Comprehensive Exam Requirement
Advisor: Dr. Rochelle Kaplan
M.Ed. in Education concentration in Teaching Children Mathematics (TCM)
William Paterson University
Spring, 2008

Background of Topic

The topic of this three-part workshop is to involve and inform parents/family in their child's mathematical education. "I Never Learned Math Like That" will provide parents the opportunity to be introduced to their child's new standards-based *Everyday Math Series* curriculum. The workshop programs are designed to emphasize the philosophy, purposes, and approaches of the district's newly adopted curriculum. They will strengthen mathematical understanding and confidence, as well as model specific pedagogical techniques. It will allow parents to experience mathematics the innovative way their children are involved in a day-to-day basis. By involving parents from the community, this three-part workshop provides activities and materials to reinforce mathematic classroom instruction and make a direct impact on home involvement. By exposing and informing parents to current teaching views, demonstrate the importance of learning through hands on materials and games, creating references for inventive algorithms and supplying helpful homework tips, support is provided to parents and students to achieve mathematical mastery and be successful.

I chose this theme for numerous reasons. Education in school cannot be isolated from the home. Positive effects in achievement are made when parents are involved in their child's education. For involvement to be most effective, subject matter must be comprehensible. The M.Ed. in Education concentration in Teaching Children

Mathematics (TCM) curriculum at William Paterson University provided me the opportunity to become a better educator. All of my courses have enlightened me on current mathematical practices and the importance of adapting to the students' needs today and in the future. *Multiple Representations of Mathematics* provided me the foundation to use hands-on experience with a manipulative to help students connect the symbolic to concrete forms of mathematics in a representational model of instruction. Introducing students to multiple techniques of instruction affords students the opportunity of a diverse learning environment where all can achieve. *Adapting Mathematics Instruction For the Inclusive Classroom* continued providing me with more of these techniques of adapting to meet the needs of students in my classroom. This course enlightened me on positive ways to incorporate current curriculum standards with a multitude of developmentally diverse group of students mainstreamed in the classroom today. *Mathematics For Young Children* fine-tuned the process of observing and interpreting what place in the developmental process students were currently, and what steps are needed to be taken to develop their mathematical skills further to achieve success. *Math Clinic* allowed me to work one-on-one with a student identifying where in the developmental process the child was and scaffold the mathematical content to help build future tools for success. *Contemporary Issues and Trends in Mathematics Education* along with *Multiculturalism and Acculturation* prepared me for the diverse population in which I am currently teaching. The needs of various ethnic and socioeconomic backgrounds were addressed and linked to current practices and curriculum standards today.

My knowledge from these courses and through teaching experience, I feel these workshops are important to educate parents on current teaching practices and provide them the opportunity to appreciate mathematics through a variety of techniques. Through these workshops, parents will appreciate the importance of games and hands-on activities to increase mathematical understanding.

The National Council of Teachers of Mathematics (NCTM, 2000) encourages early childhood education to nurture children's intuitive understanding of mathematical concepts by taking advantage of learning activities that naturally occur during everyday activities. The fourth grade Number and Operations Standards include understanding various meanings of multiplication and division. Students are enabled to understand relationships between operations, such as division as the inverse of multiplication. Properties of operations to help solve problems and how they relate to each other are expectations of instructional programs. Teachers are encouraged to emphasize the processes involved in learning and doing mathematics, including problem solving, reasoning, and communicating by representing and connecting.

The districts newly adopted *Everyday Math Series* is standard based. It is aligned with Core Curriculum Content Standards in New Jersey (NJCCCS, 2002) and requirements for standardized state testing. Using innovative ways to learn mathematics, students are taught through hands on activities, games, and collaboration. These practices have raised issues with parents in our schools community. Although parents are eager to help their children, they are not accustomed to present mathematic practices. They have voiced concern and frustration with presented algorithms used and the incorporation of present methods of teaching. These workshops were designed to help

ease these concerns and make parents more knowledgeable so a partnership can be established between home and school. Having support at home will help lead to students mathematical success.

The following literature review emphasizes the importance of parent involvement in students' mathematical achievement and key elements for conducting a successful parent workshop to help accomplish this goal.

In a study done by Sheldon and Epstein (2005) connections were examined between family involvement activities that supported mathematical learning at home and student achievements in mathematics.

The participants of the study included 18 schools from seven states coast to coast. They included Ohio, Maryland, Wisconsin, Minnesota, Michigan, and California. Ten of the schools that participated were elementary level and eight were middle high schools. Seven of the schools were located in inner cities, four in urban, three suburban, and four rural. School size ranged from 120 students to 1,280 students. Seventy – five percent of the schools served economically disadvantaged students receiving Title I funding and free or reduced lunch.

The two-year study consisted of implementation and perceptions of effectiveness of 14 partnership activities that connected family and the community to student's mathematics work and progress. Example of practices included, conducting workshops during day time, conduct similar workshops in the evening, information on how to contact teachers and school, issue certificates for mastery of new mathematics skills, individual parent conferences, videotapes on mathematics skills that families can view at home or at school, invite parents to student awards ceremonies, requests community

volunteers to tutor students in mathematics, assign homework that involved a family member, offer mathematics game packets to be used at home, organize family mathematic activities on Saturdays, and organize presentations for students on how mathematics is used by businesses, government and different industries.

The authors found schools that effectively implemented activities that encouraged parents to participate with their children in the home learning activities reported improved percentages of students who were proficient in mathematics from year one to the next. Activities that supported mathematics learning included homework assignments that required students and parents to interact and talk about mathematics and mathematics material and resources provided for families to use at home. The relationships between implementation of these activities in mathematics achievement were strong and positive. Strategically planned family involvement activities that encourage and enable interactions between students and family members relevant to the mathematics curriculum contribute to students increasing and maintaining their mathematics skills.

In a similar study Civil and Bernier (2006), studied the effects of parental involvement in mathematics education.

The four-year study worked with several different schools in Latino communities in Tucson and Chandler, Arizona, Las Vegas in New Mexico, and San Jose, California. Participants included leadership teams of 120 parents and 60 teacher/administrators.

Math and Parent Partnership in the Southwest (MAPPS) worked to promote parents in mathematics activities in home and school through three components. Leadership development sessions in which parents, teachers, and administrators came together to explore different learning styles, and to learn how to facilitate workshops for

the larger parent community were formed. Mathematics Awareness Workshops (MAWS) were open to all of the parents in a given district and ranged over key topics in K-12 mathematics. Math for Parents (MFP) courses in which parents on the leadership teams had the opportunity to explore mathematical topics in more depth, these courses met over eight weeks in 2- hour sessions. The goal of MAPPS workshops was to strive for conceptual understanding in mathematics. Participants explore mathematical concepts through problem-solving task. The workshops reflect standard base mathematics and include topics that references equity in mathematics valuing different learning styles and the use of hands on activities to develop deep understanding of mathematical concepts.

The authors found connections that are established when parents talk to other parents about mathematics and potential differences form from participation in which parents knowledge is recognized and valued. The authors also concluded that parents that engage in this type of collaboration are viewed as an intellectual resource in parent involvement, and therefore effects student achievement.

In a related article Whiteford (1998) discusses the importance of conducting workshops teaching parents current approaches to mathematics to help improve students mathematical achievement.

The seven one- hour series of workshops were conducted every two weeks during the spring semester with parents with students in an elementary school in Richmond, Vermont. The workshops focused on the development of parent's conceptual knowledge to complement their procedural knowledge they had previously learned in elementary school. The intention of helping to develop a better understanding of their children's

math skills would then enhance students learning at home. At the conclusion of each workshop, parents were given a handout entitled "Math At Home" to help reinforce the contents of the workshop with everyday tasks that children and parents could do together.

The author found parents felt more confident helping their children after participating in the workshops. Parents were more informed and knowledgeable with conceptual understanding of elementary mathematics and were therefore able to be more acute teaching partners in their children's mathematical education.

Related to the current topic Hendrickson, Siebert, Smith, Kunzler and Christensen (2004) address parents concerns about the current mathematics reform during parent involvement workshops.

The authors worked with parents in implementing and adaptation of curriculum reform in 26 elementary schools and five junior high schools. They suggest several things to help ease parents concerned about the standard-based mathematics and curriculum materials in two types of settings. One was during evening group meetings and the other was one on one conversation with the parents.

The evening meetings were provided for support and consisted of a 45- minute general presentation, handout on homework, parent visit to classrooms, and a question and answer period with district and school representatives. The workshop provided an opportunity for parents to view videos of actual students working on problems and the depth of understanding the students possessed. Examples of open- ended, contextual homework problems were provided and an explanation of parent involvement with mathematics homework. Visits to student classrooms provided parents the opportunity to view and handle materials their children were currently using. In the classrooms teachers

gave a brief presentation and discussed how the activities help children learn mathematics. Parents were also given the opportunity to meet with school and district leaders with comments and concerns.

One-on-one discussions by the authors addressed parents concerns on the nature of mathematics, the learning and activities used to learn mathematics, and the implications the reform curriculum would have on students' future learning. Each concern was addressed and an explanation of strategies, research, and the benefits of application of knowledge were given.

The last article Schussheim (2004) discusses ways to conduct a friendly event for parents and students to increase mathematical learning.

The article provides a detailed session for Family Math Night and preparation needed to make it a success. The session is one hour long. The first 30 minutes of the time is dedicated to parents and students participating together in data collection activities, and visiting stations of activities from the Family Math book. Six stations are set up with tangrams, guess and group, perfect people, and grocery store activities. The last 30 minutes are spent with parents and children in groups of 20 to 25 people in individual classrooms. There, a teacher and leads a hands -on activity that are open ended and can be continued at home. Each family receives a take-home packet of activities, a certificate of participation and an event evaluation form. Follow-up to the workshops include sending home collected data from the first part of the session, discussion of evaluation forms, and brainstorming of the presenting committee on the positives and improvements needed for the next session.

This literature review concludes that parent involvement is important to a student's mathematical achievement success. When parents are involved in a students curriculum program and are knowledgeable to be helpful at home, students benefit. Workshops designed to increase parental involvement and knowledge, make the greatest impact.

Description of the Community and Parents/Families Whom Will Participate

The following three workshops were designed for the fourth grade. They would take place in an elementary school, servicing pre-kindergarten through sixth grade. It is located in an inner city Abbott School district in Northern New Jersey, receiving Title I funding. It is predominately a low socioeconomic Hispanic and African American community. The Hispanic community consists primarily of Mexican, Puerto Rican and Dominican decent. This school provides a free breakfast and lunch program for all 1, 846 students. It also provides free before and after care until 6:00 p.m. for students. Parents are supplied outsourced mathematic and literacy tutoring programs to choose for their children to attend. This elementary school is one of 16 grammar schools that provide an education to more then 13,000 students in a 3.2-mile radius in the district. Parent involvement in the community is low, and strong efforts by the district are being made to help increase it.

Specific Learning Goals of the Parent/Family Education Plan

The learning goals of this three- part workshop are:

1. To educate parents on differences between traditional and current views of teaching and learning mathematics.

2. To learn about the role of games in the current investigations curriculum and how these games can support students' learning at different levels throughout the year.
3. To understand how games are used as an opportunity to practice computation.
4. To learn how games serve as a link between home and school learning.
5. To learn how games can be used to better understand students mathematical thinking, and to set goals for the students.
6. To consider ways that games can be adapted to meet the needs of individual students.
7. To help participants understand the balance among written, mental, and machine computation in the *Everyday Mathematics Series*.
8. To give parents experience with the *Everyday Mathematics* approach to multiplication and division of multi-digit numbers, especially the use in the curriculum of standard, invented, and alternative algorithms.
9. To examine several low-stress multiplication and division algorithms from *Everyday Mathematics*.
10. To educate parents on helpful and creative ways to be involved in their child's mathematical success and provide materials that will link home and school.

"I Never Learned Math Like That"

Workshop 1
The Importance of Games

Activity	Description	Materials	Time
Welcome	Stress- free warm-up	Line Up Activity	5 minutes
General presentation	Information about the *Everyday Math Series* and the importance of games in the curriculum.	PowerPoint presentation and lecture notes.	20 minutes
Game centers	Rotation between 4 activities approximately 15-minutes each.	Directions and game supplies for; -Close to 100/1000 -Fraction Cookie Game -Double Compare -Factor Bingo	Approximately 1 Hour
Intermission	Light supper and time for community socialization.	Finger sandwiches, refreshments, coffee and dessert.	20 minutes
Wrap-Up	-Make and Take -Question/Answer Period -Raffle Giveaway -Evaluation for completion	-Prepared packets of all activity games and parent information to bring home. -*Everyday Math* card decks and prize giveaways. -Evaluation forms	15 minutes

Workshop 2
Multiplication

Activity	Description	Materials	Time
Welcome	Stress- free warm-up	Peculiarities Activity	5 minutes
General presentation	Information about the *Everyday Math Series* including algorithms and the importance of multiplication games in the new curriculum.	PowerPoint presentation and lecture notes including algorithms used for multiplication.	20 minutes
Game centers	Rotation between 4 activities approximately 15-minutes each.	Directions and game supplies for; -Multiplication Wrestling -Multiplication Coin Drop -Multiplication Baseball -Multiplication Bulls Eye	Approximately 1 Hour
Intermission	Light supper and time for community socialization.	Finger sandwiches, refreshments, coffee and dessert.	20 minutes
Wrap-Up	-Make and Take -Question/Answer Period -Raffle Giveaway -Evaluation for completion	-Prepared packets of all activity games and parent information to bring home. -*Everyday Math* card decks and prize giveaways. -Evaluation forms	15 minutes

Workshop 3
Division

Activity	Description	Materials	Time
Welcome	Stress- free warm-up	Constructive Feedback Activity	5 minutes
General presentation	Information about the *Everyday Math Series* including division algorithms and the importance of division games in the new curriculum.	PowerPoint presentation and lecture notes including algorithms used for division.	20 minutes
Game centers	Rotation between 4 activities approximately 15-minutes each.	Directions and game supplies for; -Division Top -it -Division Dash -Getting To One -The Golf Game	Approximately 1 Hour
Intermission	Light supper and time for community socialization.	Finger sandwiches, refreshments, coffee and dessert.	20 minutes
Wrap-Up	-Make and Take -Question/Answer Period -Raffle Giveaway -Evaluation for completion	-Prepared packets of all activity games and parent information to bring home. -*Everyday Math* card decks and prize giveaways. -Evaluation forms	15 minutes

Preparation to Set Up the Workshop Program

To prepare for these workshops, I would begin by sending home an invitation to attend on school grounds. The invitation would be for parents and their fourth grade child. It would have a return sheet attached so I could prepare for the proper amount of families participating. The response would also indicate if babysitting was needed for younger siblings. Our schools parent liaison and older students would provide this benefit as a community service requirement fulfillment. I would also recruit the fourth grade bilingual teacher to attend. Considering the high percentage of Spanish speaking parents in the community, she would be a necessary tool to make the program successful. We would co-present information and she would be available to translate any questions or concerns the parents may have. In hopes of having a large participation, the 2-hour workshops would be conducted in the evening to accommodate the working parents of the community. They would be conducted from 6:00 – 8:00 p.m. and a light supper would be provided. A percentage of the schools budget money would be used to provide finger sandwiches, cold salads, refreshments, coffee and dessert. A purchase order could be approved for funding under community/parent education requirements imposed by the state. Janitorial staff would be available to help set and clean up. Administration would also be in attendance to answer any questions or concerns. As an incentive for maximum attendance, an ice cream party would be provided to the class with most participants over the three part workshops.

