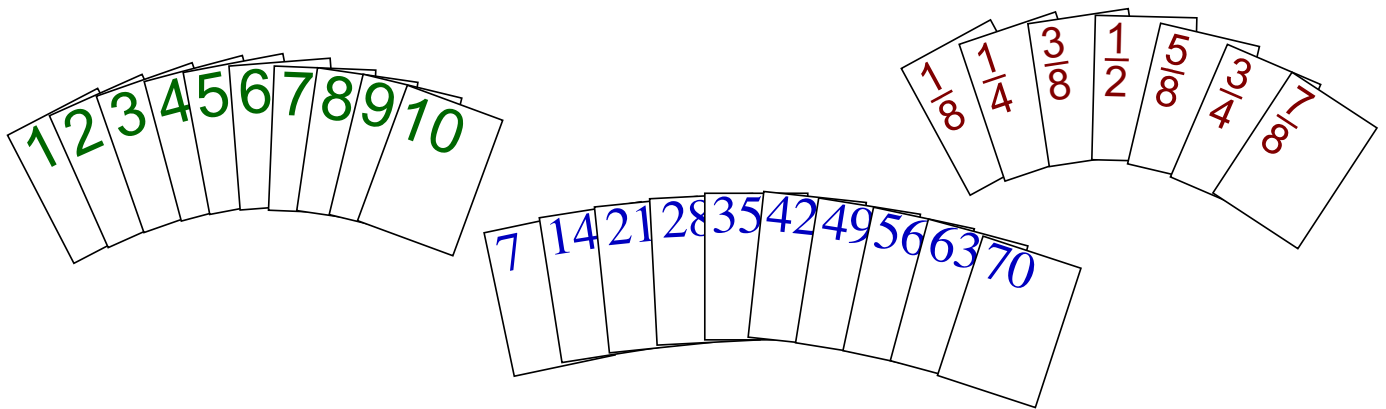


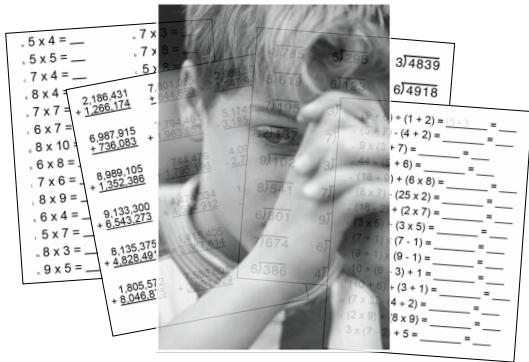
# Set the Math Worksheets Aside: Let's Play Games!



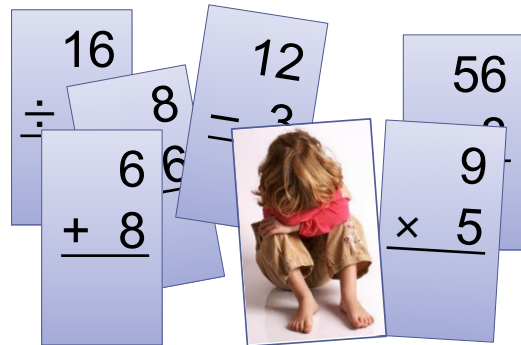
[info@RightStartMath.com](mailto:info@RightStartMath.com)

based on the work of Dr. Joan A. Cotter

## Battle of the Worksheets



## Battle of the Flashcards



## Rote Memorization

Memorizing 390 math facts is daunting.

Sadly, whatever is learned by rote needs frequent review to stay learned.

## Games

$$\frac{\text{Games}}{\text{Math}} = \frac{\text{Books}}{\text{Reading}}$$

Games provide instant feedback.

Games provide interesting repetition needed for automatic responses in a social setting.

More importantly, games provide an application for the new information!

## Go to the Dump

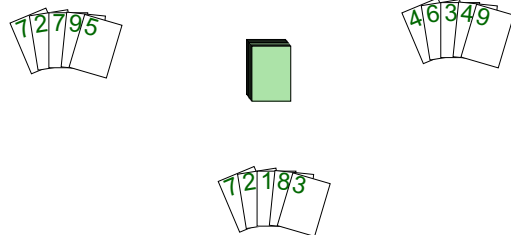
Objective: To learn and master the facts of 10.

Number of Players: 2 to 4.

Cards: Basic number cards from 1 to 9.

