. The player who reaches the top first, wins.
  - **Grade 2** - Tens Go Fish. Turn Over Ten - TERC math games taught in class. (Directions and playing cards will be provided by the teacher upon request)
  - **Grade 3** - Practice math concepts using TERC math games. (Directions and playing cards will be provided by the teacher.)
  - **Grade 4** - One, Two, Three Salute! - Use a deck of playing cards. Split deck into 2 piles. Players 1 and 2 each take a pile. Player 3 sits between the other players and says "1,2,3 Salute!" Players 1 and 2 place top card from pile on their forehead for opponent to see. Player 3 adds or multiplies the two numbers on the cards together and says only the sum or product out loud. The first player who can identify the card on their forehead wins the pair of cards. Play continues until there are no more cards to deal. Challenge: Use face cards for higher numbers such as 11, 12, 13.
  - **Grade 4** - Multiplication Bingo. Make a 4 x 4 Bingo card and use flash cards. Write the 16 numbers between 1-144 in the Bingo grid. The game leader reads a multiplication fact from a flash card. The children put an 'x' on the product (answer) if it appears on the board. Continue reading flash cards and

checking off numbers until someone completes a row, column, diagonal, or the whole chart and they call "Bingo!"

- **Grade 5** - Fact War - use playing cards, ACE (1) to 10. Divide the deck in half for 2 players. Players simultaneously flip one card face up and shout out the correct answer for the two cards multiplied together. Winner collects the 2 cards and the player with the most cards at the end wins. Modify for addition and subtraction, as well.
- **Recommended Books**
  - **Kindergarten** - *Mouse Count, Anno's Counting Book*
  - **Grade 4** - *Alexander, Who Used to Be Rich Last Sunday, Math Curse, The Hershey's Multiplication Book, Two of Everything, The Best of Times, One Hundred Hungry Ants*
- **Recommended Board Games**
  - **Kindergarten** - Chutes and Ladders, Trouble, Sorry, Number Bingo

# WEB SITES

- <http://www.funbrain.com>
  - Grade 3 - Go to Math Arcade and follow on-screen directions
  - Grade 4 - This website contains hundreds of games for students to play and reinforce academic skills. The variety of games targets the learning styles of multiple intelligences including verbal-linguistic, naturalistic, musical, logical-mathematic, and kinesthetic (sign language). The games can be selected by grade level, title, subject area, or descriptions of targeted skills. Great math fact games include: Math Baseball: the player chooses an operation (addition, subtraction, multiplication, and division), as well as a difficulty level (easy, medium, hard, or super brain) to practice facts: MathCar Racing: the player chooses an operation (addition-easy, subtraction-easy, multiplication-medium, division-medium, or all-hard), the player wins points by answering questions correctly: Math Soccer Shootout: the player chooses an operation, as well as, whole numbers or fractions, then answers questions: Math Arcade: (This is one of our students FAVORITES!) the player selects the appropriate grade level (1-8), and works their way through the games; some of the games include: Creepy Crawlies, Mummy Hunt, Bubble Numbers, Pig Toss, Ball Hogs
- <http://multiplication.com>
  - Grade 3 - Many good activities, one example is "Quick Flash" - choose the times table you want to work on and type in the answer before time runs out
- <http://www.mrnussbaumgames.com/fries/>
- <http://www.carstensstudios.com/mathdoodles/numberjump.html>
- <http://www.carstensstudios.com/mathdoodles/sumsstacher.html>
- <http://www.emgames.com/demosite/activities/M2A075/play.html>
- <http://www.thatquiz.com/tq/practice.html?idfraction>

- <http://pbskids.org/cyberchase/games/equivalentfractions/index.html>
- [http://www.gaston.k12.nc.us/schools/cherryvilleelem/zero\\_the\\_hero.htm](http://www.gaston.k12.nc.us/schools/cherryvilleelem/zero_the_hero.htm)
- <http://www.Aplusmath.com>
- <http://www.edu4kids.com>
- <http://www.factmonster.com>
- <http://www.mathfactcafe.com>
- <http://www.pitara.com>
- <http://bright-productions.com/kinderweb/index.html>
  - Kindergarten - Click on "The Numbers Game", children will need adult assistance for this game to read the directions, practice in number identification
- <http://www.sesameworkshop.org/sesamestreet/>
  - Kindergarten - On the left is a green street post, click on the "games" link, choose the "1,2,3" link for various math activities or choose the "Dot-to-Dot" link for number sequence and number identification
- <http://home.indy.rr.com/lrobinson/mathfacts/mathfacts.html>
  - Grade 2 - Click on the Fun Math Links on the bottom of the page; Addition/Subtraction, sums 10-18
- <http://www.aplusmath.com/games/index/html>
  - Grade 2 - Math Bingo, Concentration, Hidden Picture
  - Grade 4
    - Games include: MATHO (like bingo), Concentration (similar to memory), Hidden Picture, Planet Blaster
    - For each game, the players can choose an operation to practice including addition, multiplication, subtraction, or division.
- <http://mathplayground.com/>
  - Grade 4 - This website contains great games for practicing math facts, word problems, and logic games. Great math fact games include: Balloon Invaders: the player selects an operation - multiplication or division,