Materials Used To Implement Plan

Workshop 1 The Importance of Games

1. Ice breaker activity sheet (Line Up)
2. Standard-based Curriculum presentation PowerPoint

3. Purpose of Games in Investigations PowerPoint presentation

Centers

1. Close to 100/1000
    - Direction sheet
    - Decks of numeral cards
    - Score sheet

   Factor Bingo
    - Direction sheet
    - Laminated 100 charts
    - Laminated multiplication tables
    - Deck of factor bingo cards
    - Bingo chips or colored pens
2. Fraction Cookie game
    - Direction sheet
    - Fraction cube dice (2 of one color and one of another color)
    - Laminated hexagon sheet
    - Bucket of pattern blocks
3. Double Compare
    - Direction sheet
    - Numeral card deck

Wrap up

- Prepared take home packets of game directions, necessary game sheets and suggested parent activities to do with children at home list.
- *Everyday Math* Playing cards and Sets of pattern blocks as raffle giveaways
- Evaluation Forms

Workshop 2 Multiplication

1. Ice breaker activity sheet (Peculiarities)
2. PowerPoint presentation on algorithms used for multiplication
3. Brief "Where's the Mathematics" PowerPoint

Centers

1. Multiplication Wrestling
    - Direction sheet
    - Deck of number cards
    - Calculator
2. Multiplication Coin Drop
    - Direction sheet
    - Chips/pennies
    - Playing mat
    - Slate board
    - Dry erase marker

3. Multiplication Baseball
    - Direction sheet
    - Dice
    - Game board
4. Multiplication Bulls Eye
    - Direction sheet
    - Number cards
    - 6-sided die
    - Calculator

Wrap up

- Prepared take home packets of game directions, necessary game sheets and suggested parent activities to do with children at home list.
- *Everyday Math* Playing cards and 6-sided dices as raffle giveaways
- Evaluation Forms

Workshop 3 Division

1. Ice Breaker Activity (Constructive Feedback)
2. PowerPoint presentation on algorithms used for Division
3. Brief "Where's the Mathematics" PowerPoint

Centers

1. Division Top It
    - Direction sheet
    - Deck of cards numbers 1-10
2. Division Dash
    - Direction sheet
    - Calculator
    - Score sheet
3. Getting To One
    - Direction sheet
    - Calculator
4. The Golf Game
    - Direction sheet
    - Spinner
    - Map of golf course
    - Score card
    - Centimeter cubes
    - Paper and pencil

Wrap up

- Prepared take home packets of game directions, necessary game sheets and Parent Do-Anytime Activities Pack.
- *Everyday Math* Playing cards and calculators as raffle giveaways
- Evaluation Forms

Realistic Outcomes Expected

I feel these workshops were designed to be successful. Each of the goals was addressed throughout the format and workshop design. I believe parents will find the information helpful and appreciate the resource tools provided to them. The program takes into account many of the factors that would pose an issue for parents such as time of day, younger sibling, location, and language diversity. Exposing parents to current views in mathematics, algorithms, and games from their child's curriculum allows parents to be more comfortable and involved. The goal is to have maximum participation. Incentives would be provided to the class with the top amount of participants for attendance overall. Realistically, I would expect 40 families out of the 130 currently in the fourth grade. Community participation is low, but these workshops could make a positive impact on school / home connections.

REFERENCES

Bridges To Classroom Mathematics. (1998). Retrieved January 5, 2008 from http://www.comap.com/elementary/projects/bridges/BridSampler.pdf.

Everyday Mathematics Center. (2003). Retrieved December 28, 2007 from http://everydaymath.uchicago.edu/

Everyday Mathematics Teachers Lesson Guide Manual. (2004). Wright Group McGraw-Hill. USA: Author

Hendrickson, S. & Siebert, D. & Smith, S. & Kunzler, H. & Christensen, S. (2004). Addressing parents' concerns about mathematics reform. *Teaching Children Mathematics 11* (1), 18-23.

Marta, C., & Bernier, E. (2006). Exploring images of participation in mathematics education: Challenges and possibilities. *Mathematical Thinking & Learning: An International Journal, 8* (3), 309-330.

National Council of Teachers of Mathematics. (2000). *Principles* and *Standards For School Mathematics.* Reston, VA: Author.

New Jersey State Department of Education. (Mathematics, 2002*). Core Curriculum Content Standards.* Trenton, NJ: Author

Schussheim, J. (2004). Large-scale family math nights: A primer for collaboration. *Teaching Children Mathematics 10* (5), 254-258.

Sheldon, S., & Epstein, J. (2005). Involvement counts: Family and community partnerships and mathematics achievement. *Journal of Educational Research, 98* (4), 196-207.

Whiteford, T. (1998). Math for moms and dads. *Educational Leadership, 55* (8), 64-66.

Materials Used To Implement Plan

Workshop 1 The Importance of Games

1. Ice breaker activity sheet (Line Up)
2. Standard-based Curriculum presentation PowerPoint
3. Purpose of Games in Investigations PowerPoint presentation

Centers

1. Close to 100/1000
   - Direction sheet
   - Decks of numeral cards
   - Score sheet

   Factor Bingo
   - Direction sheet
   - Laminated 100 charts
   - Laminated multiplication tables
   - Deck of factor bingo cards
   - Bingo chips or colored pens
2. Fraction Cookie game
   - Direction sheet
   - Fraction cube dice (2 of one color and one of another color)
   - Laminated hexagon sheet
   - Bucket of pattern blocks
3. Double Compare
   - Direction sheet
   - Numeral card deck

Wrap up

- Prepared take home packets of game directions and necessary game sheets
- *Everyday Math* Playing cards and Sets of pattern blocks as raffle giveaways
- Evaluation Forms

Line Up

This exercise is good for a group of 20 or more. It helps participants get to know each other in a stress free way. The activity should take approximately five minutes. It is a friendly competition among groups. The leader will give instructions for the groups to line up in a particular way. Groups should perform the given task as quickly as possible. When the group is lined up appropriately all members should clap to indicate they have completed the task. The first team to clap is announced the winner of the round.

LINE UP ACTIVITY SHEET FOR THE LEADER

1. Line up in order by shoe size.

2. Line up in order by length of arm's reach.

3. Line up in order alphabetically by favorite color.

4. Line up in order by number of siblings you have.

5. Line up in order by hair color, lightest to darkest.

6. Line up in order by age, youngest to oldest.

7. Line up in order by length of time with current employer.

8. Line up in order alphabetically by first name.

9. Line up in order alphabetically by last name.

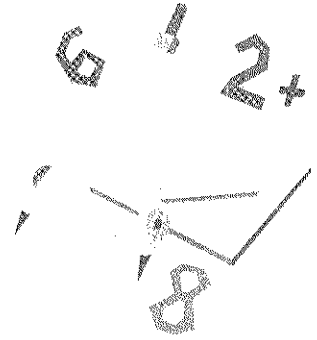
10. Line up in order by number of pets owned.

11. Line up in order by hair length, longest to shortest.

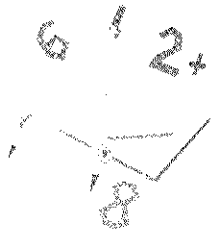
12. Line up in order by the number of bones you've ever broken.

Passaic Public Schools

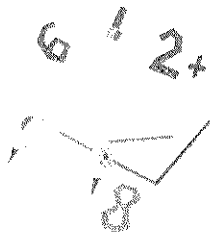
Standards-Based Math Instruction



- Knowing & doing math involves....
- Passaic is now using *Everyday Mathematics* & *Connected Mathematics* because....
- During a good math lesson—
  --students should be....



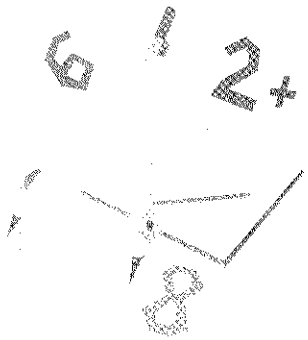
What is math?



Two Views

Traditional View

Current View



What is math?

Traditional View

- a collection of rules & procedures
- mainly arithmetic (numbers, operations, traditional algorithms)

Current View

- the science of pattern & order
- includes numbers, algorithms (traditional & invented), chance, form, & change

What does knowing & doing math look like?

Traditional View

- understanding math concepts & procedures after passively receiving information about them
- achieving mastery by memorizing & completing rote drill & practice activities
- one way & one answer
  (i.e., following procedures, just as they were taught, in order to get the correct answer)

Current View

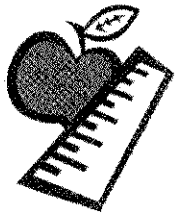
- possessing & using a fund of thinking & problem solving tools & strategies
- exploring, experimenting, & conjecturing, in order to--
  - -find regularity & order in mathematical & real-world situations
  - -make sense out of key math concepts/ideas
- meaningful practice to achieve mastery
- developing solutions that make the most sense for the situation at hand

Major Classroom Shifts Needed

Decrease Emphasis (don't eliminate)	*Increase Emphasis*
• classrooms functioning as collections of individuals	• classrooms functioning as mathematics communities
• teacher/textbook as sole authority for the correct/ right answers	• logic & mathematical evidence as verification
• memorizing procedures	• using mathematical reasoning
• the mechanistic finding of answers	• conjecturing, inventing, & problem solving
• treating mathematics as a body of isolated concepts & procedures	• connecting math, its ideas, & its applications

What should be happening during a good math lesson?

Students should be...



- trying to make sense of the math
  embedded in mathematical & real world situations, not just practicing a collection of isolated problems/skills
- communicating mathematical ideas (through examples, demonstrations, modeling, drawings, & logical arguments)
- posing & answering questions
- seeking a "best" solution among several presented

(continued on next slide)

Students should be (continued) ...

- showing they know how & when to use resources & thinking/problem-solving tools (manipulatives, technology, the textbook, etc.)
- interacting with each other (with each member highly involved during group work situations) as well as working independently
- making connections
- assessing their own learning

Everyday Mathematics Lesson Formats

Lesson Format for Grades 1-5

(based on 70 minutes of math daily)

Warm-ups .....approx. 15 min.

- Daily Routines
- Math Message
- Homework Check
- Mental Math & Reflexes

If possible, do daily routines & math message outside the 70 min. period, preferably during the day's opening activities.

Teaching the Lesson

(where most new *content is introduced/developed)*

Options for Individualizing

(learning center, games, small group instruction, etc.)

approx. 40 min.

Ongoing Learning & Practice .....approx. 15 min.

Peculiarities

This activity can be used at any time during a short or long session, with participants who know one another well or with complete strangers, to introduce the topic of diversity.

Group Size: 12 to 60 Estimated Time: 2 to 5 minutes

What you need: Peculiarities Activity Sheet for leader; simple prizes such as candy, stickers, or pens.

Instructions

1. Ask participants to stand.

2. Explain that the object of the activity is to discover peculiarities in the group.

3. Tell participants that you will read items from a list, one at a time. Ask them to come forward to receive a prize if they have that peculiarity. As a variation pass out the list to participants and ask them to fill it out individually, then find others in the room who have marked the same categories. Include some categories that you know apply to more than one person.

Tips Keep this quick and fun. Add peculiarities to the list relating to organizational quirks or norms, or add specific peculiarities that you know about people in the group. Click on the title to download a usable copy of the activity sheet.

PECULIARITIES ACTIVITY SHEET

1. Was born on February 29.

2. Has or had a dog named Spot, Midnight, Lucky, or Shadow.

3. Is wearing an article of clothing that was chosen and purchased by someone else.

4. Is wearing a family heirloom.

5. Drives a car more than five years old.

6. Competes in sporting events such as running, skiing, etc.

7. Likes pizza with anchovies.

8. Volunteers for charity fund drives.

9. Was born in another state.

10. Was born in another country.

11. Has won a prize.

12. Has been to Idaho.

13. Writes songs or poetry.

14. Has an organized, clean desk.

15. Has a twin brother or sister.

16. Has a shoe size of 12 or greater.

17. Has milked a cow.

18. Has been to the top of the Washington Monument.

19. Collects stamps or other collectibles.

20. Remembers sodas for five cents.

21. Has been to a concert in the last month.

22. Has five or more siblings.

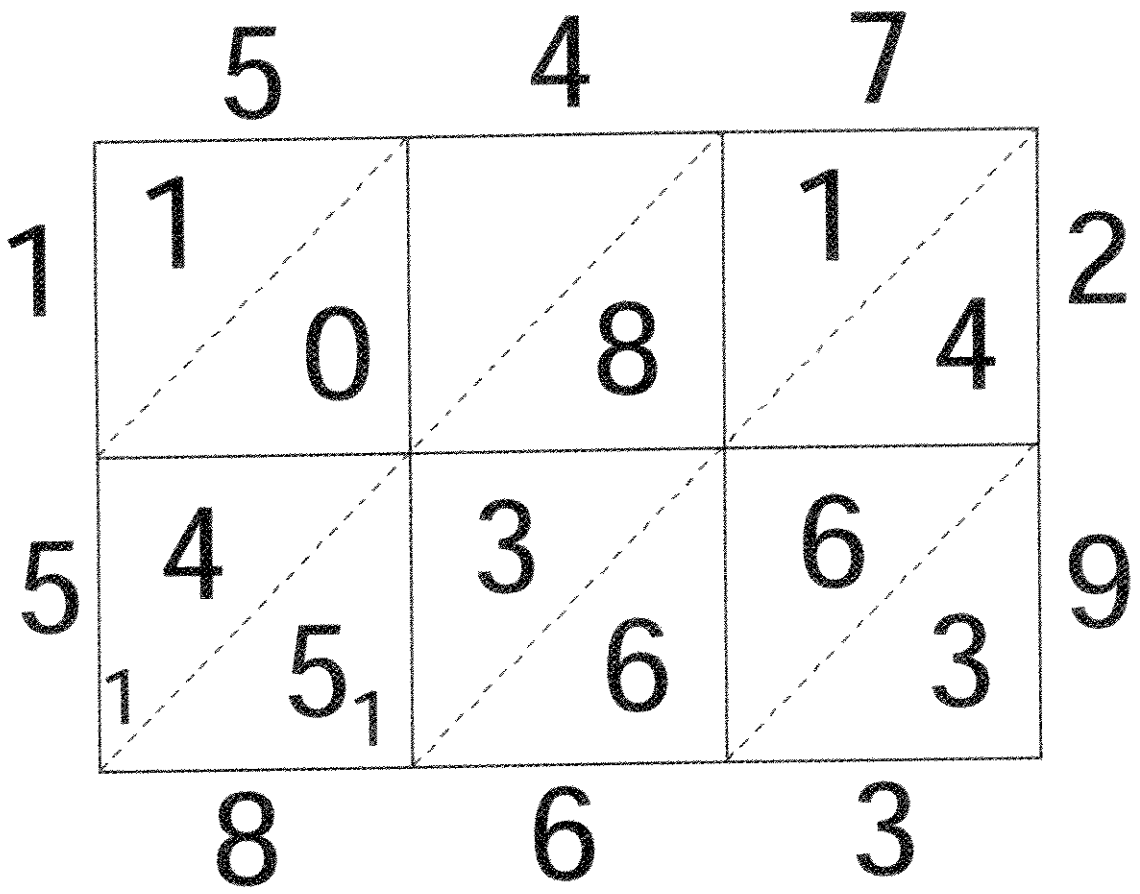
23. Prefers winter to summer.

24. Has been on a radio or TV show.

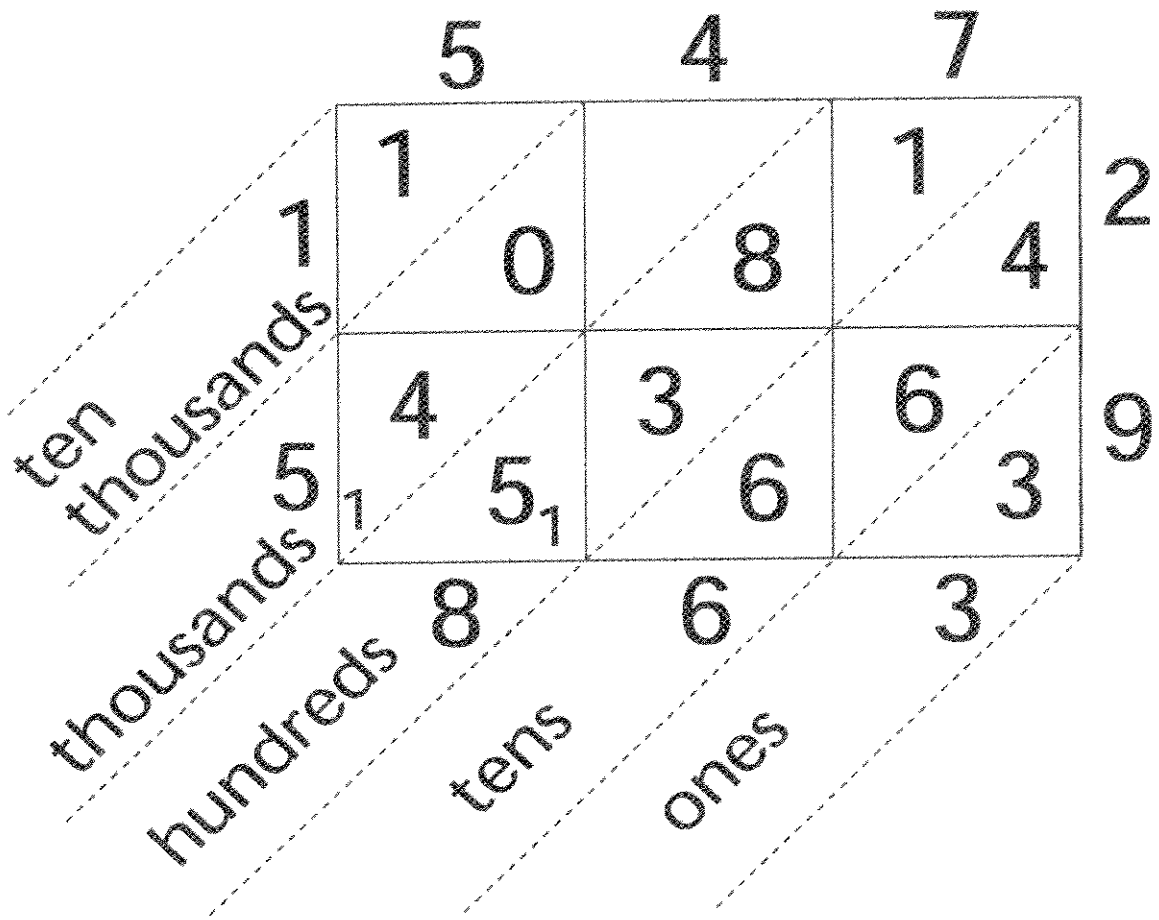
25. Restores old cars or trucks.