Goal: To collect the most pairs.

## Go to the Dump



### Go to the Dump

Do I have any pairs?

Hand 1: 7, 2, 7, 9, 5  
 Hand 2: 4, 6, 3, 4, 9  
 Hand 3: 7, 2, 1, 8, 3  
 Deck: green

### Go to the Dump

Hand 1: 7, 2, 7, 9, 5  
 Hand 2: 3, 4, 9  
 Hand 3: 4, 6  
 Hand 4: 7, 2, 1, 8, 3  
 Deck: green

### Go to the Dump

Ooooh!  
Another pair!!

Hand 1: 7, 2, 7, 9, 5  
 Hand 2: 3, 4, 9  
 Hand 3: 4, 6  
 Hand 4: 7, 3  
 Hand 5: 2, 1, 8  
 Deck: green

### Go to the Dump

Do you have a 3?

I do!

Hand 1: 7, 2, 7, 9, 5  
 Hand 2: 3, 4, 9  
 Hand 3: 4, 6  
 Hand 4: 2, 8  
 Hand 5: 1  
 Deck: green

### Go to the Dump

Do you have an 8?

Go to the dump!

Hand 1: 7, 2, 7, 9, 5  
 Hand 2: 4, 9  
 Hand 3: 4, 6  
 Hand 4: 7, 3  
 Hand 5: 2, 8  
 Hand 6: 1  
 Deck: green

### Go to the Dump

Hand 1: 7, 2, 7, 9, 5  
 Hand 2: 4, 9  
 Hand 3: 4, 6  
 Hand 4: 7, 3  
 Hand 5: 2, 8  
 Hand 6: 1  
 Deck: green

### Go to the Dump

Do you have a 6?

Go to the dump.

### Go to the Dump

### Go to the Dump

I do. Here you go.....

Do you have a 9?

### Go to the Dump

### Go to the Dump

Game app for your devices!

**Go to Ten**

### Go to the Dump with Elevens

Objective: To learn and master the facts of 11.

- 1 + 10
- 2 + 9
- 3 + 8
- 4 + 7
- 5 + 6

Play: Same as Go to the Dump.

## Go to the Dump with Nines

Objective: To learn and master the facts of 9.

$$1 + 8$$

$$2 + 7$$

$$3 + 6$$

$$4 + 5$$

Note: Make sure that the facts of 10 are solid before playing these variations.

## Short Chain Solitaire

Objective: To provide reinforcement of addition facts.

Goal: To build the following four chains:

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

## Short Chain Solitaire

A chain is composed of links.

Each link (after the first two) is formed by adding the previous two numbers, while disregarding any 1s in the tens place.

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

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

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A chain is composed of links.

Each link (after the first two) is formed by adding the previous two numbers, while disregarding any 1s in the tens place.

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

## Short Chain Solitaire

A chain is composed of links.

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

### Short Chain Solitaire

A chain is composed of links.

Each link (after the first two) is formed by adding the previous two numbers, while disregarding any 1s in the tens place.

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

### Short Chain Solitaire

A chain is composed of links.

Each link (after the first two) is formed by adding the previous two numbers, while disregarding any 1s in the tens place.

There are some interesting patterns.

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

### Short Chain Solitaire

A chain is composed of links.

Each link (after the first two) is formed by adding the previous two numbers, while disregarding any 1s in the tens place.

There are some interesting patterns.

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

### Short Chain Solitaire

A chain is composed of links.

Each link (after the first two) is formed by adding the previous two numbers, while disregarding any 1s in the tens place.

There are some interesting patterns.

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

### Short Chain Solitaire

A chain is composed of links.

Each link (after the first two) is formed by adding the previous two numbers, while disregarding any 1s in the tens place.

There are some interesting patterns.

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

### Short Chain Solitaire

A chain is composed of links.

Each link (after the first two) is formed by adding the previous two numbers, while disregarding any 1s in the tens place.

There are some interesting patterns.

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

## Short Chain Solitaire

A chain is composed of links.

Each link (after the first two) is formed by adding the previous two numbers, while disregarding any 1s in the tens place.

There are some interesting patterns.

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

## Short Chain Solitaire

A chain is composed of links.

Each link (after the first two) is formed by adding the previous two numbers, while disregarding any 1s in the tens place.

There are some interesting patterns.

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

## Short Chain Solitaire

Objective: To provide reinforcement of addition facts.

