Fun with Multiplication

JANUARY

S	M	T	W	T	F	S
					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						

A rectangle of dates is boxed. Write the multiplication fact for this array.

(1.03a)

Writing About Math

You want to know the number of small squares on a checker board. Explain how a rectangular array could help you count the squares quickly.

(1.03a)

Let's Explore

Where are rectangular arrays used?

Go for a walk through the school.

Look in your classroom, your home, or outside to find examples of arrays.

List examples you find and write the multiplication equation for each array.

(1.03a)

Seeing Math

Continue This Pattern Unit:

What will the 16th figure be?

(5.01, 1.03a)

Let's Find Out

(1.06)

Fill in the missing dates on this calendar. Add the dates in opposite corners of the outlined square. What did you notice? Is this true for any rectangle on a calendar?

May						
Sun	Mon	Tues	Wed	Thurs	Fri	Sat
	1	2	3	4	5	6
					12	13
					19	20
21					26	27
28	29	30	31			

Figuring Fourths

Number of Players: Two
Materials: Four two-color counters, one small cup, one gameboard, two place-markers of different colors.
Directions: Each player chooses one color of the two-color counter and one place-marker. First player shakes and spills the two-color counters. Players decide what part of the set each color shows. Player #1 moves to the first space that shows his color's fractional part of the spill. Second player shakes counters and spills. Second player moves to first space on board that shows his color's fractional part of the spill. Alternate turns. Player loses turn if there is no move. First player to land exactly on **FINISH** wins.

(1.05a)

Keeping Skills Sharp

1. 682 + 100 =700 +____

2. 9,705 - 700 = ____ + 5

3. 8 x ____ = 56

4. If you had saved six one dollar bills and traded them for dimes, how many dimes would you get?

5. There were five people sitting in each row at the movies. There were 11 rows. How many people were at the movies?

6. What time was it  30 minutes ago?

7. Is this a line of symmetry?

8. Which is more, 2/3 of an apple pie or 3/8 of the same apple pie?

Solve this!

If you have three identical pizzas, how many cuts would you make from edge to edge to get equal 24 pieces? Why?

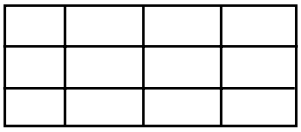
(1.06)

To the Teacher

Grade 3
WEEK 25

Fun with Multiplication:
Students should write 3 x 7 as the array fact. The idea is that multiplication can make counting easier.

Let's Explore:
Examples of arrays can often be found in ceiling tiles, lights, tiles on floors, book shelves, cubbies, gameboards, windows, holes in sides of crates, etc.



3 x 4 = 12 small shelves, or panes in windows, etc.

Students can make a list or create a chart to show arrays they find.

Seeing Math:

Important Teacher Note:
For week 28 you will need 100 pennies for each team of two or four children. Begin collecting pennies. Children and parents can help.

Solve This:
Student would make four cuts on each pizza.

Let's Find Out:
Students should note that the sums of opposite corners of these rectangles are always equal. If the rectangle is a square the center date is half the common sum!

Literature Connection:
Amanda Bean's Amazing Dream by Neuschwander

Mental Math

Directions to Students: Number your paper from 1 to 8. Write your answers as the questions are called out. Each question will be repeated only once.

6 x 3	7 x 6 + 10 - 4
Three dimes less than $5	Number of 10's in 306
What comes next ... 900, 850, 800, ___?	Number of quarts in 2 gallons
About how long is this classroom?	Number of grams in a kilogram

Keeping Skills Sharp

82	55
9000	5:10
7	No
60	2/3

Fun with Multiplication

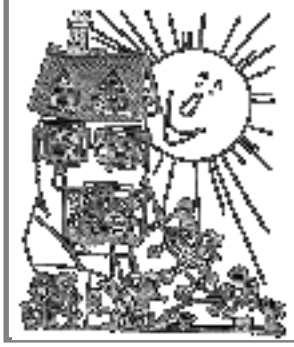
How many stars are here? How do you know? Can you draw a different array to show the same number of stars?

(1.03a)

Writing About Math

How are shoes sized?

Why are standard sizes important?



(2.01b)

Let's Explore

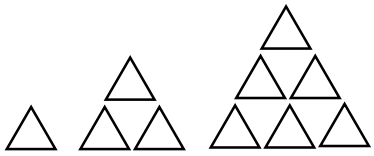
What numbers between 1 and 100 have digits whose sum is ten?