26. Has won a prize or money with a mail-in form.

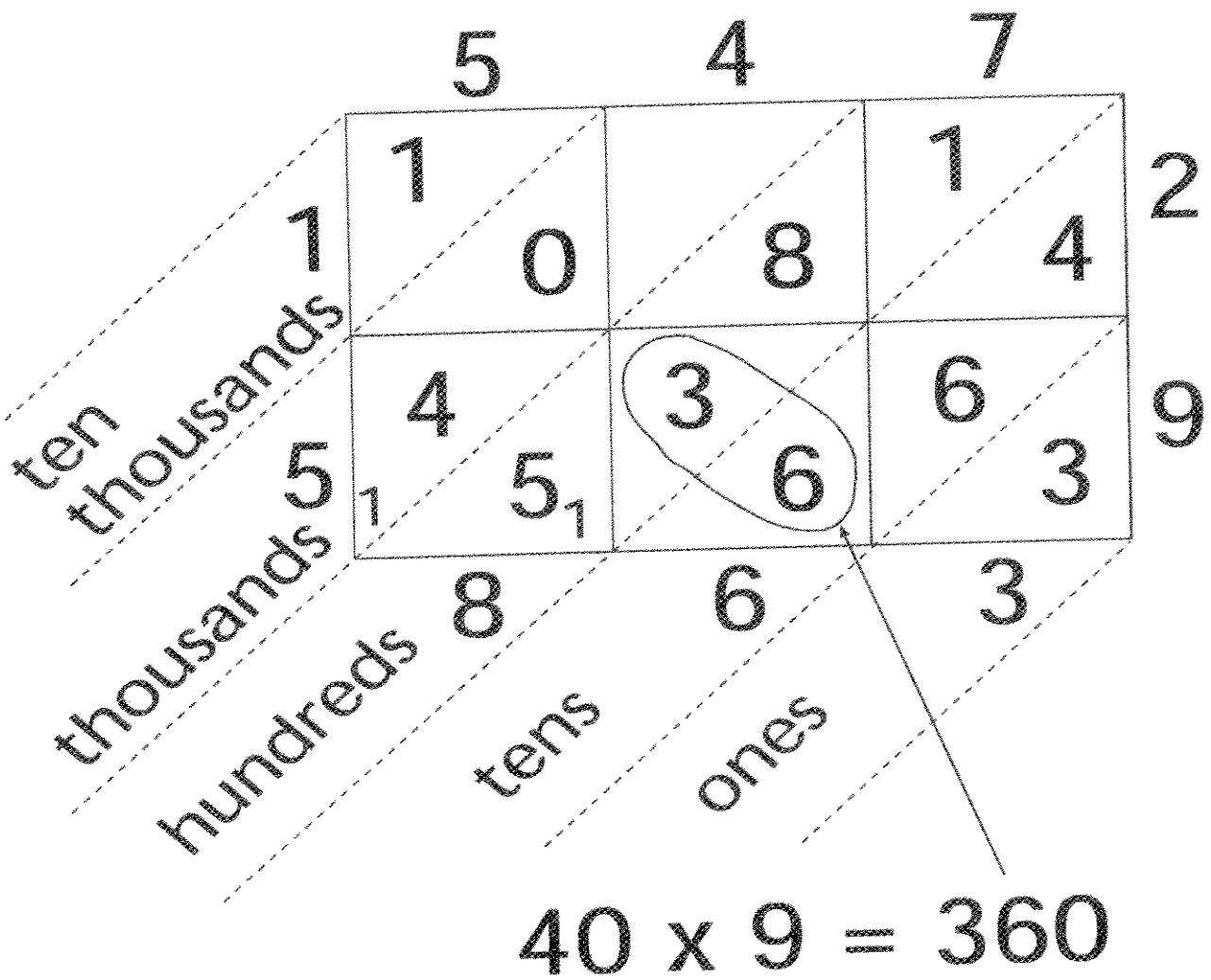
Lattice Multiplication



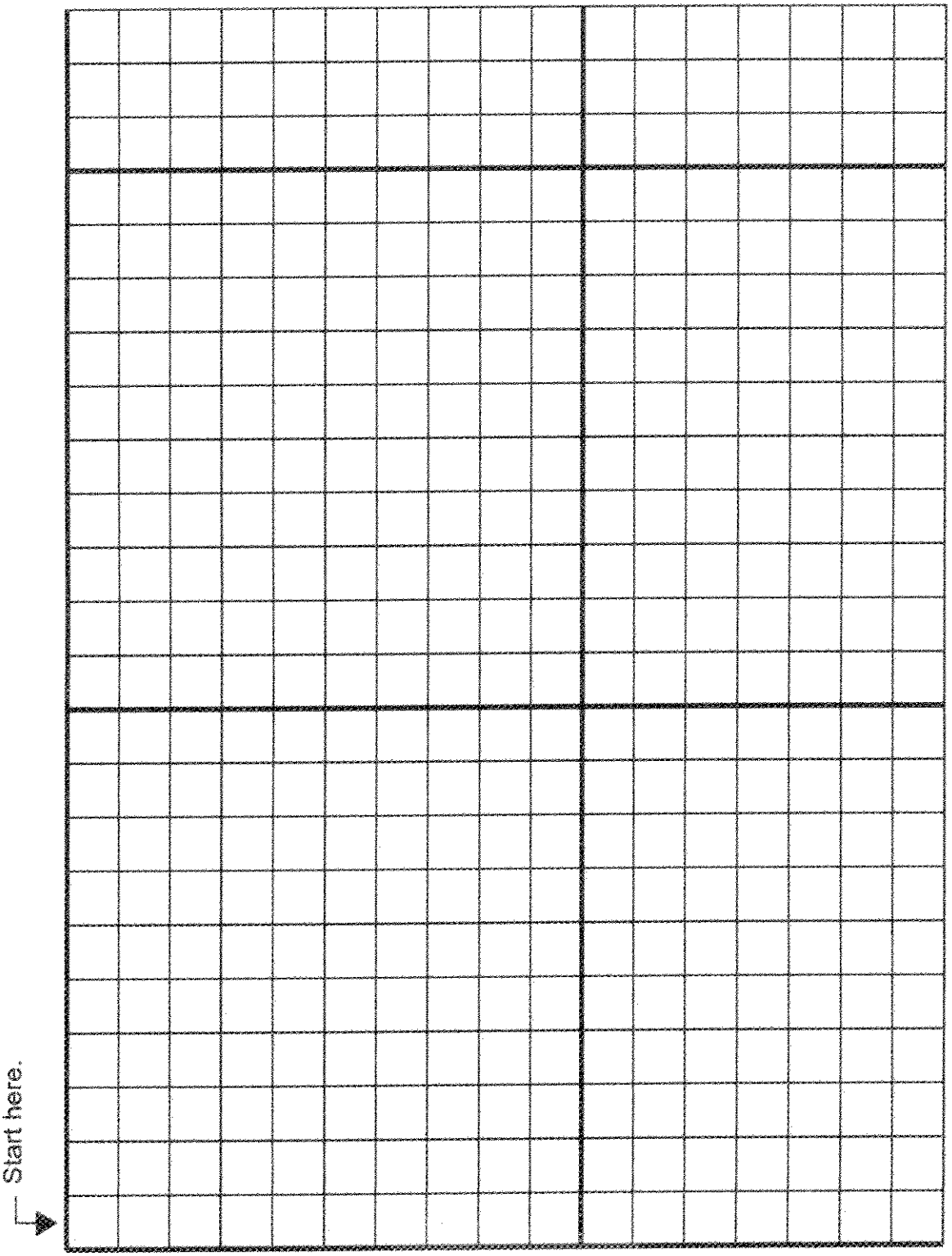
Place Value in Lattice Multiplication



One Cell's Value



Array Grid



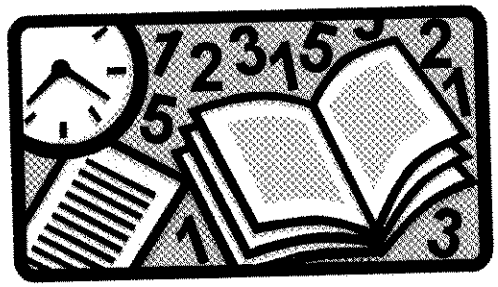
Array Multiplication

- What mathematical ideas or understanding does this game promote?

- What mathematics is involved in effective strategies for playing this game?

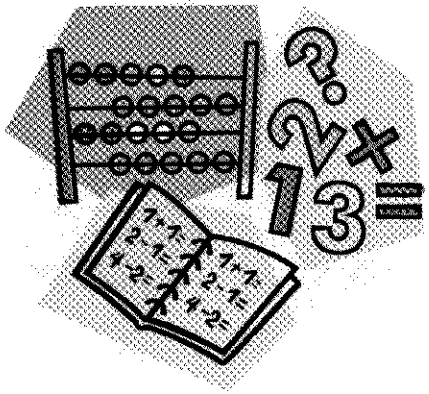
- What numerical understanding is involved in <u>scoring</u> this game?

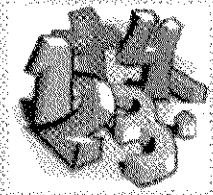
- How much of this game involves <u>mathematical skill verses luck</u>?



Whole Number Computational Fluency

Multiplication

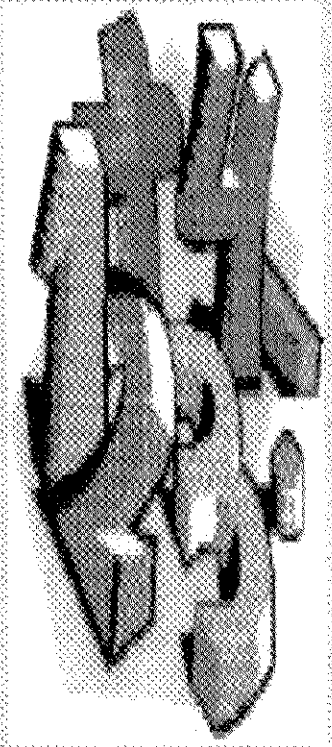




Computational Fluency...

- having efficient, flexible, & accurate methods for calculating
- knowing which method/tool is best to use for a given task

Computational Fluency



- **develops slowly over time**
- **requires an instructional shift**
  - **from** having students follow rote computational procedures *without* first understanding why they work
  - **to** requiring students to make sense of problem situations involving computation by exploring, reasoning, communicating, inventing procedures, & making connections

ALGORITHMS & COMPUTATIONAL FLUENCY

Algorithm—

- set-by-step procedure guaranteed to lead to a particular goal or objective
- enables one to solve an entire class of related problems
- used in daily life [ex. – shoe tying] & in mathematics [ex. - whole number computations]

Algorithmic Thinking involves—

- developing/inventing problem solving procedures
- understanding specific algorithms provided by others
- applying known algorithms to everyday problems
- adapting known algorithms to fit new situations
- understanding the limitations of algorithms & their procedures

ALGORITHMS & Everyday Mathematics

- **Instructional Phases:**
  - **inventing algorithms**
  - **exposure to various alternative algorithms**
  - **learning a *focus* (alternative) *algorithm* for each operation**
  - **choosing the approach that best fits the numbers**

- **Goal:**

  For each student to understand & be able to use at least one efficient algorithm for each operation

PARTIAL PRODUCTS

Focus Algorithm for Multiplication

$$
\begin{array}{r}
26 \\
\times\ 34 \\
\hline
600 \\
180 \\
80 \\
+\ 24 \\
\hline
884
\end{array}
$$

Workshop 2 Multiplication

1. Ice breaker activity sheet (Peculiarities)
2. PowerPoint presentation on algorithms used for multiplication
3. Brief "Where's the Mathematics" PowerPoint

Centers

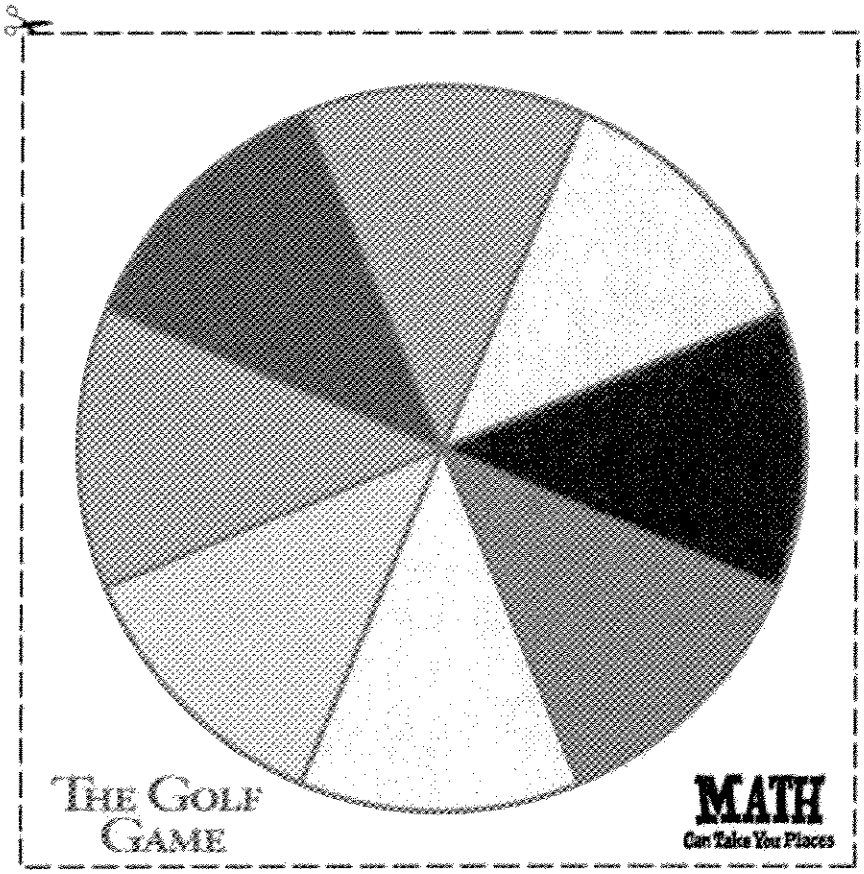
1. Multiplication Wrestling
   - Direction sheet
   - Deck of number cards
   - Calculator
2. Multiplication Coin Drop
   - Direction sheet
   - Chips/pennies
   - Playing mat
   - Slate board
   - Dry erase marker
3. Multiplication Baseball
   - Direction sheet
   - Dice
   - Game board
4. Multiplication Bulls Eye
   - Direction sheet
   - Number cards
   - 6-sided die
   - Calculator

Wrap up

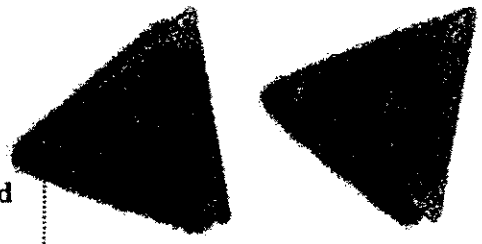
- Prepared take home packets of game directions, necessary game sheets and suggested parent activities to do with children at home list.
- *Everyday Math* Playing cards and 6-sided dices as raffle giveaways
- Evaluation Forms

The Golf Game

Make Your Own Spinner



Do-Anytime Activities for Grades 4–6



Mathematics means more when it is rooted in real-life situations. The following activities allow children to practice mathematics skills while riding in a car, doing chores, helping with shopping, and performing other everyday routines. These "do-anytime" activities are organized by topic and grade level.