Goal: To build the four chains.

Cards: 36 specific cards.

Layout: Lay cards in fans of three.

## Short Chain Solitaire

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

## Short Chain Solitaire

1

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

## Short Chain Solitaire

1      3

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

### Short Chain Solitaire

1	3	9	7
8	4	2	6

1

3

919

334

377

81

179

63

781

274

829

669

479

231

### Short Chain Solitaire

1	3	9	7
8	4	2	6

1

3

9

7

919

334

377

81

179

63

781

274

829

669

4

231

### Short Chain Solitaire

1	3	9	7
8	4	2	6

1

3  
4

9

7

919

334

377

81

179

63

781

27

829

669

4

231

### Short Chain Solitaire

1	3	9	7
8	4	2	6

1

3  
4  
7

9

7

919

334

377

81

179

63

781

2

829

669

4

231

### Short Chain Solitaire

1	3	9	7
8	4	2	6

1

3  
4  
7  
1

9

7

919

334

377

8

179

63

781

2

829

669

4

231

### Short Chain Solitaire

1	3	9	7
8	4	2	6

1  
8  
9

3  
4  
7  
1

9  
2  
1

7

919

334

377

179

63

781

2

8

669

4

23

### Short Chain Solitaire

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

### Short Chain Solitaire

### Short Chain Solitaire

- Cannot be won if an error is made.
- Using some strategy, a player can win about three-fourths of the time. Several players can work together to win.
- Best of all, these Chain Solitaire games provide hours of fun!
- Nine variations available.
- 97 of the 100 addition facts are used. Only  $0 + 0$ ,  $5 + 0$ , and  $5 + 5$  are omitted.

### Short Chain Subtraction

Objective: To practice subtraction facts.

Goal: To build the following four chains:

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

### Short Chain Subtraction

Each link (after the first two) is formed by subtracting the previous two numbers, while assuming the 1 in the tens place is present when needed.

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

### Short Chain Subtraction

Each link (after the first two) is formed by subtracting the previous two numbers, while assuming the 1 in the tens place is present when needed.

11	3	9	7
2	6	8	4
9	7	1	3
3	9	7	1
6	8	4	2
7	1	3	9
9	7	1	3
8	4	2	6
1	3	9	7

### Short Chain Subtraction

Each link (after the first two) is formed by subtracting the previous two numbers, while assuming the 1 in the tens place is present when needed.

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

### Short Chain Subtraction

Each link (after the first two) is formed by subtracting the previous two numbers, while assuming the 1 in the tens place is present when needed.

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

### Short Chain Subtraction

Each link (after the first two) is formed by subtracting the previous two numbers, while assuming the 1 in the tens place is present when needed.

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

### Short Chain Subtraction

### Corners™

Objective: To practice the facts that total 5, 10, 15, and 20.

To practice mental math.

### Corners™

Scoring is done mentally.

10
25
30
40
55
65
80

## Mental Addition

$$65 + 15 =$$

$$65 + 10 + 5 =$$

10  
25  
30  
40  
55  
65  
80

## Corners™

Objective: To practice the facts that total 5, 10, 15, and 20.

To practice mental math.

Goal: To have the highest score.

Number of Players: From 2 to 6, however 3 or 4 work best.

Cards: Corner™ cards.



## Corners™

Rules:

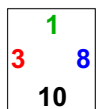
- Match the colors.
- To score, sum must equal 5, 10, 15 or 20.
- Play on the last card played, or play to any corner.



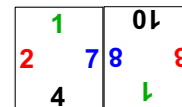
## Corners™



## Corners™



## Corners™



**Corners™**

15  
25

1	0↓	
2	7 8	ε
4	↓	
	9	
	3	6
	4	

**Corners™**

15  
25

1	0↓	
2	7 8	ε
4	↓	
	9	
	3	6
	4	

7	
8	4
2	

**Corners™**

15  
25  
35

1	0↓	
2	7 8	ε
4	↓	
	9	2
	3	6 4 8
	4	7

**Corners™**

15  
25  
35

1	0↓	
2	7 8	ε
4	↓	
	9	2
	3	6 4 8
	4	7

3	
7	10
1	

**Corners™**

15  
25  
35  
50

1	0↓	
2	7 8	ε
4	↓	
	9	2
	3	6 4 8
	4	7

1	
10	3
3	

**Top and Bottom Corners™**

Objective: To practice scoring for positive and negative numbers.