and a set of facts they would like to practice: Calculator Chaos: the player is shown a calculator that is missing buttons and list of eight numbers that can be made using only the remaining buttons - it is a challenging practice of addition, subtraction, multiplication, or division: Math Olympics: the player answers a variety of math questions and selects one of four possible answers (it is recommended for grades four and above): Speedy Sums and Subtract It!: the player is shown a target number, and a grid of 60 number cards, the player clicks on the number cards and uses addition or subtraction to reach the target number, it is a timed game so players need to know their facts fluently: Hoops: a word problem game

- <http://www.oswego.org/ocsd-web/games/fractionflags/fractionflags.html>
  - Grade 4 - This activity allows students to be creative and to learn at the same time. Using halves and quarters, players are instructed to create a flag using fractional parts of the specified colors. This game is perfect for students of any age level to reinforce or develop their knowledge of fractions.
- <http://www.oswego.org/ocsd-web/games/Mathmagician/cathymath.html>
- <http://www.bbc.co.uk/schools/numbertime>
  - All Grade Levels - This website provides students with an opportunity to practice their addition, subtraction, multiplication, and division facts from 0 to 10. A player can choose to either practice a specific operation or play a game of "Math Magic." If a player chooses to practice a specific operation, he or she selects that operation and practices adding, subtracting, multiplying, and dividing by a certain number. If a player chooses to play "Math Magic," he or she selects an operation to practice. A "challenge" will appear in a box (i.e. answer 50 questions in  $2\frac{1}{2}$  minutes). The player begins and when the round is over, his or her score appears on the screen. This includes the percentage of problems

answered correctly and the time it took to answer all the questions. For both activities, the player can print out a reward certificate showing his or her score.

- [http://www.harcourtschool.com/activity/thats\\_a\\_fact/english\\_K\\_3.html](http://www.harcourtschool.com/activity/thats_a_fact/english_K_3.html)
- This site, which is sponsored by Harcourt School Publishing, gives you an opportunity to practice your math facts and time yourself. <http://www.mathmastery.com/cyberchallenge/> Math Master Cyber Challenge allows you to practice addition, subtraction, multiplication, or division facts. <http://www.oswego.org/ocsd-web/games/SpeedGrid/Multiplication/urikamultires.html> Speed Grid Challenge is a one-player multiplication game against the clock. <http://www.factmonster.com/math/flashcards.html> Practice addition, subtraction, multiplication, or division flashcards at Fact Monster. <http://resources.oswego.org/games/mathmagician/cathymath.html> Math Magician Games give students an opportunity to practice addition, subtraction, multiplication and division facts. <http://www.aplusmath.com/games/matho/DivMatho.html> Division MATHO is a great game to practice division facts.
- [http://www.missmaggie.org/scholastic/dilemma\\_eng\\_launcher.html](http://www.missmaggie.org/scholastic/dilemma_eng_launcher.html) Dude's Dilemma is a Scholastic game. Help rescue Maggie's dog, Dude, who is trapped on a rooftop! You can rescue him by answering a few math questions. Pick addition, subtraction, multiplication, division or a mix of all four. Then pick a level (Easy, Hard, or Extreme). Each question you answer correctly will get you closer to rescuing Dude. You can also play this game in Spanish.
- [http://www.missmaggie.org/scholastic/roundtheworld\\_eng\\_launcher.html](http://www.missmaggie.org/scholastic/roundtheworld_eng_launcher.html) Around the World in 80 Seconds is another Scholastic game. Help Maggie fly around the world. Pick addition, subtraction, multiplication, division or a mix of all

four. Then pick a level (Level 1: Easier and Level 2: Harder). Each question answered correctly gets Maggie to her next stop. However you only have 80 seconds to get her around the world! You can also play this game in Spanish.

**\* All of the web sites listed above were working sites at the time of writing this document. Please notify your child's teacher and/or the principal of any sites that you may find are no longer viable resources.**