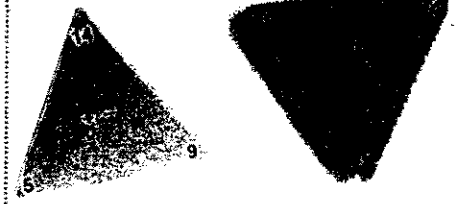
Addition, Subtraction, Multiplication, and Division

❹ Continue working on multiplication and division facts by using Fact Triangles and fact families or by playing games in the *Student Reference Book*.

❹ Give your child multidigit numbers to add and subtract, such as 427 + 234, 72 − 35, and 815 − 377.

❺ Practice extending multiplication facts. Write each set of problems so that your child may recognize a pattern.

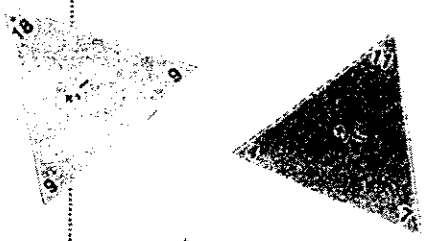
Set A	6 * 10	6 * 100	6 * 1,000
Set B	5 * 10	5 * 100	5 * 1,000
Set C	10 [7s]	100 [7s]	1,000 [7s]



❺ When your child adds or subtracts multidigit numbers, talk about the strategy that works best. Try not to impose the strategy that works best for you! Here are some problems to try:

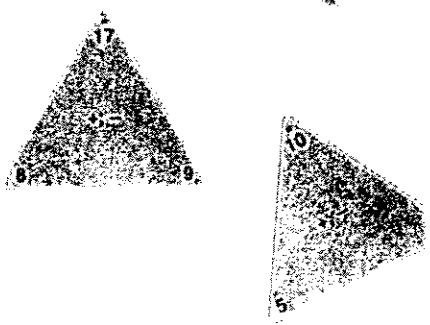
467 + 343 = _____ _____ = 761 + 79

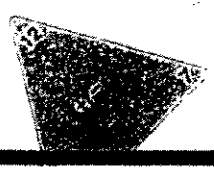
894 − 444 = _____ 842 − 59 = _____



❻ Consider allowing your child to double or triple recipes for you whenever you are planning to do that. Watch your child to make sure he or she does the math for every ingredient. Or your child can halve a recipe if your cooking plans call for smaller amounts.

❻ Have your child calculate the tip of a restaurant bill through mental math and estimation. For example, if the bill is $25 and you intend to tip 15%, have your child go through the following mental algorithm: 10% of $25.00 is $2.50. Half of $2.50 (5%) is $1.25. $2.50 (10%) + $1.25 (5%) would be a tip of $3.75 (15%). The total amount to leave on the table would be $28.75.

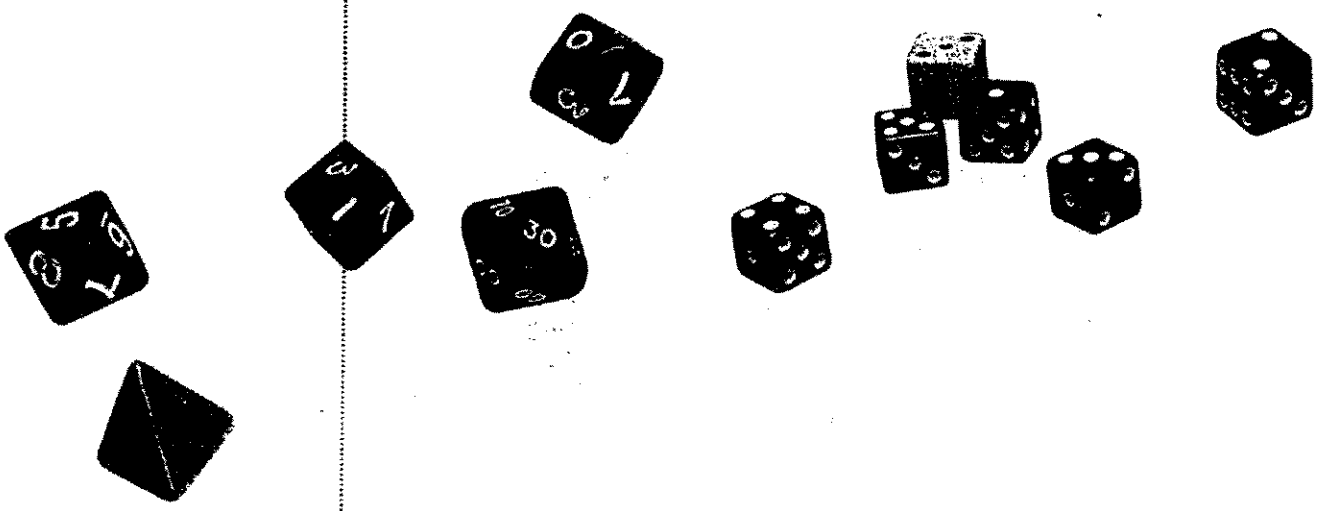




5. Have your child keep a running tally of when the school bus arrives. Or have your child time him- or herself to see how long it takes to walk to school in the morning compared to walking home in the afternoon. After a week, have your child plot the times, look for variations, and try to describe the times by using an equation.

6. While playing a game that uses a die, keep a tally sheet of how many times a certain number lands. For example, find how many times during the game the number 5 comes up. Have your child write the probability for the chosen number. ($\frac{1}{6}$ is the probability that any given number on a six-sided die will land.) The tally sheet should show how many times the die was rolled during the game and how many times the chosen number came up.

6. Watch with your child for events that occur without dependence on any other event. In human relationships, truly independent events may be difficult to isolate, but this observation alone helps to define the random events in games. Guide your child to see the difference between dependent events and random events. For example, "Will Uncle Mike come for dinner?" depends on whether or not he got his car fixed. However, "Will I get heads or tails when I flip this coin?" depends on no other event.



Geometry Explorations

❹ Help your child recognize and identify real-world examples of right angles (the corner of a book) and parallel lines (railroad tracks).

❹ Encourage your child to identify and classify acute (less than 90°), obtuse (between 90° and 180°), right (90°), straight (180°), and reflex (between 180° and 360°) angles in everyday things (the architecture of a building, a bridge, a ramp, or a house).

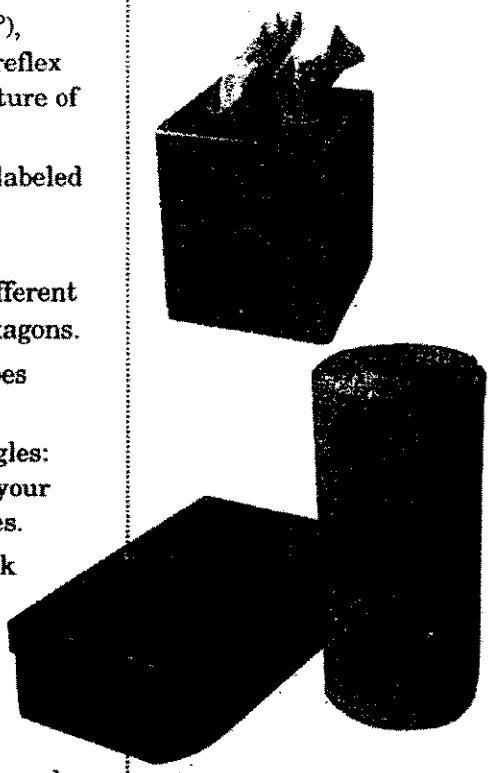
❹ Have your child compile a shapes portfolio or create a collage of labeled shapes. Images can be taken from newspapers, magazines, and photographs.

❺ When you are at home or at a store, ask your child to identify different types of polygons, such as triangles, squares, pentagons, and hexagons.

❺ Ask your child to identify 2-dimensional and 3-dimensional shapes around the house.

❻ Ask your child to find apparent right angles or other types of angles: acute (less than 90°) and obtuse (between 90° and 180°). Guide your child to look particularly at bridge supports for a variety of angles.

❻ While you are driving in the car together, direct your child to look for congruent figures (figures with the same size and shape): Windows in office buildings, circles on stop lights, many street signs, and so on, are all congruent figures.



Patterns and Algebra Concepts

❹ Have your child look for frieze patterns on buildings, rugs, floors, and clothing. Have your child make sketches of friezes that he or she sees.

❹ If your child has an interest in music, encourage him or her to study the mathematical qualities of the patterns of notes and rhythms. Composers of even the simplest tunes use reflections and translations of notes and chords (groups of notes).

❺ Review tessellations with your child. Encourage your child to name the regular tessellations and to draw and name the eight semiregular tessellations. Challenge your child to create nonpolygonal Escher-type translation tessellations. You may want to go to the library first and show your child examples of Escher's work.

Data, Chance, and Probability

❹ Help your child look up the population and land area of the state and city in which you live and compare these facts with those of other states and cities.

❹ Encourage your child to recognize the language of probability used in everyday situations, such as weather reports and scientific findings. Have your child make a list of things that could never happen, things that might happen, and things that are sure to happen.

❺ Visit the Web site for the U.S. Bureau of the Census at http://www.census.gov/. Have your child write three interesting pieces of information that he or she learned from the Web site.

Fractions, Decimals, and Percents

❹ Have your child look for everyday uses of fractions and percents. Areas to explore would be games, grocery or fabric stores, cookbooks, measuring cups and spoons, the evening news, and statistics in newspapers.

❹ Encourage your child to incorporate such terms as *whole, halves, thirds,* and *fourths* into his or her everyday life.

❺ Write whole numbers and decimals for your child to read, such as 650 *(six hundred fifty)* and 42.5 *(forty-two and five-tenths).* Ask your child to identify digits in the various places—thousands place, hundreds place, tens place, ones place, tenths place, hundredths place, and thousandths place.

❺ Help your child identify advertisements in signs, newspapers, and magazines that use percents. Help your child find the sale price of an item that is discounted by a certain percent. For example, a $40 shirt that is reduced by 25% is $30.

❻ Encourage your child to incorporate the vocabulary of fractions and decimals into his or her everyday speech. Make sure he or she understands that one-tenth is equivalent to 10%; quarter, to 25%; three-quarters, to 75%; and so on.

❻ Encourage your child to read nutrition labels. Have him or her calculate the percent of fat in the item.

$$\frac{\text{fat calories}}{\text{total calories}} = \frac{\text{percent of fat (?)}}{100\%}$$

Your child should use cross-multiplication to solve the problem.

Measurement

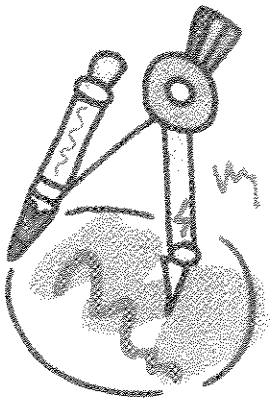
❹ Work with your child on drawing a scale map of your city, town, or neighborhood, or have your child do a scale drawing of the floor plan of your house or apartment.

❺ Encourage your child to develop his or her own set of personal measures for both metric and U.S. customary units.

❺ Encourage your child to create his or her own mnemonics, or sayings, to help in remembering conversion measurements. Start with "A pint's a pound the world 'round," and have your child create his or her own from there.

❻ If you have carpentry hobbies, consider allowing your child to measure, cut, or add and subtract measures for you. Expect him or her to be able to measure to the nearest eighth of an inch and to be able to add and subtract such measures.

❻ If you are planning to paint or carpet a room, consider allowing your child to measure and calculate the area. Have him or her write the formula for Area (Area = length * width) and show you the calculations. If the room is an irregular shape, divide it into separate rectangular regions, and have your child find the area of each one. If a wall has a cathedral ceiling, imagine a line across the top of the wall to form a triangle. Your child can use the formula $\frac{1}{2}$ * base * height = A to calculate the area of the triangle.



Parent Training

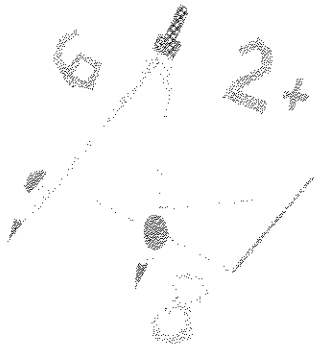
Entrenamiento para Padres

Evaluation

Evaluación

Date:

Fecha: _____



Please circle the appropriate response to each of the following:

	Strongly Agree				Strongly Disagree
The presentation was nicely organized.	1	2	3	4	5
Visual aids were well designed and used effectively.	1	2	3	4	5
The speaker used good presentation skills.	1	2	3	4	5
The speaker appropriately involved the audience.	1	2	3	4	5
Participants' questions were answered satisfactorily.	1	2	3	4	5
The presentation met my expectations.	1	2	3	4	5

1. **What did you learn from or like best about the training?**
   ¿Qué aprendió o le gustó más del entrenamiento?

2. **What information or ideas will you use to help your child?**
   ¿Qué información o ideas va a poner en práctica para ayudar a sus hijos?

3. **What could have been better?**
   ¿Qué podemos mejorar de este entrenamiento?

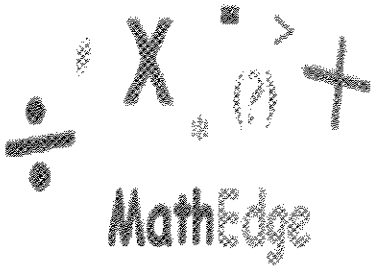
4. **What other trainings would you like?**
   ¿Qué otros entrenamientos le gustaría?

Math Workshops

Fun & Learning

4th Grade Parents & Children
Come and join us for current information and helpful ways to help your child succeed in math.

Date:
Time: 6:00-8:00
Place: School Cafeteria



Light Supper Door Prizes
Make & Take

_____Yes, I will be able to attend the math workshop

Parent's Name _____ babysitting needed_____

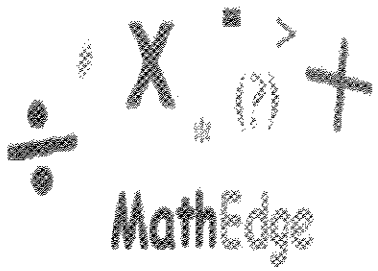
Student's Name _____

Taller de Matemáticas

Diversión y Aprendizaje

Padres del 4° grado y sus hijos
Vengan a reunirse con nosotros para
información de maneras utiles para
ayudar a su hijo(a) tener exito
en la matemáticas.

Fecha:
Horario: 6:00-8:00
Lugar: La Cafeteria escolar



Una cena breve Premios
Hacer y llevar ejemplos

_____Sí, podre asistir el taller de matemáticas.

Nombre del padre _____

Necesita cuidado de ninos _____

Nombre del estudiante _____

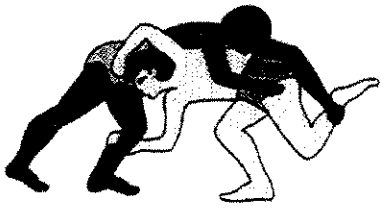
Parent Response Form
Workshop

Family Name	Homeroom Teacher	Babysitting Needed

Welcome, Please Sign In
Workshop #

Parents Name	Students Name	Homeroom Teacher

Multiplication Wrestling



Materials: a deck of 0–9 number cards (4 of each number for a total of 40 cards)

Number of players: 2

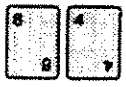
Object of the game: To get the largest product of two 2-digit numbers.

Directions: Shuffle the deck of cards and place it facedown. Each player draws 4 cards and forms two 2-digit numbers. There are many possible combinations of 2-digit numbers. Each player must pick a pair of numbers to use.

Example:

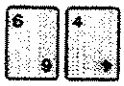
Player 1

Form 75

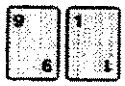


Form 84

Player 2



Form 64



Form 91

Each player creates two "wrestling teams" by writing each number as a sum of tens and ones.

	Player 1:	*Player 2:*
	75 * 84	64 * 91
Teams:	(70 + 5) * (80 + 4)	(60 + 4) * (90 + 1)

Next, each player's two wrestling teams wrestle each other in this way: Each member of the first team (for example, 70 and 5) is multiplied by each member of the second team (for example, 80 and 4). Then the four products are added.