Rules:

- Sums must equal 5, 10, 15 or 20.
- Tops and bottoms are positive numbers; sides are negative numbers.
- Corners will create both positive and negative numbers. Final result will vary depending on values.

*Top and Bottom Corners™*

1
2 7
4

1
3 8
10

*Top and Bottom Corners™*

0↓	1
8 8	ε 2 7
↓	4

-5
----

*Top and Bottom Corners™*

0↓	1
8 8	ε 2 7
↓	4

9
3 6
4

*Top and Bottom Corners™*

0↓	1
8 8	ε 2 7
↓	4
9	
3 6	
4	

-5
5

*Top and Bottom Corners™*

0↓	1
8 8	ε 2 7
↓	4
9	
3 6	
4	

3
7 10
1

*Top and Bottom Corners™*

0↓	1
8 8	ε 2 7
↓	4
9	
3 6	
4	
↓	
10 7	
3	

-5
5
10

### Top and Bottom Corners™

Grid structure:

0↓	1
8	ε 2 7
↓	4
9	
3	6
4	
↓	
0↓	7
	ε

Vertical bar: -5, 5, 10

Small grid: 6, 8, 4, 2

### Top and Bottom Corners™

Grid structure:

0↓	1
8	ε 2 7
↓	4
9	
3	6
4	
↓	
0↓	7
ε	6
	2

Vertical bar: -5, 5, 10, -5

Small grid: 6, 8, 4, 2

### Super Corners

App for your devices!

Grid structure:

6	2
9	5 10 5
1	6 4
	3 7
	8

Super Corners app interface showing a grid and a calculator-like interface.

### Super Corners

### Short Multiplication Chart

1									
2	4								
3	6	9							
4	8	12	16						
5	10	15	20	25					
6	12	18	24	30	36				
7	14	21	28	35	42	49			
8	16	24	32	40	48	56	64		
9	18	27	36	45	54	63	72	81	
10	20	30	40	50	60	70	80	90	100

### Short Multiplication Chart

1									
2	4								
3	6	9							
4	8	12	16						
5	10	15	20	25					
6	12	18	24	30	36				
7	14	21	28	35	42	49			
8	16	24	32	40	48	56	64		
9	18	27	36	45	54	63	72	81	
10	20	30	40	50	60	70	80	90	100

$6 \times 6 = 36$

### Short Multiplication Chart

1									
2	4								
3	6	9							
4	8	12	16						
5	10	15	20	25					
6	12	18	24	30	36				
7	14	21	28	35	42	49			
8	16	24	32	40	48	56	64		
9	18	27	36	45	54	63	72	81	
10	20	30	40	50	60	70	80	90	100

$4 \times 8 = 32$

## Short Multiplication Chart

1									
2	4								
3	6	9							
4	8	12	16						
5	10	15	20	25					
6	12	18	24	30	36				
7	14	21	28	35	42	49			
8	16	24	32	40	48	56	64		
9	18	27	36	45	54	63	72	81	
10	20	30	40	50	60	70	80	90	100


$7 \times 9 = 63$

## Ring Around the Products

Objective: To review the multiplication facts.  
 Number of Players: Two to four.  
 Cards: Multiplication cards and a deck of basic number cards without the 0s.  
 Goal: To collect the most multiplication cards.

## Ring Around the Products

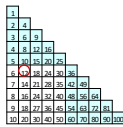
2	6	3	5	1
8	54	12	42	7
5	50	15	9	8
9	1	6	8	3



## Ring Around the Products

2	3	5	1	
8	12	42	7	
5	50	15	9	8
1	6	8	3	


6 9 54



## Ring Around the Products

8	3	5	1	
5	50	15	9	8
1	8	3		

2 6 12



## Ring Around the Products

It is multiplication practice.  
 It's a worksheet!  
 Can also be viewed as division practice.

## Ring Around the Products

Game app for your devices!



### Multiplication Ring

## Division War

Objective: To practice finding quotients quickly.

Number of Players: Two.

Cards: About 40 multiplication cards and an equal number of basic cards without the 0s.

Goal: To collect the most cards.

## Division War

Note: Division is **more** than the inverse of multiplication. The quick recognition of division facts is not sufficient.