Use a hundred board in searching for a solution to the question.

Can you identify a pattern to make it easy to find the numbers between 100 and 500 whose digits have a sum of ten?

(5.01)

Seeing Math



Continue the pattern.

Describe any patterns you see.

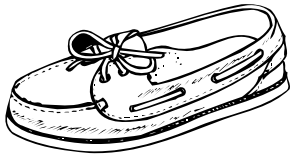
(5.02)

Let's Find Out

Collect the sizes of shoes worn by your classmates.

Make a table to organize the data.

What type of graph will you use to display the information? Why?



(4.01)

THREE IN A ROW GAMEBOARD

Choose An Answer Board

$\frac{1}{6}$	$\frac{3}{4}$	$\frac{5}{6}$
$\frac{1}{2}$	$\frac{3}{3}$	$\frac{3}{8}$
$\frac{3}{5}$	$\frac{7}{8}$	$\frac{1}{4}$

$\frac{5}{8}$	$\frac{2}{3}$	$\frac{1}{4}$
$\frac{3}{4}$	$\frac{2}{5}$	$\frac{2}{8}$
$\frac{3}{3}$	$\frac{1}{2}$	$\frac{5}{6}$

$\frac{5}{8}$	$\frac{1}{2}$	$\frac{3}{6}$
$\frac{2}{3}$	$\frac{3}{8}$	$\frac{4}{4}$
$\frac{7}{8}$	$\frac{2}{5}$	$\frac{1}{3}$

$\frac{4}{8}$	$\frac{5}{6}$	$\frac{1}{2}$
$\frac{1}{6}$	$\frac{3}{5}$	$\frac{2}{8}$
$\frac{2}{3}$	$\frac{6}{6}$	$\frac{1}{4}$

$\frac{2}{8}$	$\frac{1}{3}$	$\frac{5}{6}$
$\frac{2}{5}$	$\frac{4}{4}$	$\frac{2}{3}$
$\frac{1}{2}$	$\frac{7}{8}$	$\frac{1}{4}$

$\frac{1}{2}$	$\frac{3}{5}$	$\frac{6}{6}$
$\frac{2}{3}$	$\frac{1}{8}$	$\frac{3}{4}$
$\frac{4}{6}$	$\frac{1}{3}$	$\frac{4}{8}$

Number of Players: Two - six
Materials: Three-In-A-Row Gameboard. One for each player; Three-In-A-Row Game Cards (Blackline Week Twenty-six); six markers per player
Directions: Choose one answer board for each game. Shuffle the Three-In-A-Row game cards and places them face down. When the top card is turned over, cover the fraction on your answer board with a marker that matches the game card picture. Three in a row is a winner. Rows may be horizontal, vertical or diagonal. Play at least six rounds.

(1.05a)

Keeping Skills Sharp

1. 543 + 249 + 168 =

2. 3425 - 2314 =

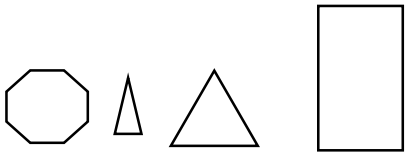
3. 7 x 5 = __

4. In January, 4 inches of snow fell. In February 6 inches of snow fell. All together, this was 4 more inches of snow than fell last year. How many inches of snow fell last year?

5. In the box of chocolate cookies there are eight cookies in a row. How many cookies are in the box if there are six rows?

6. Twenty minutes before 6:00 can be written as ___?

7. With this pattern unit, what is the twelfth figure?



8. Jessica has 22 quarters. Is that more than $5?

Solve this!

Your calculator is showing 2,942. What number should you enter into the calculator to make the 2's become 6's?

(1.01b, 1.06)

To the Teacher

Grade 3
WEEK 26

Fun with Multiplication:
This array is a 4 x 8. Another array would be 8 x 4. This illustrates the commutative property of multiplication.

Seeing Math:
This geometric pattern adds on a bottom row that is one more than the previous row. The numeric pattern is 1, 3, 5, 10, 15... Students should also look between the numbers for different patterns.

Solve This:
4004

Let's Explore:
Blacklines are available for a 100-board, a 200-board, and a 300-board.
These extended number charts provide a good opportunity for students to recognize and continue numeric patterns. (Answer: 19, 28, 37, 46, 55, 64, 73, 182, 91)

Game of the Week:
Three-In-A-Row can be played as a class by making overhead game cards to display.