Player 1:

(70 + 5) * (80 + 4)

(70 * 80) + (70 * 4) + (5 * 80) + (5 * 4) =

5600 + 280 + 400 + 20 = 6300

```
5600
 280
 400
+ 20
-----
5000
1200
 100
-----
6300
```

Multiplication Wrestling (continued)

Player 2:

$$(60 + 4) * (90 + 1)$$

$$(60 * 90) + (60 * 1) + (4 * 90) + (4 * 1) =$$

$$5400 + 60 + 360 + 4 = 5824$$

$$\begin{array}{r} 5400 \\ 60 \\ 360 \\ +\quad 4 \\ \hline 5000 \\ 700 \\ 120 \\ 4 \\ \hline 5824 \end{array}$$

The player with the larger result wins the round. To find the winner's score, subtract the loser's result from the winner's result and record the difference on a score sheet like the one below. For example, Player 1 scores 476 points because 6300 – 5824 = 476. Player 2 scores no points.

Players' Names:	*Player 1*	*Player 1*
Round 1	*476*	*0*
Round 2		
Round 3		
Total		

In each round, each player forms two new numbers. Decide ahead of time on how many rounds or how long to play. At the end of the game, players add their scores. The player with the largest total wins.

Players may use a calculator to find the winner's score for a round and their total score for the game. They may also use a calculator to check a player's score for a round by multiplying the two numbers. (For example, to check Player 1's score, multiply 75 * 84.)

Multiplication Coin-Drop

Materials: 5 pennies per player, another 5 pennies per player to be in the bank, playing mat, slate
Number of players: 2-4
Directions: Each player starts with five pennies. Place the playing mat on a soft, flat surface. In each round, players drop one of their pennies onto the game mat from about 1 foot above the mat. If the penny lands on a line between squares, the player moves the penny to either of the two squares. If the penny lands so that it touches more than one square, the player must decide which of the squares to use. If the penny does not land on the mat or lands on a square that already has a penny on it, the player tries again.

On their slates, players write the product of the numbers in the square on which their penny landed. The player with the highest product takes a penny from the bank.

Leave the coins on the mat and play another round. The player with the most counters at the end of 5 rounds wins the game.

Division Coin Drop

Materials: 5 pennies per player, another 5 pennies per player to be in the bank, playing mat, slate
Number of players: 2-4
Directions: *Division Coin Drop* is played in the same way as *Multiplication Coin Drop* except that the player with the highest quotient wins a round.

Multiplication Coin Drop Playing Mat

5 * 2	3 * 4	7 * 3	6 * 2	3 * 5	5 * 1
4 * 7	8 * 4	6 * 5	3 * 9	7 * 5	8 * 6
1 * 9	6 * 6	3 * 2	2 * 7	3 * 3	8 * 9
7 * 7	6 * 4	5 * 9	8 * 4	3 * 6	4 * 4
2 * 2	4 * 3	2 * 8	3 * 6	5 * 6	4 * 7
5 * 5	8 * 7	3 *7	9 * 9	2 * 2	5 * 8
9 * 4	2 * 4	8 * 8	2 * 9	7 * 9	4 * 5
5 * 7	6 * 7	5 * 3	4 * 2	6 * 9	6 * 7

Multiplication Coin Drop Playing Mat (Advanced)

30 * 4	3 * 500	5 * 20	60 * 2	70 * 3	500 * 1
80 * 300	700 * 5	4 * 70	3 * 900	6 * 50	800 * 60
60 * 40	3 * 600	70 * 7	800 * 4	50 * 9	400 * 4
400 * 3	50 * 6	20 * 20	30 * 6	20 * 8	400 * 7
80 * 7	2 * 200	50 * 50	90 * 90	300 * 70	50 * 8
2 * 40	70 * 90	900 * 40	2 * 900	800 * 8	4 * 50
600 * 6	30 * 300	100 * 9	20 * 7	30 * 20	80 * 9
600 * 7	6 * 900	50 * 700	40 * 20	50 * 3	6 * 700

Basic Game:

Materials:

- 1 Baseball Multiplication Record Sheet (Game Master 5)
- 8 pennies (or counters) for each partnership or small group
- 2 regular dice
- 1 Multiplication/Division Facts Table (Game Master 6) or a calculator (optional)

Number of Players:

Two (2) equal-sized teams

Directions:

Someone flips a coin to decide which team "bats" first. The game rules are similar to the rules for baseball. But here a game lasts seven innings or until time runs out. In each inning, each team bats until it has made three outs. The team with the most run when the game is over wins.

Pitching and Batting: Dice rolls correspond to baseball pitches. Members of the pitching team take turns being "pitcher" by rolling the two dice. Players on the batting team take turns being "batter" by multiplying the two numbers on the dice and giving the product. Batters can ask others on their team for help.

Players on the pitching team check the batter's solution by using a Multiplication/Division Facts Table or a calculator (optional). If the solution is correct, depending on the size of the product, the batter either pops "out" or moves a penny along the diamond for a single, double, triple, or home run (see Scoring Chart below). An incorrect solution is a "strike," and another pitch (dice roll) is thrown. Three strikes make an out.

How runs are scored: When a player hits a single, he or she moves a penny to first base; for a double, the move is to second base; for a triple, third base; and for a home run, all the way around the bases. Any pennies already on bases are

moved ahead of the batter's penny by the same number of bases.

A run is scored every time a penny crosses home plate.

SCORING CHART (for regular dice)

36 =Home run	6-15 =Single (go to 1st
26-35 =Triple	5 or lessbase)
16-25 =Double	=Out (record an out)

How an out is made: An out is made when a batter has three strikes (errors)--or when the product of a two-dice throw (roll) is 5 or less.

Keeping score: For each inning, players keep track of the runs scored and the outs made in the Runs and Outs columns on Game Master 5. At the end of each inning, players record the total runs for that inning on the Scoreboard. (For future games, children can use slates or scratch paper.)

To win: The team with the most runs at the end of seven innings, or when time runs out, wins.

Baseball Multiplication Record Sheet
(Game Master 5)

Scoreboard

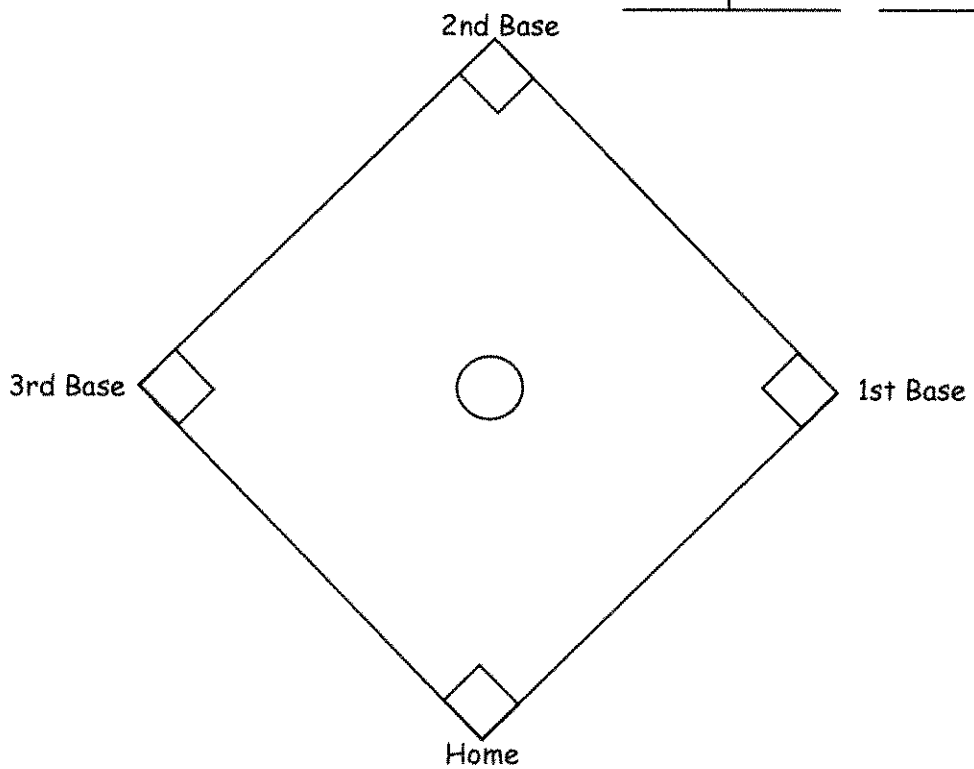
Inning	1	2	3	4	5	6	7
Team 1							
Team 2							

Runs and Outs Table

Team 1		Team 2	
Runs	Outs	Runs	Outs

Scoring Chart
(for regular dice)

36 = Home run (score a run)
26-35 = Triple (go to 3rd base)
16-25 = Double (go to 2nd base)
6-15 = Single (go to 1st base)
5 or less = Out (record an out)



Multiplication Bullseye

Materials: number cards (4 each of the numbers 0 through 9), a 6-sided die, a calculator
Number of players: 2
Directions: Shuffle the cards and place them facedown on the playing surface. The players will take turns.
At each turn the player will:
1. Roll the die. Look up the target range of the product in the table.

Number on Die	Target Range of Product
1	500 or less
2	501- 1000
3	1001- 3000
4	3001- 5000
5	5001- 7000
6	More than 7000

2. Draw 4 cards from the top of the deck.
3. Use the cards to try to form 2 numbers whose product falls within the target range. **Please Do Not Use a Calculator.** You need not use all 4 cards and you may not begin with 0.
4. Use the calculator to multiply the 2 numbers to determine whether the product falls within the target range. If it does, you have hit the bull's-eye and score 1 point. If it doesn't, you score 0 points.

The game ends when each player has had 5 turns. The player with the most points wins the game.

Sample turn

A player:
Rolls a 2. The target range of the product is between 501- 1000.
The player turns over a 5, 7, 2, and 9 from the deck of cards.
The player uses estimation to try to form 2 numbers whose product falls within the range- for example, 72 and 9.
The player finds the product to be 648 on the calculator.
Since the product is between 501- 1000, the player has hit the bull's-eye and scores 1 point.

Activities To Do With Your Children At Home

1. Continue working on Multiplication Facts by using Fact Triangles, and or by playing games that the children learned in school.

2. Allow your children to help with the cooking. Have the double or triple the recipes you are cooking.

3. Have your child calculate the tip of a restaurant bill through mental math and estimation. Ex. – 10% of a $25.00 dollar bill would be $2.50 then 20% would be $5.00

4. Use the daily newspaper to have your child find anything to do with math. Ex. Sale prices, have the children figure out the cost after taking off the discount.

5. Encourage the use of math vocabulary in their everyday life.

6. Read nutrition labels with your child. Calculate the amount of fats or vitamins in each item.

7. Help your child recognize and identify real world examples of different shapes and angles.

8. Have your child make a shape portfolio by collecting pictures of different shapes from either magazines or newspapers.

9. Ask your child to find two and three dimensional shapes around the house.

10. Using the computer have your child look up the population and land area of New Jersey and compare these facts with other places in the United States.

11. Have your child explain the different ways of doing a problem and then try to do and practice them with the children.

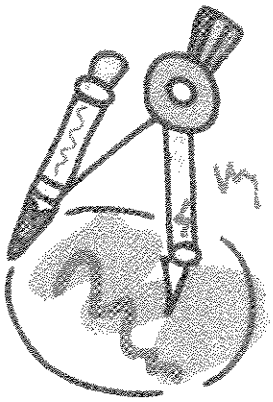
12. Encourage your child to incorporate the vocabulary of fractions and decimals into his or her everyday speech. Make sure he or she understands that one-tenth is equivalent to 10%, quarter is 25%, and three-quarters is 75% and so on.

13. Help the children to make a floor plan of your house. Help them to figure out the area and perimeter of each of the rooms.

14. Have lists of the measurements around the house. Keep reviewing the conversions of the measurements.

15. If Dad is doing some carpentry work have the children help to measure and then add or subtract the measures.

16. Visit the website for the U.S. Bureau of the Census at . and have your child write down three interesting pieces of information that he or she learned from the Web site.



Parent Training

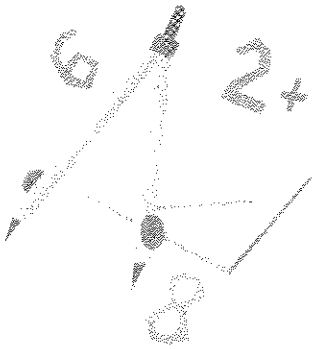
Entrenamiento para Padres

Evaluation

Evaluación

Date:

Fecha: _____



Please circle the appropriate response to each of the following:

	Strongly Agree				Strongly Disagree
The presentation was nicely organized.	1	2	3	4	5
Visual aids were well designed and used effectively.	1	2	3	4	5
The speaker used good presentation skills.	1	2	3	4	5
The speaker appropriately involved the audience.	1	2	3	4	5
Participants' questions were answered satisfactorily.	1	2	3	4	5
The presentation met my expectations.	1	2	3	4	5

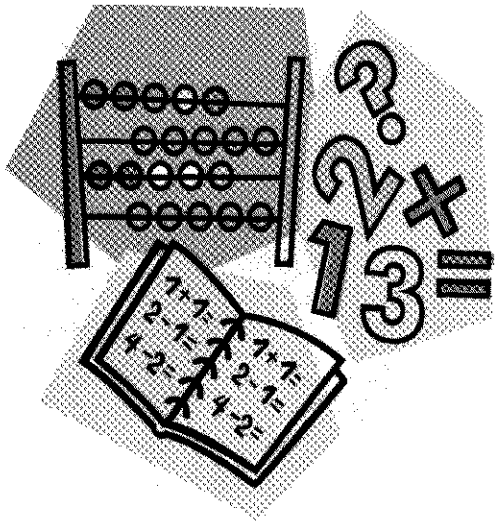
1. **What did you learn from or like best about the training?**
   ¿Qué aprendió o le gustó más del entrenamiento?

2. **What information or ideas will you use to help your child?**
   ¿Qué información o ideas va a poner en práctica para ayudar a sus hijos?

3. **What could have been better?**
   ¿Qué podemos mejorar de este entrenamiento?

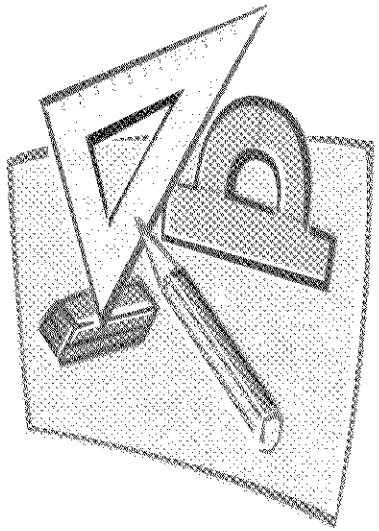
4. **What other trainings would you like?**
   ¿Qué otros entrenamientos le gustaría?

Where's the



Mathematics?

Which method do you like best?



The End

Workshop 3 Division

1. Ice Breaker Activity (Constructive Feedback)
2. PowerPoint presentation on algorithms used for Division
3. Brief "Where's the Mathematics" PowerPoint

Centers

1. Division Top It
   - Direction sheet
   - Deck of cards numbers 1-10
2. Division Dash
   - Direction sheet
   - Calculator
   - Score sheet
3. Getting To One
   - Direction sheet
   - Calculator
4. The Golf Game
   - Direction sheet
   - Spinner
   - Map of golf course
   - Score card
   - Centimeter cubes
   - Paper and pencil

Wrap up

- Prepared take home packets of game directions, necessary game sheets and Parent Do-Anytime Activities Pack.
- *Everyday Math* Playing cards and calculators as raffle giveaways
- Evaluati

Constructive Feedback

Group size 6 to 12

Estimated time three to six minutes

Materials needed, 30 pieces of wadded paper

Your participants will value the benefits of constructive feedback as they try to accomplish a goal that is not possible without feedback from their peers. It works best with several small groups of people who can all participate. Conceptual thinkers will make the most of the activity if you ask them to draw conclusions, concrete thinkers will appreciate the experimental demonstration.

Instructions; ask for one volunteer. When that person comes forward, position the volunteer in a standing position and place an empty cardboard box somewhere behind him or her, but not directly behind. Place the 30 pieces of wadded paper within reach of the volunteer.

Explain to the group that their job is to give clues to the volunteer that will help him or her to throw the wads into the cardboard box without turning around.