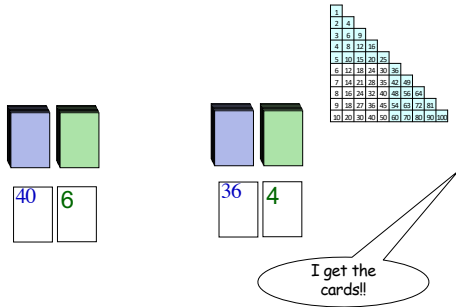
When dividing by 6, you need to recognize that 48, as well as 49, 50, 51, 52, and 53 will give 8 as the quotient, however, all but 48 have a remainder.

## Division War

## Division War

## Division War

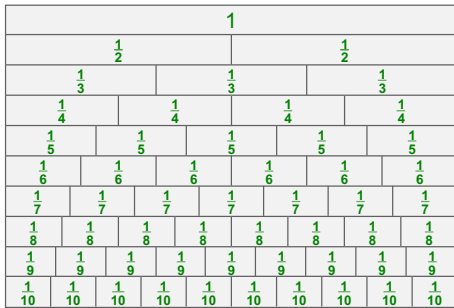
## Division War



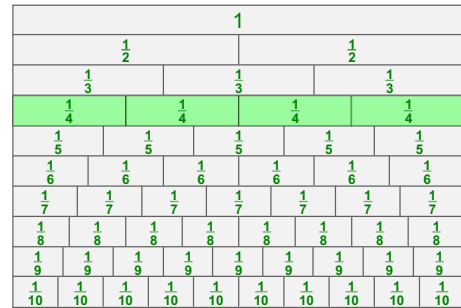
## Division War Variation

Rather than the person with the greater **quotient** taking all the cards, have the person with the greater **remainder** take all the cards.

## Fractions

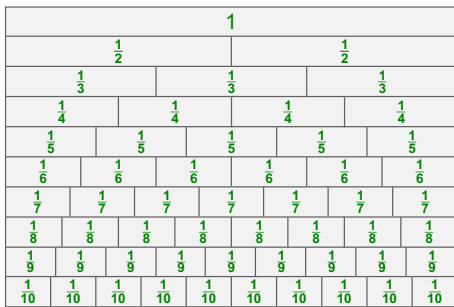


## Fractions



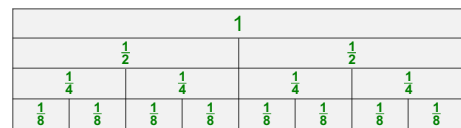
How many fourths in a whole?

## Fractions

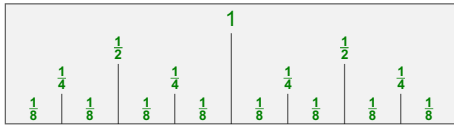


How many fourths in a whole? How many fifths? Eighths?

## Partial Chart



## Partial Chart



## Partial Chart



## Fraction War

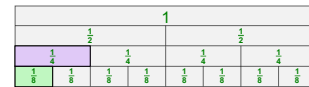
Objective: To practice comparing fractions from the 1s, halves, fourths, and eighths.

Cards: 1s, halves, fourths, and eighths.

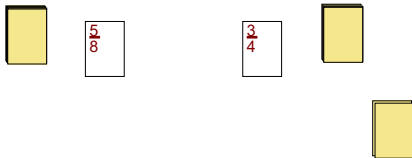
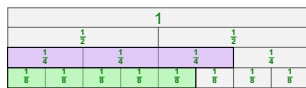
Number of players: Two.

Goal: To capture all the cards.

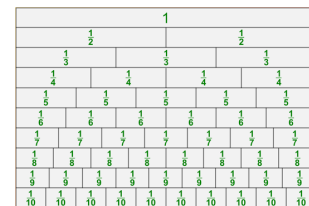
## Fraction War



## Fraction War



## Advanced Fraction War



## Fraction War

App for your devices!



## Fraction War

## Fraction War Variation

Addition –

each player lays down **two** cards, adds them, the greater sum takes the cards

Subtraction –

subtract two card and greater difference takes all four cards

Multiplication or Division –

multiply or divide two cards and greater product or quotient takes the cards

## In Conclusion ...

- Games provide instant feedback.
- Games provide interesting repetition needed for automatic responses in a social setting.
- More importantly, games provide an application for the new information!

## In Conclusion ...

Our goal as a teacher of mathematics is to help our children transform, expand, and refine these beginning ideas into deeper mathematical thinking.

– Dr. Joan A. Cotter