Mental Math

Directions to Students: Number your paper from 1 to 8. Write your answers as the questions are called out. Each question will be repeated only once.

5 x 5	100 - 30 - 10 + 2
Twenty-two pennies less than $1.00	Number of 10's in 219
What comes next ... 736, 726, 716, ___?	451 + 27
What unit of measure should you use to measure your shoe?	Number of days in March

Keeping Skills Sharp

960	48
1,111	5:40
35	
6 inches	Yes, $5.50

(1.03a, 5.01)

Fun with Multiplication

Use your calculator.

Enter 4 + =

Continue to Enter: = and record the multiples of 4 that appear on your display up to 100.

Repeat using 6 + =

Record the multiples of six. Circle the numbers that appear in both lists.

Writing About Math

Why is ten such an important number in our number system?

What are other important numbers in our system? Explain your thinking.

(1.01b)

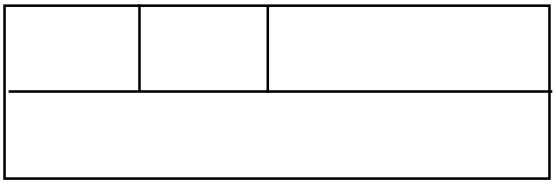
Let's Explore

A palindrome is a number that reads the same forward and backward, such as 44, 252, or 8008. Find and list all the palindromes on a hundred board. A number that is not a palindrome, such as 13, can be changed into a palindrome by reversing the digits and adding. (13 + 31 = 44) Sometimes you may need to reverse and add several times.

Choose four numbers from the hundreds board that are not palindromes and change them into palindromes.

(5.01)

Seeing Math

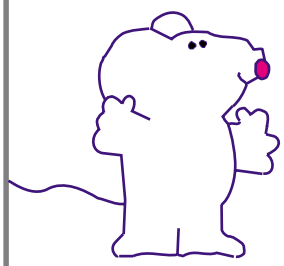


This whole rectangle is one. Write a fraction for each of the parts.

(3.01, 1.05a)