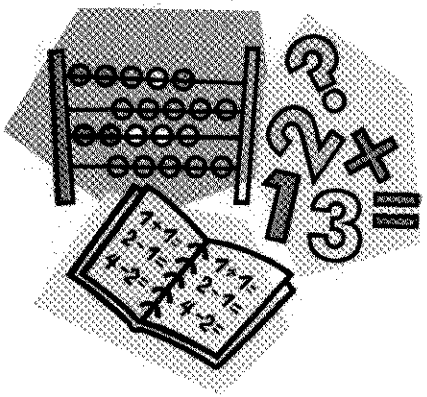
Give examples of clues such as, "a little further to the left".

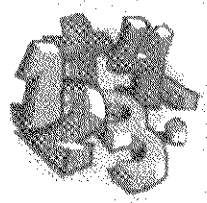
Begin the activity. About half way through, remind the volunteer of some of the clues given. Ask which ones were actually helpful and why that was true. Keep the activity going until the volunteer has successfully thrown three wades into the cardboard box. Ask the group to describe what is true about feedback based on what occurred in the exercise.

Explain feedback was expected and welcomed. One person and could not make the goal in a timely manner, without hearing other perspectives and suggestions. When the goal was accomplished, everyone participated in enjoying the success. This is the same when groups of work in a collaborative manner during mathematics.

Whole Number Computational Fluency

Division

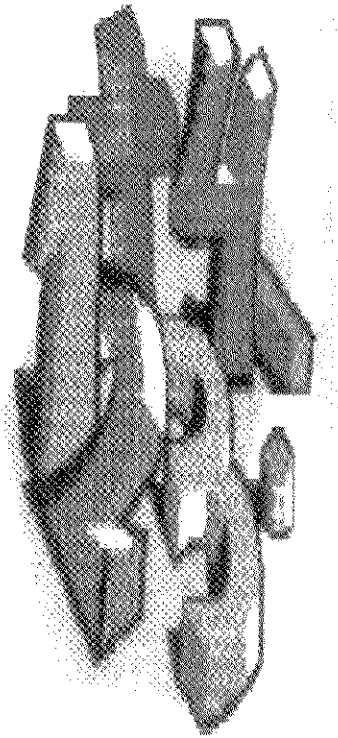




Computational Fluency...

- having efficient, flexible, & accurate methods for calculating
- knowing which method/tool is best to use for a given task

Computational Fluency



- **develops slowly over time**
- **requires an instructional shift**
  - **from** having students follow rote computational procedures *without* first understanding why they work
  - **to** requiring students to make sense of problem situations involving computation by exploring, reasoning, communicating, inventing procedures, & making connections

ALGORITHMS & COMPUTATIONAL FLUENCY

Algorithm—

- set-by-step procedure guaranteed to lead to a particular goal or objective
- enables one to solve an entire class of related problems
- used in daily life [ex. – shoe tying] & in mathematics [ex. - whole number computations]

Algorithmic Thinking involves–

- developing/inventing problem solving procedures
- understanding specific algorithms provided by others
- applying known algorithms to everyday problems
- adapting known algorithms to fit new situations
- understanding the limitations of algorithms & their procedures

ALGORITHMS & Everyday Mathematics

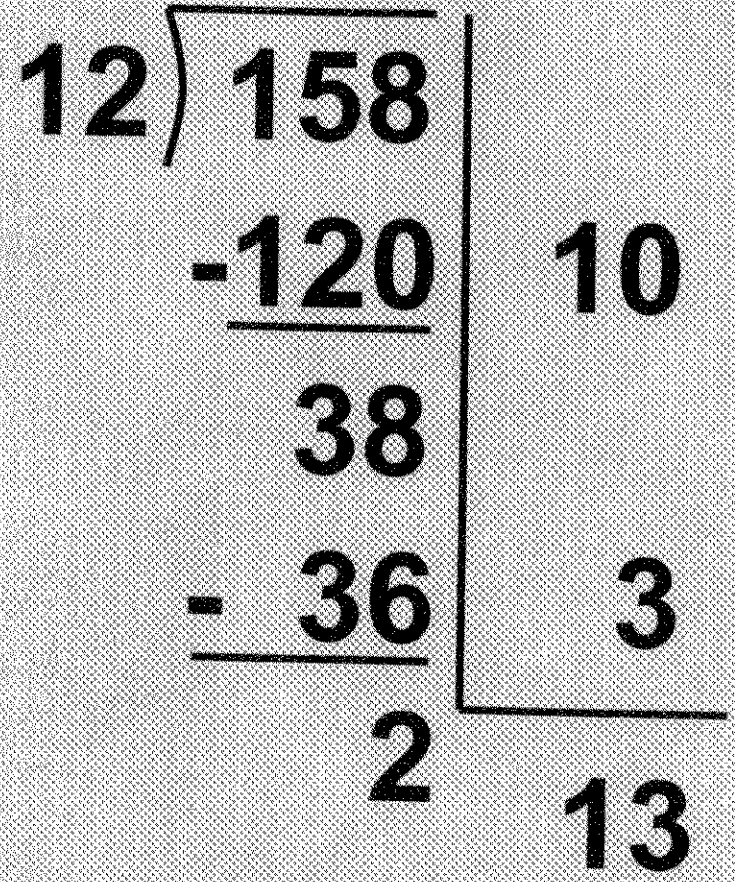
- **Instructional Phases:**
  - inventing algorithms
  - exposure to various alternative algorithms
  - learning a ***focus*** *(alternative)* ***algorithm*** for each operation
  - choosing the approach that best fits the numbers

- **Goal:**

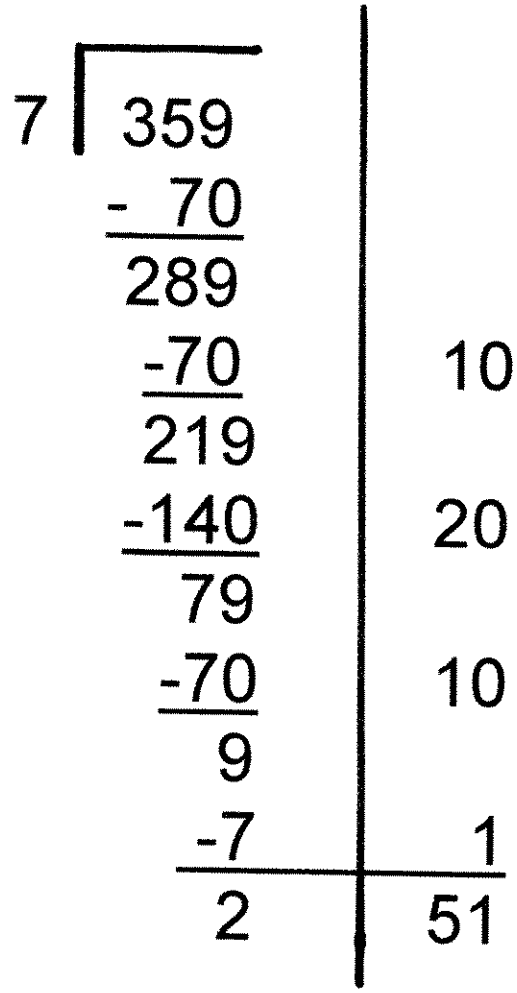
  For each student to understand & be able to use at least one <u>efficient</u> algorithm for each operation

PARTIAL QUOTIENTS

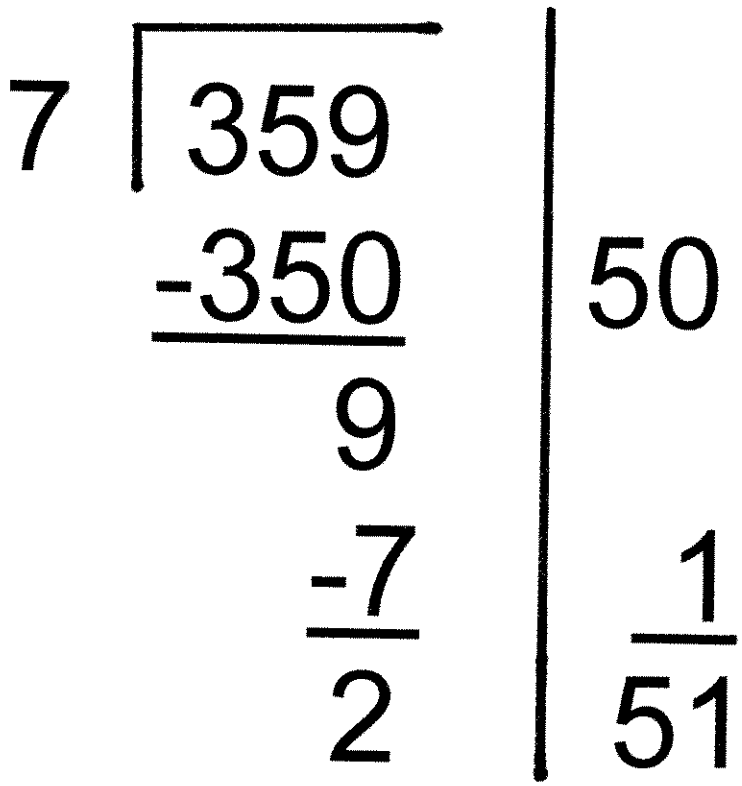
Focus Algorithm for Division



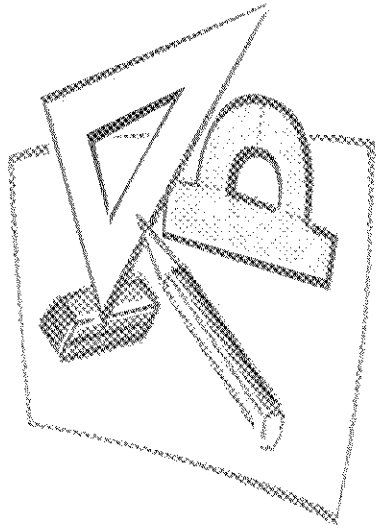
Low-Stress Division



Low Stress Division

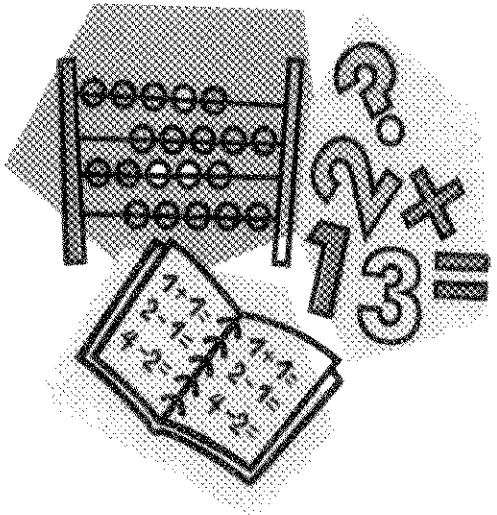


Which method do you like best?



The End

Where's the



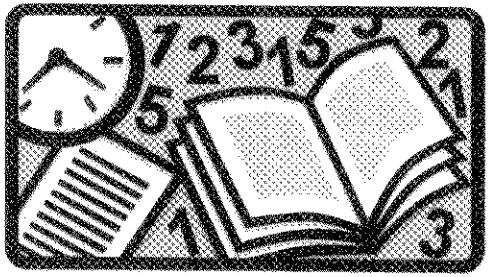
Mathematics?

- What mathematical ideas or understanding does this game promote?

- What mathematics is involved in effective strategies for playing this game?

- What numerical understanding is involved in scoring this game?

- How much of this game involves mathematical skill verses luck?



Everyday Math Games Grades 4-6

Top It: Addition, Subtraction, Multiplication, Division, Addition & Subtraction With Positive & Negative Numbers

Addition Top It

Materials:

* 1 deck of cards with 4 each of the numbers 1 through 10

Number of Players:

Two (2) to Four (4)

Object of the game:

To collect the most cards.

Directions:

Shuffle the cards and place the deck number-side down on the playing surface.

Each player turns over 2 cards and calls out the sum of the 2 numbers. The player with the largest sum wins the round and takes all the cards. In case of a tie for the largest sum, each tied player turns over 2 more cards and calls out the sum. The player with the highest sum wins the round and takes all the cards from both plays.

Answers can be checked with an Addition Table or with a calculator.

Play continues until there are too few cards left for each player to have another turn. The player who took the most cards wins. Or, players may toss a penny to determine whether the player with the most or the fewest cards wins.

Variation:

Each player turns over 3 cards and finds the sum.

Advanced Version:

Players turn over 4 cards, form two 2-digit numbers, and find the sum. Players should consider how they form their numbers since different arrangements have different sums. For example, a player turns over 2, 5, 7, and 4. 74 + 52 has a greater sum than 25 + 47.

Division Top-It

Each player turns over 3 cards and uses them to generate division problems as follows:

* Choose 2 cards to form the dividend.
* Use the remaining card as the divisor.

Divide and drop the remainder. The player with the largest quotient wins the round and takes all the cards.

Advanced Version:

Turn over 4 cards and choose three of them to form a 3-digit number. Divide it by the remaining number. The arrangement of the numbers may result in a greater quotient. For example: 462/5 is greater than 256/4, but 654/2 is even greater.

Division Dash

Materials: A calculator for each player

Number of Players: 1 or 2

Object of the Game: To reach 100 or more

Directions:

1. Each player chooses a number at least three digits long and enters it into the calculator.

2. Each player presses the square-root key [$\sqrt{\ }$]. If the number in the display has only one or two digits, start over. If the final digit is 0, start over.
   Each player uses the final digit as the **divisor** and the two digits before the final digit as the **dividend**.

3. Divide the dividend by the divisor. Record the whole-number part, or **quotient**. Ignore the leftover part, the **remainder**. Players calculate mentally or on paper, not on the calculator.

4. Players take turns repeating Steps 2 and 3, starting with whatever number is in the display. Each player keeps track of the sum of his or her quotients. The first player to reach a sum of 100 or more wins.

Example: Player enters 5678.

	Quotients
Press $\sqrt{\ }$ and get 75.3 5 2 5 0 4 9 4 . Divide 49 by 4. Record the result. (12, ignoring the remainder)	12
Press $\sqrt{\ }$ again and get 8.6 8 0 5 8 2 0 6 2 . Divide 6 by 2. Record the result. (3)	3
Press $\sqrt{\ }$ again and get 2.9 4 6 2 8 2 7 5 3 . Divide 75 by 3. Record the result. (25)	25
	40

If there is only one player, the object of the game is to reach 100 or more by solving the fewest number of division problems.

Challenge Version:

Attach 0 to each divisor and dividend. For example, if the display is 2.946182827, the problem would be 820 divided by 70.

Player 1		Player 2	
Quotient	Score	Quotient	Score

Rules for *Getting to One* Game

Materials: calculator

Number of players: 2

Object of the game:
One player chooses a mystery number. The other player tries to guess the number in as few tries as possible. Players then trade roles. The player who guessed the mystery number in fewer tries wins the round.

Directions:
1. Player A chooses a mystery number less than 100.
2. Player A then secretly enters the number in the calculator and divides it by itself. For example, if the mystery number is 65, Player A enters 65[÷] 65 [=]. (on calculators with a [K] key, enter 65 [÷] 65 [K] [=].) The result should be 1.
3. Player B guesses the mystery number and, without clearing the calculator, enters the guess and [=] in the calculator.
   - If the calculator shows a number less than 1, then the guess was too low.
   - If it shows a number greater than 1, then the guess was too large.
   - If it shows a 1, then Player B guessed the mystery number.

Player B enters guesses until the result is 1. Player A keeps track of the number of guesses. **Do not clear the calculator until the number has been guessed.**

Example: Mystery number = 65

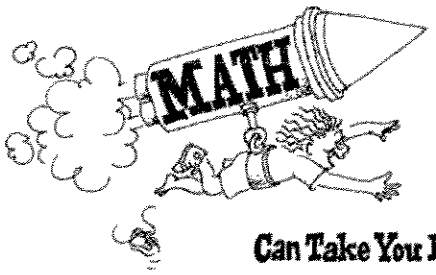
Player B enters:	**Calculator shows:**	
55 [=]	0.8461538	too small
70 [=]	1.076923	too big
67 [=]	1.0307692	too big, but closer
65 [=]	1	Just right!

It took Player B four tries to guess the mystery number.

Scoring:
One way is to play 5 rounds in which there were no ties. The player who won more rounds wins the game.

Another way is to play 5 rounds and to keep track of the number of guessesfor each round. The player with fewer guesses in all wins the game.

For a harder version of the game, allow mystery numbers up to 1000.



ACTIVITY 7
The Golf Game

***TEKS* 4.4** Number, operation and quantitative reasoning. The student multiplies and divides to solve meaningful problems involving whole numbers. The student is expected to: (**B**) represent multiplication and division situations in picture, word and number form.

Objective: The students' goal is to make their way down a fairway without overshooting the greens.

Number of students: Students can play in pairs or in groups of four.

Materials:

- Spinner
- Map of the golf course
- Score card
- Each player needs nine game pieces (centimeter cubes) of the same color.
- Paper and pencil

Steps:

Step 1: Spin the spinner. The person with the highest number goes first. Each player should have a score card.

Step 2: Look at the description of the first hole. How far is it to the flag? You will have a maximum of four strokes to reach the hole.

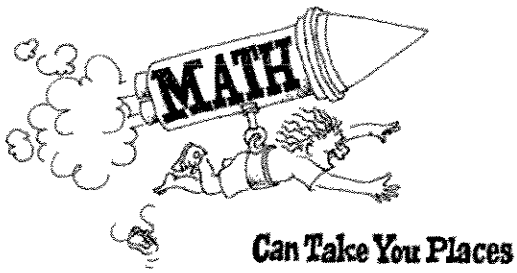
Step 3: Spin the spinner and record this number on the recording sheet.

Step 4: Choose a club. This can be any factor between 1 and 9. Once you choose a club, you can not change that number.

Step 5: Multiply the number of your club by your spin; this is the total distance of your first drive. Record that product or distance on your score card. Play continues with the golfer sitting to your left. That person will spin, choose a club and record the distance of his or her first drive (product) on his or her score card.

Step 6: On your next stroke, spin, choose a club and find the product. Add that product to the total on your first turn. Record this total under the column that says "Total after second stroke." Play continues with each golfer.

Step 7: The golfer who is closest to the flag after four strokes or fewer, without going over, wins the hole. Place your game marker on that green to show that you won that hole. The person who wins the most holes wins the game.



ACTIVITY 7
The Golf Game

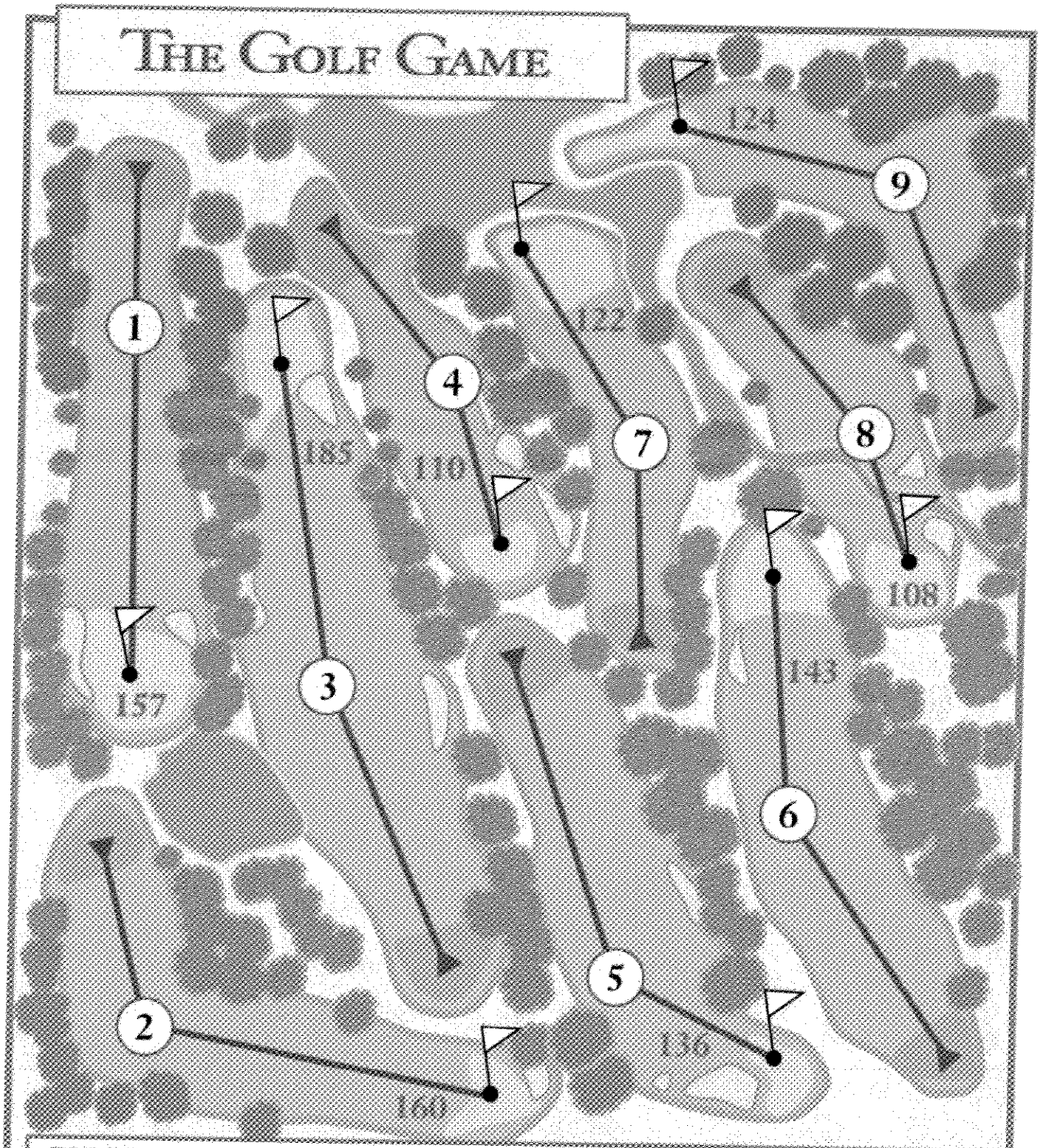
Example:

- The first player rolled a 6.
- He chose a 9 iron to use.
- 6 X 9 = 54 yards. He recorded 54 yards on his recording sheet.
- Player 2 goes. Play continues until someone reaches or is closest to the green, without going over.

Extensions/Modifications:

Teachers or students can create their own spinners with larger or smaller numbers, decimals, or fractions.

The Golf Game



RULES: Make your way down the course by keeping your ball in play.

1. Spin the spinner. The person with the highest number goes first. Each player should have a scorecard.
2. Look at the scorecard. How far is it to the hole? For example, the first hole is 157 yards away. You will have a maximum of four strokes to reach each of the holes.
3. Spin the spinner and record the number on scratch paper.
4. Choose a club. This can be any factor between 1 and 9. Once you choose, you cannot change that number.
5. Multiply your club by your spin; this is the total distance of your first drive. Record that distance (product) on your scorecard. Play continues with the golfer sitting on your left. That person will spin, choose a club, and record the distance (product) of his or her first drive on their score card.
6. On your next stroke, spin, choose a club and find the product. Add that product to the total on your first turn. Record this total under the column that says "Total after second stroke." Play continues with each golfer.
7. The golfer who is closest to the flag after four strokes or fewer, without going over, wins the hole. Place your game marker on that green to show that you won that hole. The person with the most holes wins the game.

The Golf Game

MATH Can Take You Places

	Distance (yards)	Total after Drive 1	Total after Stroke 2	Total after Stroke 3	Total after Stroke 4	Did you win this hole? Yes or No
Hole 1	157					
Hole 2	160					
Hole 3	185					
Hole 4	110					
Hole 5	136					
Hole 6	143					
Hole 7	122					
Hole 8	108					
Hole 9	124					

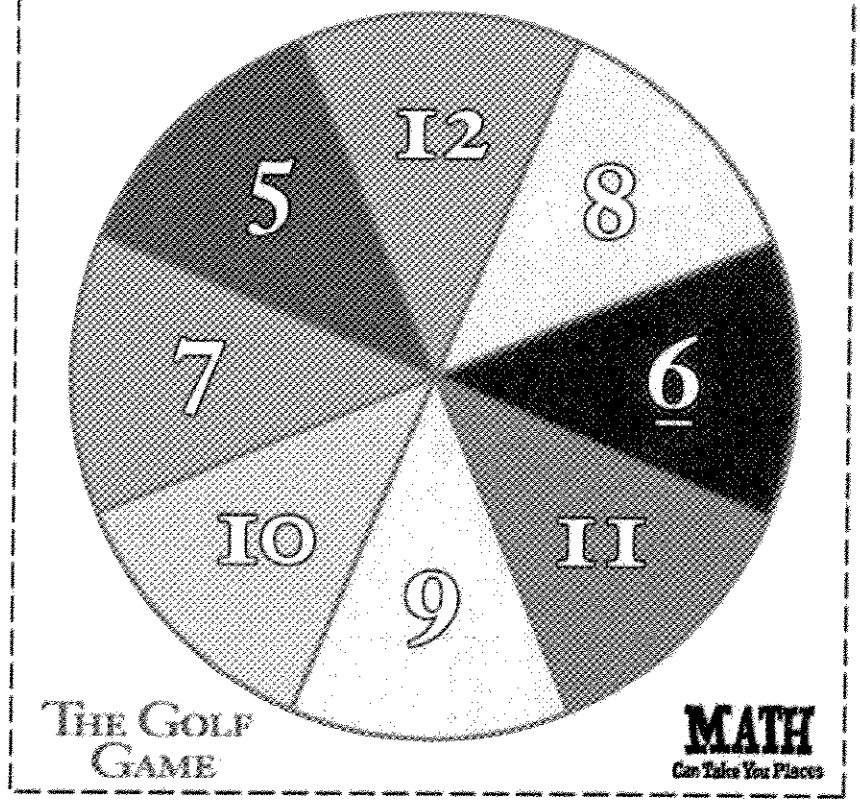
The Golf Game

MATH Can Take You Places

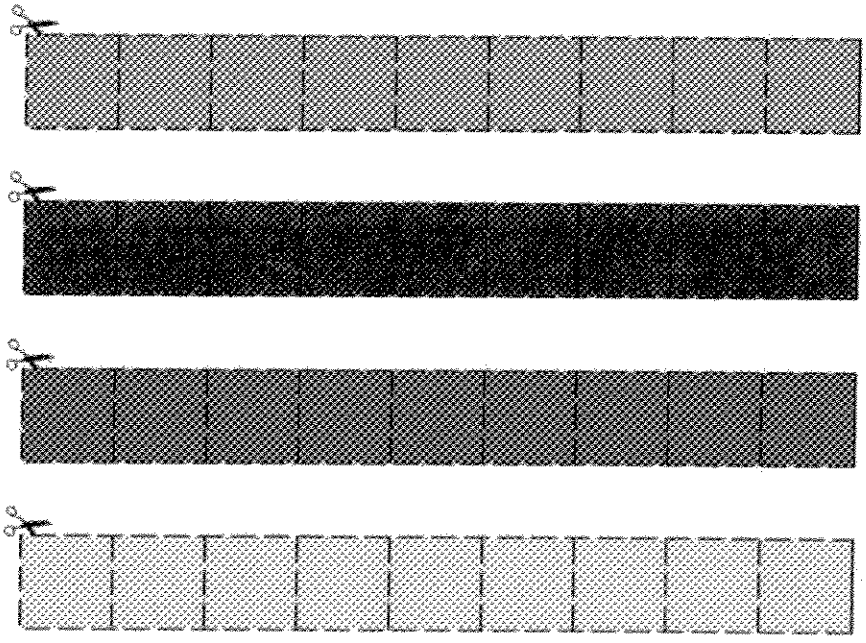
	Distance (yards)	Total after Drive 1	Total after Stroke 2	Total after Stroke 3	Total after Stroke 4	Did you win this hole? Yes or No
Hole 1	157					
Hole 2	160					
Hole 3	185					
Hole 4	110					
Hole 5	136					
Hole 6	143					
Hole 7	122					
Hole 8	108					
Hole 9	124					

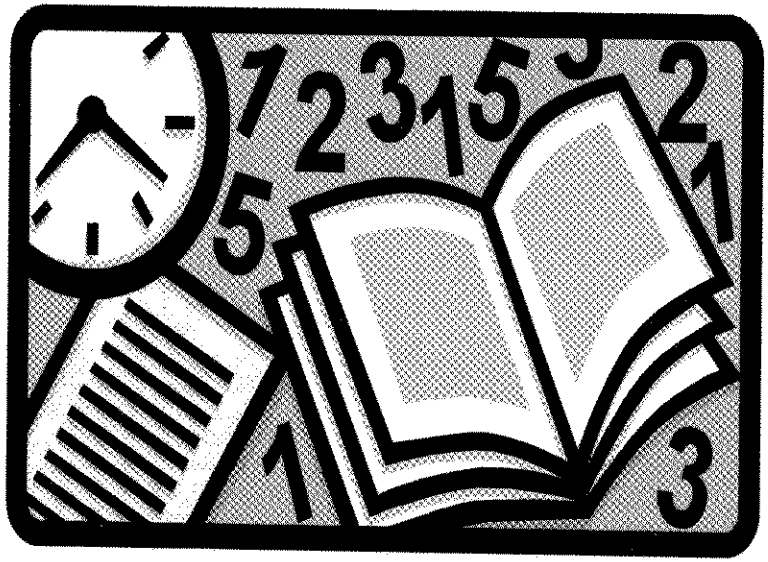
The Golf Game

Spinner



Game Pieces



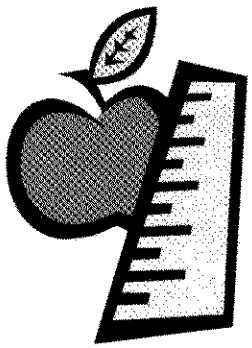


Purpose of Games in Investigations

- Games are a central part of the mathematics in the units, not just enrichment.

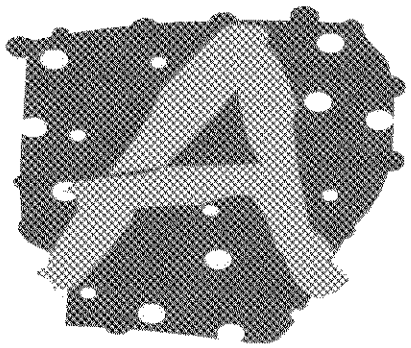
- Games develop familiarity with the number system and with "landmarks" in the number system, such as 10s, 100s, and 1000s, and provide engaging opportunities for practicing computation.

Playing games encourages strategic mathematical thinking and demands that students find an optimal way (rather than just any way) of solving a problem.



Games are played often throughout a unit and throughout the year to develop fluency with numbers. It's expected that students will play a game many times.

Games provide a school to home link.
Parents learn about the mathematical thinking their children are doing by playing games with them at home.



How to Play Close to 100

Materials

- One deck of Numeral Cards
- Close to 100 Score Sheet for each player

Players: 1, 2, or 3

How to Play

1. Deal out six numeral cards to each player.
2. Use any four cards to make two numbers. For example, a 6 and a 5 could make 65 or 56. Wild cards can be used as any numeral. Wild cards can be used as any numeral. Try to make numbers that, when added, give you a total that is close to 100.
3. Write these numbers and their total on the Close to 100 Score Sheet. For example: 42 + 56 = 98.
4. Find your score. Your score is the difference between your total and 100.
5. Put the cards you used in a discard pile. Keep the two cards you didn't use for the next round.
6. For the next round, deal four new cards to each player. Make more numbers that come close to 100. When you run out of cards, mix up the discard pile and use them again.
7. After five rounds, total your scores. Lowest score wins.

Variations

Alternate Scoring

Write the score with plus and minus signs to show the direction of your total away from 100. For example: If your total is 98, your score is -2. If your total is 105, your score is +5. The total of these two scores would be +3. Your goal is to get a total score for five rounds that is close to 0.

Close to 1000

two numbers that total as close as possible to 1000. For example, if you are dealt 4, 5, 8, 3, 2, 9, 9, and 0, you might try 420 + 583 (1003). The score for each round is the difference of the total and 1000. In the example above, the score is 3. Play five rounds. The total lowest score wins. Again, as students become comfortable with this version, negative and positive integers may be introduced as a scoring variation.

Close to 0 with Two or Three Digit Numbers

To play with 2-digit numbers, deal out 6 cards to each player. Each player uses any four cards to make two numbers whose difference is as close as possible to 0. For 3-digit numbers, deal out 8 cards to each player. Each player uses any six cards to make two numbers whose difference is as close as possible to 0. With the numbers above, a player might try 402 - 399. Three is 3 away from 0, so the player's scored would be 3. Play five rounds and the lowest total score wins.