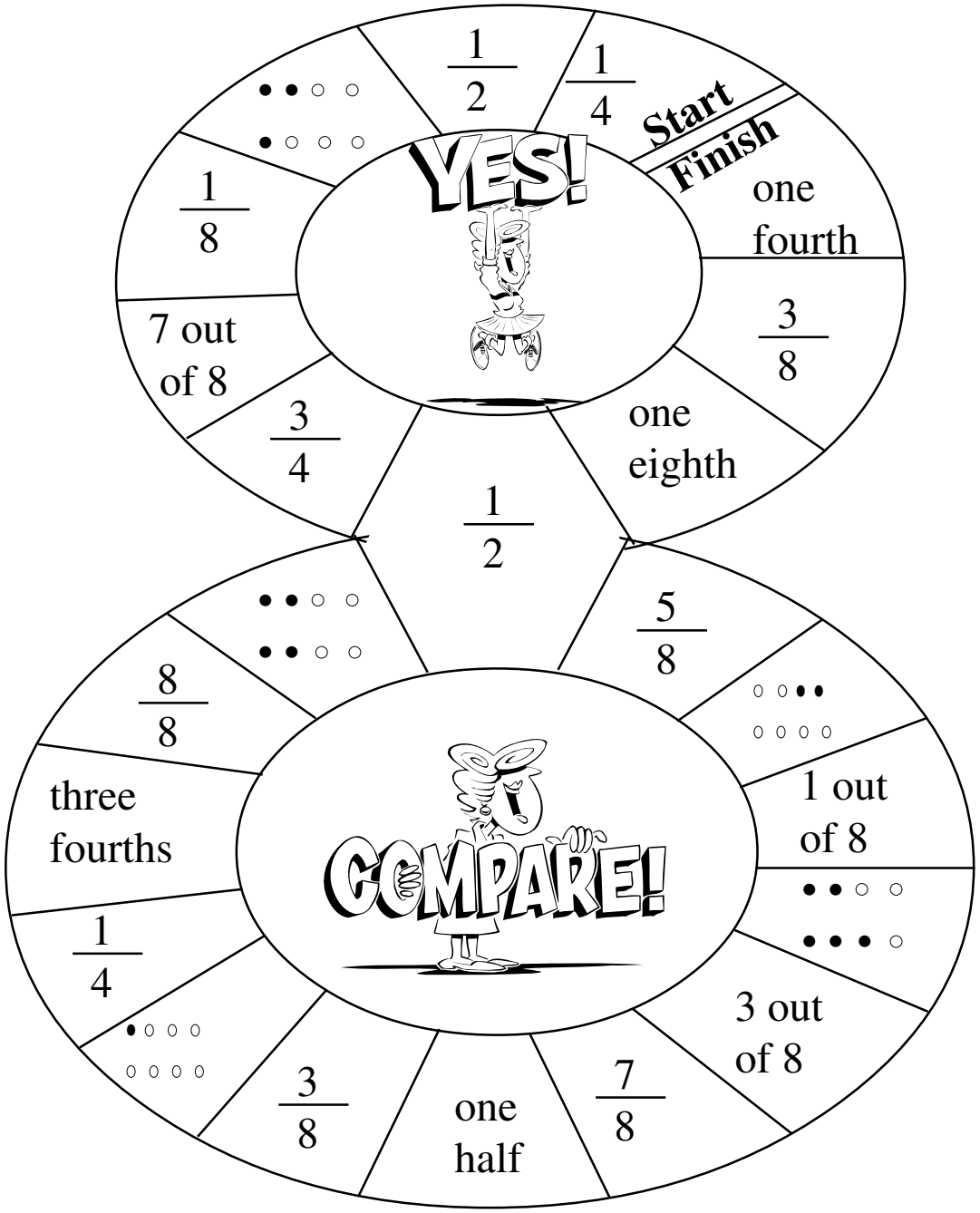
Let's Find Out

How many lima beans can you pick up in one handful? Experiment, then display the results using a line plot or pictograph. If the number of beans is large, which graph is more practical?



(4.01, 1.03a)

FIGURE EIGHTHS



Number of Players: Two

Materials: Eight two-color counters, one small cup, one gameboard, two place markers of different colors

Directions: Each player chooses one color of the two-color counter (red or yellow) and one place marker. In turn, players shake and spill. Each player will move on every spill (move in a continuous pattern to form a figure eight). First player spills. Players decide the fractional part of set that is red and the fractional part that is yellow. Each player will move his/her game marker to the first space that shows his/her fractional part of the spill. Player loses turn if there is no move. First player to land on finish block wins.

(1.05a)

Keeping Skills Sharp

1. 650 + 50 = 600 + ___

2. 462 - ___ = 300

3. 6 x ___ = 24

4. Fisher rode his bike 8 miles, on Monday, 7 miles on Tuesday and Wednesday, and 10 miles on Thursday. His goal was to ride 35 miles by Friday. How many more miles does he need to reach his goal?

5. Order from least to greatest.
   1,607 92,649 2,863 8,451 146

6. The number of days in 8 weeks.

7. There are ten lollipops in a box: half of the lollipops are cherry. How many are cherry?

8. Brent bought four packs of sports cards at 25¢ per pack and six sports stickers at 10¢ per sticker. He paid with a seven quarters. How much change did he get back?

Solve this!

How could you put 100 ants into equal groups?
Show as many ways as you can find.
How many ants are in each group?
How do you know?

(1.06, 1.03a)

To the Teacher

Grade 3
WEEK 27

Fun with Multiplication:
This exploration activity builds the concepts of common multiples and common factors. Children need many experiences before they are ready to understand this concept.

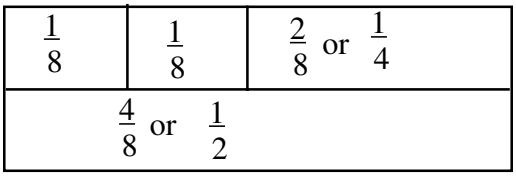
Let's Explore:
Palindromes engage students in looking for number patterns, both visually and numerically. To change non-palindromes into palindromes; reverse and add. This may be only one step as

13
+ 31
44 - palindrome

or
multiple steps such as

68
+ 86
154
+ 451
605
+ 506
1,111 - palindrome

Seeing Math:



Solve This:
Read: One Hundred Ants Groups:
2 groups of 50
4 groups of 25
5 groups of 20
10 groups of 10

Suggested Literature:
Eating Fractions by Bruce McMillan
One Hundred Hungry Ants by Elinor Pinczes

Mental Math

Directions to Students: Number your paper from 1 to 8. Write your answers as the questions are called out. Each question will be repeated only once.