Close to 100 and Close to 1000 Score Sheets

Close to 100 Score Sheet

Name: Score:

Round 1: _____ _____ + _____ _____ = _____ _____

Round 2: _____ _____ + _____ _____ = _____ _____

Round 3: _____ _____ + _____ _____ = _____ _____

Round 4: _____ _____ + _____ _____ = _____ _____

Round 5: _____ _____ + _____ _____ = _____ _____

TOTAL SCORE: _____

Close to 1000 Score Sheet

Name: Score:

Round 1: _____ _____ _____ + _____ _____ _____ = _____ _____

Round 2: _____ _____ _____ + _____ _____ _____ = _____ _____

Round 3: _____ _____ _____ + _____ _____ _____ = _____ _____

Round 4: _____ _____ _____ + _____ _____ _____ = _____ _____

Round 5: _____ _____ _____ + _____ _____ _____ = _____ _____

TOTAL SCORE: _____

Numeral cards for Close to 100/1000 (can be used for Double Compare)

Numeral Cards A (1 of 3 pages)

0	0	1	1
0	0	1	1
2	2	3	3
2	2	3	3

Numeral Cards B

4	4	5	5
4	4	5	5
6	6	7	7
6	6	7	7

Numeral Cards C

8	8	9	9
8	8	9	9
Wild Card	Wild Card		
Wild Card	Wild Card		

Multiple Bingo and Factor Bingo Instructions

Basic Activity

Multiple Bingo and Factor Bingo are versions of the traditional Bingo game. The object of the game is to mark five numbers in a row, either across, up and down, or diagonally. The numbers that can be marked are determined by drawing cards. Both versions can be played either as a whole class, with a partner, or in a small group

These games are designed to give students practice finding factors and multiples of numbers. Several variations of game play for Multiple Bingo and Factor Bingo are offered on the following page. The basic rules for both games are provided in the list below:

Multiple Bingo	Factor Bingo
Materials: • 100 (or 300) Chart (1 per player) • Multiple Bingo Cards (1 deck per playing group) • crayon or marker (1 per player) • calculators (optional)	**Materials:** • Multiplication Table (1 per player) • Factor Bingo Cards (1 deck per playing group) • crayon or marker (1 per player) • calculators (optional)
Procedure: **Step 1: Gather all the materials needed for the activity.** Each player has a 100 or 300 chart, and a crayon or marker. Each playing group has a deck of Multiple Bingo cards in a pile face down in the middle of the table. **Step 2: Draw a card from the face down pile.** Players take turns turning over a card for the group. **Step 3: Choose a number to mark.** Every player marks one number on the 100 chart that is a multiple of the number on the card drawn. Players write the original number in a corner of the square for checking later. For example, if someone turns over a 5 card, players could mark any one of the numbers 5, 10, 15, 20, 25, and so forth. In the corner of the chosen square, the player would write 5. (With the 300 chart, players will simply have more options.) * If a ***Wild Card*** is drawn, the player who turned it over can decide on the number that is to be used. The best strategy is to choose a number that helps the player's own game but doesn't help the other players. In Multiple Bingo, the most useful number to pick is often a prime number. **Step 4: Repeat the process until there is a winner.** The game continues until a player marks five numbers in a row for a Bingo. The remaining players can choose to continue until they also mark five in a row.	**Procedure:** **Step 1: Gather all the materials needed for the activity.** Each player has a Multiplication Table, and a crayon or marker. Each playing group has a deck of Factor Bingo cards in a pile face down in the middle of the table. **Step 2: Draw a card from the face down pile.** Players take turns turning over a card for the group. **Step 3: Choose a number to mark.** Every player marks one number on the Multiplication Table that is a factor of the number on the card drawn. For example, if someone turns over a 100 card, players could mark any one of the numbers 1, 2, 4, 5, 10, 20, 25, or 100. In the corner of the chosen square, the player would write 100. * If a ***Wild Card*** is drawn, the player who turned it over can decide on the number that is to be used. The best strategy is to choose a number that helps the player's own game but doesn't help the other players. In Factor Bingo, the most useful number to pick is often the exact number you want to cover. **Step 4: Repeat the process until there is a winner.** The game continues until a player marks five numbers in a row for a Bingo. The remaining players can choose to continue until they also mark five in a row.

Multiple Factor Bingo: 100 Chart

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Factor Bingo: Multiplication Table

	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	108	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Factor Bingo Cards

100	180	200	60
98	32	72	150
240	144	324	225
448	396	330	450
☆ WILD CARD	☆ WILD CARD	☆ WILD CARD	☆ WILD CARD

Fraction Cookie Game Instructions

Basic Activity

Students play this game in pairs. The object is to be the first to collect or give away a given number of hexagon "cookies." The fraction die or Fraction Card tells you what to add to (or subtract from) your cookie.

The Fraction Cookie game provides practice with recognizing and visualizing common fraction combinations based on sixths, such as one third plus one sixth equals one half. Students focus on:

- Identifying fractional parts
- Exchanging equivalent fractions
- Adding and subtracting fractions
- Relating numerical fractions to equivalent visual representations

Materials

- Fraction dice or Fraction Cards (in two colors) (1 per pair)
- Pattern blocks
- Copies of the Hexagon Cookie Sheet
- Colored pencils, markers, or crayons

Procedure

Beginning Game (One Die)

Each pair of students should have a set of pattern blocks, a fraction die or deck of Fraction Cards, copies of the Hexagon Cookie Sheet, and something to color with. Pairs put the pattern blocks in a pile between them. Players take turns rolling the die or drawing a card and picking an equivalent pattern block to add to their cookie. For example, if a student rolls 1/3, the player takes a blue diamond (1/3 of a yellow cookie). Before beginning, students decide how many cookies are needed to win the game.

"Trading up" is a basic part of the game. Players must find combinations of two or more smaller blocks and exchange them for single, larger pieces which are equal to those combinations. In this way, students should have the least amount of pattern blocks possible at the end of each turn. For example, a player with 2 1/2 cookies should have 2 yellow and one red (1/2) pattern block.
After each round, students check each other's work.

Note: Players can 'build' their cookies on top of the Hexagon Cookie Sheet, and remove them when a whole cookie is completed. These sheets are also useful if certain blocks (particularly yellow hexagons) are in short supply, as students can color them in to record their completed cookies.

Fraction Cookie Game Instructions (cont.)

Variations

Intermediate Game: Adding Fractions (Two Dice)

As students seem ready, increase the level of difficulty by adding another fraction die to the game. Students now throw two dice or draw two cards, and must add the fractions to determine how much cookie to take. As in the basic game, students finish their turn by "trading up" to end with the fewest possible pieces, and by checking each other's work.

Advanced Game: Adding and Subtracting (Three Dice)

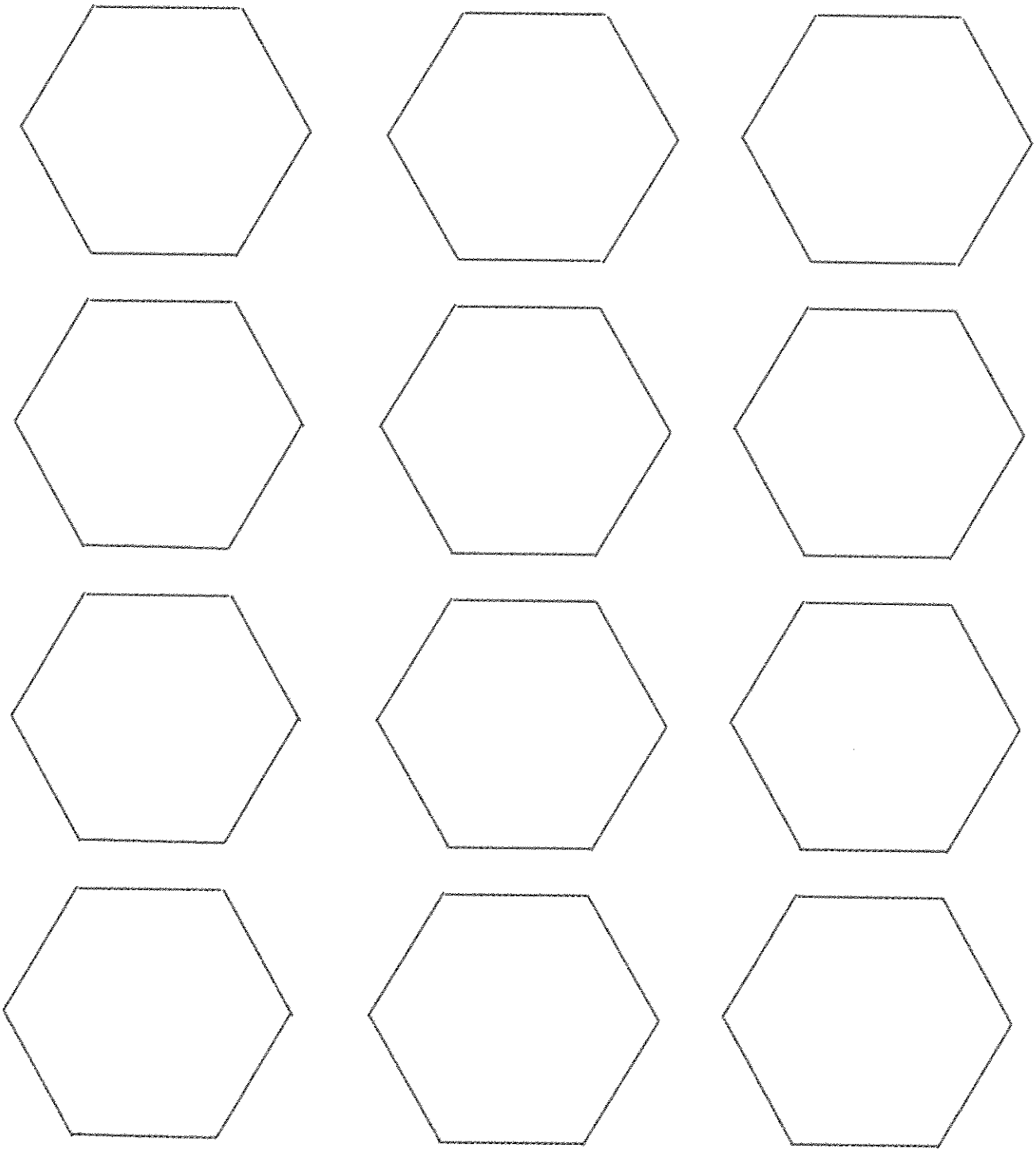
When students are comfortable with the Intermediate level, introduce a third die of a different color (or a second deck of cards of a different color). Players now roll three dice and add the amounts on the same-color dice, and then subtract the fraction on the die of the other color. (Students playing with cards draw two cards of the same color, and one card of the other color, and follow the same instructions.) They then add or subtract the result to their cookies. In this version, students start with two hexagon cookies so they won't run out when they subtract. Again, students "trade up" and check each other's work at the end of each turn.

Subtracting

Each student begins with three whole yellow hexagons or cookies. Players subtract the amount they roll from their cookies. The goal is to be the first player with no cookies left. Players must finish with the exact fraction (for example, a player with one-sixth of a cookie left cannot remove it when one-half is rolled or drawn; they must roll a one-sixth).

Players may decide to play with only one die or with two dice throughout or each player may choose whether they roll one die or two for each turn throughout the game.

Hexagon Cookie Sheet for Fraction Cookie Game



Double Compare Instructions

Materials: Deck of Number Cards (4 each of 0–10) (remove the Wild Cards)

Players: 2

Object: Decide which of two sums is greater.

Note to families:
In this game, your child will be finding the totals of pairs of numbers. You will need a set of Number Cards to play this game.

How to Play

1. Mix the cards and deal them evenly to each player. Place your stack of cards face down in front of you.
2. At the same time, both of you turn over the top two cards in your stack. Compare your cards to your partners to determine which sum is more. If your total is more than the other player's, say "Me!" If the two totals are the same, turn over the next two cards and compare these sums.

   Sometimes you may be able to decide which pair is more without actually figuring out the total.
3. Keep turning over two cards. Say "Me!" each time your total is more.
4. The game is over when you have both turned over all the cards in your stack.

Variations

- Remove the 7-10 cards from the deck, and play with just the 0-6 cards.
- Play Compare. Players turn over one card on a turn. The player with the larger number says "Me!"
- Add the four wild cards to the deck. A wild card may be used as any number. Challenge students to use it for the lowest number that will allow them to win.
- Play Triple Compare. Players turn over three cards on a turn. The player with the larger total says "Me!."

Numeral cards for Close to 100/1000 (can be used for Double Compare)

Numeral Cards A (1 of 3 pages)

0	0	1	1
0	0	1	1
2	2	3	3
2	2	3	3

Numeral Cards B

4	4	5	5
4	4	5	5
6	6	7	7
6	6	7	7

Numeral Cards C

8	8	9	9
8	8	9	9
Wild Card	Wild Card		
Wild Card	Wild Card		

Activities for Parents to do at Home

Practice counting numbers with the children. Sometimes start with numbers such as 38 instead of one and have children either count up or count backwards.

Ask your child to count by certain intervals such as – start at zero and count by two's, ten's or five's.

Using the number grid have children point to the number that is one more or one less than the number given.

Use Fact Triangles or flash cards to practice either addition or subtraction skills.

Ask questions about everyday situations such as: If I eat one Hershey bar and you eat five Hershey bars how many more did you eat than I did?

Ask questions that involve equal sharing: Example – A box of crayons has 24 crayons in it. Three children will have to share them. How many crayons will each child get?

Start a family penny jar. Have children count the pennies from time to time.

Practice counting money with the children. Put pennies, nickels, dimes and quarters together and have children count how much money they have.

Practice measurement by recording the heights of all the family members. Have them arrange the people from shortest to the tallest.

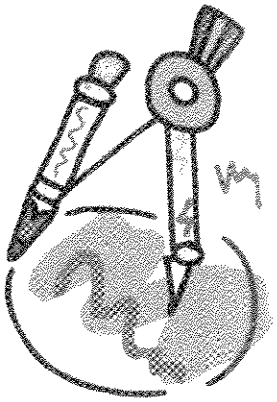
Practice vocabulary words the children learn in school by including them in your everyday conversations: greater than, less than, tallest, shortest, digits, etc.

Play "I Spy" with your child. Give clues about an object and see if the child can guess what it is. Example: The first clue can be -- I Spy something that is round and the second clue can be - I Spy something that is round with two hands. What is it? This will reinforce shapes that the children learned.

Practice telling time. Tell the children what time dinner is or what time their bedtime is and have them show it to you on the clock. After a few times the children should know exactly what time to go to bed.

Discuss the calendar with your child. Have them tell you what day it is and tell you what day it was yesterday and what day it will be tomorrow.

Give children different numbers and have them tell you whether the number is even or odd. Have them explain why.



Parent Training

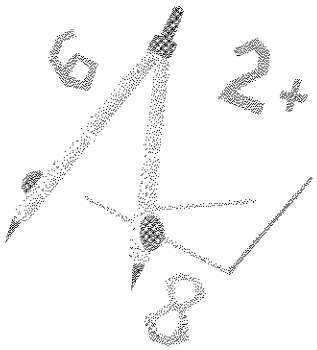
Entrenamiento para Padres

Evaluation

Evaluación

Date:

Fecha: _____



Please circle the appropriate response to each of the following:

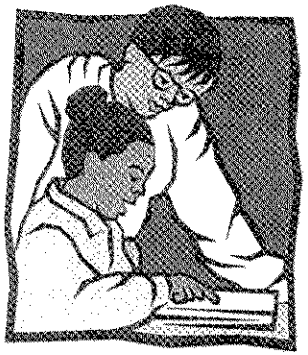
	Strongly Agree				Strongly Disagree
The presentation was nicely organized.	1	2	3	4	5
Visual aids were well designed and used effectively.	1	2	3	4	5
The speaker used good presentation skills.	1	2	3	4	5
The speaker appropriately involved the audience.	1	2	3	4	5
Participants' questions were answered satisfactorily.	1	2	3	4	5
The presentation met my expectations.	1	2	3	4	5

1. **What did you learn from or like best about the training?**
   ¿Qué aprendió o le gustó más del entrenamiento?

2. **What information or ideas will you use to help your child?**
   ¿Qué información o ideas va a poner en práctica para ayudar a sus hijos?

3. **What could have been better?**
   ¿Qué podemos mejorar de este entrenamiento?

4. **What other trainings would you like?**
   ¿Qué otros entrenamientos le gustaría?



The End