0 x 2

40 - 20 + 6 + 3

$1.00 minus ten nickels

Two more than 469

What comes next ... 524, 514, 504, ___?

31 + 39

If you wanted to measure the length of your classroom, would you use centimeters or meters?

Number of ounces in two pounds

Keeping Skills Sharp

100

146; 1670; 2,863; 8451; 92,649

162

56 days

4

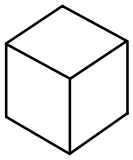
5 cherry

3 miles

15¢

Fun with Multiplication

If you had six cubes, how many faces would you have? How many edges? How many vertices? Draw a cube.



(1.03a, 3.01)

Writing About Math

If you double any whole number, can you get an odd number?

Explain your answer.

(1.01a, 5.01)

Let's Explore

(3.01)

Use connecting cubes or wooden cube blocks. The smallest size cube you can make is from one block. Use the blocks to build the next size cube. How many blocks did you use?

Build the next size cube.

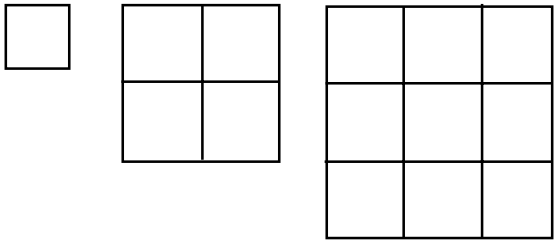
Record the number of blocks you used.

Notice a pattern?

Seeing Math

Draw the next two shapes.

Describe all the patterns you can find.



(5.02)

Let's Find Out

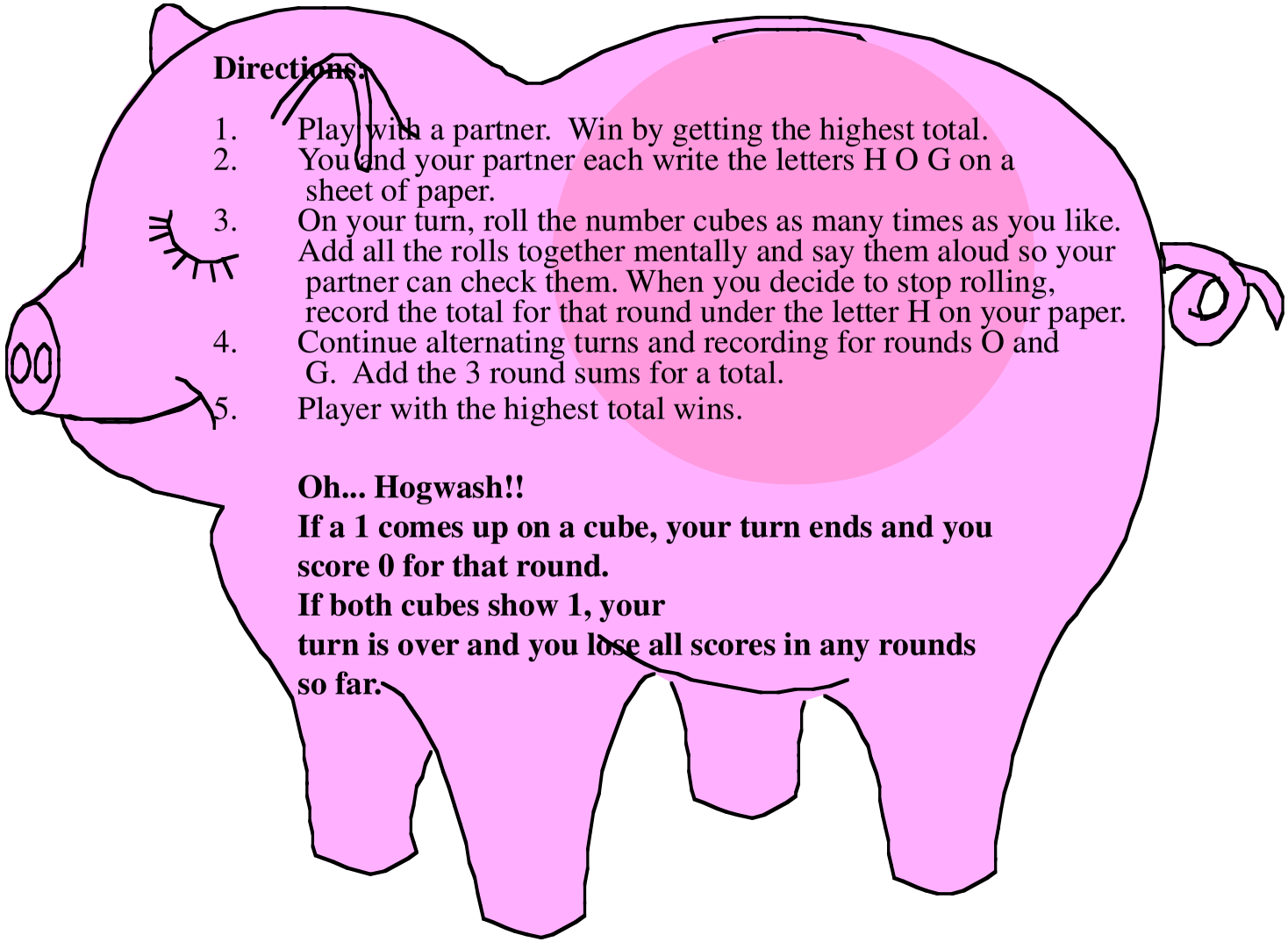
2 6 8 5

Make and record as many different four digit numbers as you can, using each of the four digits above only one time in a number. Order the numbers from greatest to smallest.

(4.02)

HOGWASH!

Materials: Pair of number cubes, paper, pencil



Directions:

1. Play with a partner. Win by getting the highest total.
2. You and your partner each write the letters H O G on a sheet of paper.
3. On your turn, roll the number cubes as many times as you like. Add all the rolls together mentally and say them aloud so your partner can check them. When you decide to stop rolling, record the total for that round under the letter H on your paper.
4. Continue alternating turns and recording for rounds O and G. Add the 3 round sums for a total.
5. Player with the highest total wins.

Oh... Hogwash!!
If a 1 comes up on a cube, your turn ends and you score 0 for that round.
If both cubes show 1, your turn is over and you lose all scores in any rounds so far.

(1.02a)

(4.03)

Keeping Skills Sharp

1. 1,013 + 682 = _____
2. 8,686 - 2,452 = _____
3. 9 x ___ = 45
4. Judy walks 3 miles a day for ten days. Ann walks 4 miles a day for six days. How many more miles did Judy walk than Ann?
5. The cost of the movies is $6.00 per person. How much would it cost for four people to go?
6. Forty minutes after 8:00 is the same as twenty minutes before_____.
7. 3 thousands, 12 hundreds, 19 tens and 8 ones.
8. If you cut a 6 foot long sub sandwich into 3 equal pieces, how long will each piece be?

Solve this!

How could you put 300 objects into equal groups? How many objects would be in each group? Show all the possible ways to do this.
How do you know when you have found all possibilities?

(1.03a, 1.06)

To the Teacher

Grade 3
WEEK 28

Fun with Multiplication:
Faces - 36 faces on six cubes
Edges - 72 edges on six cubes
Vertices - 48 vertices on six cubes

Seeing Math:
The next two shapes would be a 4 x 4 and a 5 x 5. Patterns students might find:

- odd, even, odd, even for # of squares needed to build each shape
- all shapes are squares
- the squares are growing by odd numbers $\square + 3 = + 5 =$
- squares are named 1 x 1, 2 x 2, 3 x 3, 4 x 4, 5 x 5
- some students might make the generalization that any number times itself results in a square number (N^2)

Writing About Math:
Children need to explore with one digit as well as 2- or 3-digit numbers. Generalization is that any multiple of two is an even number. Using a hundred board, students can visualize adding two numbers.

SolveThis:
Provide student with a calculator. Teacher should explain decimal display. Some possible solutions are 300, 1 group of 300, 300 groups of 1, 2 groups of 150, 150 groups of 2, 3 groups of 100, 100 groups of 3, 4 groups of 75, and 75 groups of 4.

Suggested Literature:
Sea Squares by J. Hulme

Mental Math

Directions to Students: Number your paper from 1 to 8. Write your answers as the questions are called out. Each question will be repeated only once.

3 x 3	40 + 15 + 3 - 10
Six dimes less than $1.00	Number of nickels in $1
What comes next... 1147, 1145, 1143, ___?	Estimate the number of grams your pencil weighs.
Number of centimeters in two and a half meters	Number of pints in 2 qts

Keeping Skills Sharp

1,695	$24
6,234	9:00
5	4,398
6 miles	2 feet