

How old is Sudoku???

Sudoku is a recent invention and is only about 34 years old. Sudoku is a Japanese abbreviation for “**Suji Wa Dokushin Ni Kagiru**” which translates to the digits must remain single.

If you haven't played before, here is an easy one to start.

Every row and every column must have each number only once.

Every group of 4 boxes inside the square with thicker lines must also have each number only once.

2			
		1	
	2		
			4

For example, start with the first square of 4 boxes that has only the number “1” and see where you could put the “2”. It cannot go in the top row because there is already a “2” in that row on the top. So the only box a “2” can go in is to the left of the “1”. The only box a “4” can go in is directly above the “1” because there is a “4” in the bottom right corner. That leaves you putting a “3” above the “1”. Try and finish the puzzle!

4X4 Sudokus are great for those beginners, or students in grades K-3. The most common Sudokus are the 9X9 boxes.

Try to do these on your own!

SUDOKU FOR KIDS: Level 2

PAGE 4

2			1
	4	3	
	2	1	
3			4

3			1
4			2
	3	1	
	4	2	

www.funfonix.com

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

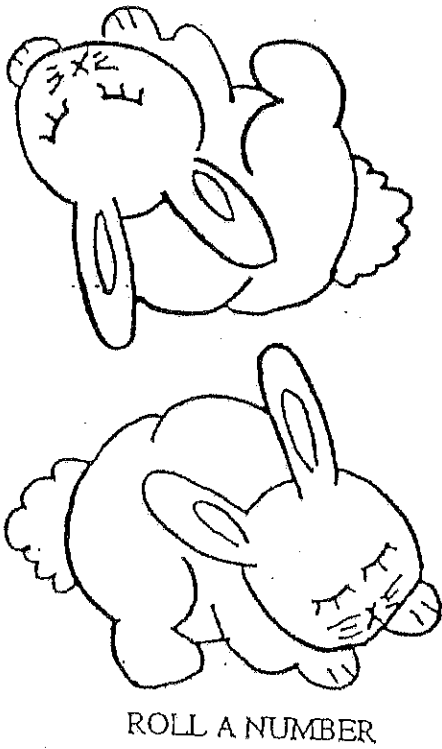
Great math websites to play at home!

1. Hzsd.ca/learningcenter/library (every math outcome in each grade level is linked to interactive games)
2. www.coolmath-games.com (tons of interactive games for kids to play)
3. www.amathdictionaryforkids.ca (a nice interactive math dictionary for kids).
4. olc.spsd.sk.ca/de/math1-3 (great site with mental math strategies and printable resources)
5. pbskids.org/sid (games and online printable activities from Sid the Science Kid)
6. dvl.ednet.ns.ca/browse/results/taxonomy%3A135
(See what Mental Math looks like in the classroom)
7. nlvm.usu.edu/ (National Library of Virtual Manipulatives)
8. www.gov.pe.ca/eecd/index.php3?number1025899
(Mental math documents and curriculum guides)
9. <http://www.mheducation.ca/school/learningcentres/course/view.php?id=9780070988590> (Grade 7 support for Mathlinks book PEI curriculum)
10. <http://www.mheducation.ca/school/learningcentres/course/view.php?id=9780070973381> (Grade 8 support for Mathlinks book PEI curriculum)
11. <http://www.mheducation.ca/school/learningcentres/course/view.php?id=9780070973404> (Grade 9 support for Mathlinks book PEI curriculum)
12. www.khanacademy.org (Khan Academy has great videos showing how to solve math problems at all levels, even high school and university!)
13. www.sumdog.com (Excellent site for students to practice their math skills. Mrs. Taylor and Mr. Munro can reduce or increase the challenge as requested)
14. <http://www.free-training-tutorial.com/angles-games.html> (Great for practicing geometry)
15. <http://ca.ixl.com/standards/prince-edward-island/math> (Outcomes from PEI math curriculum)

(As of April 11th)

Roll A Number

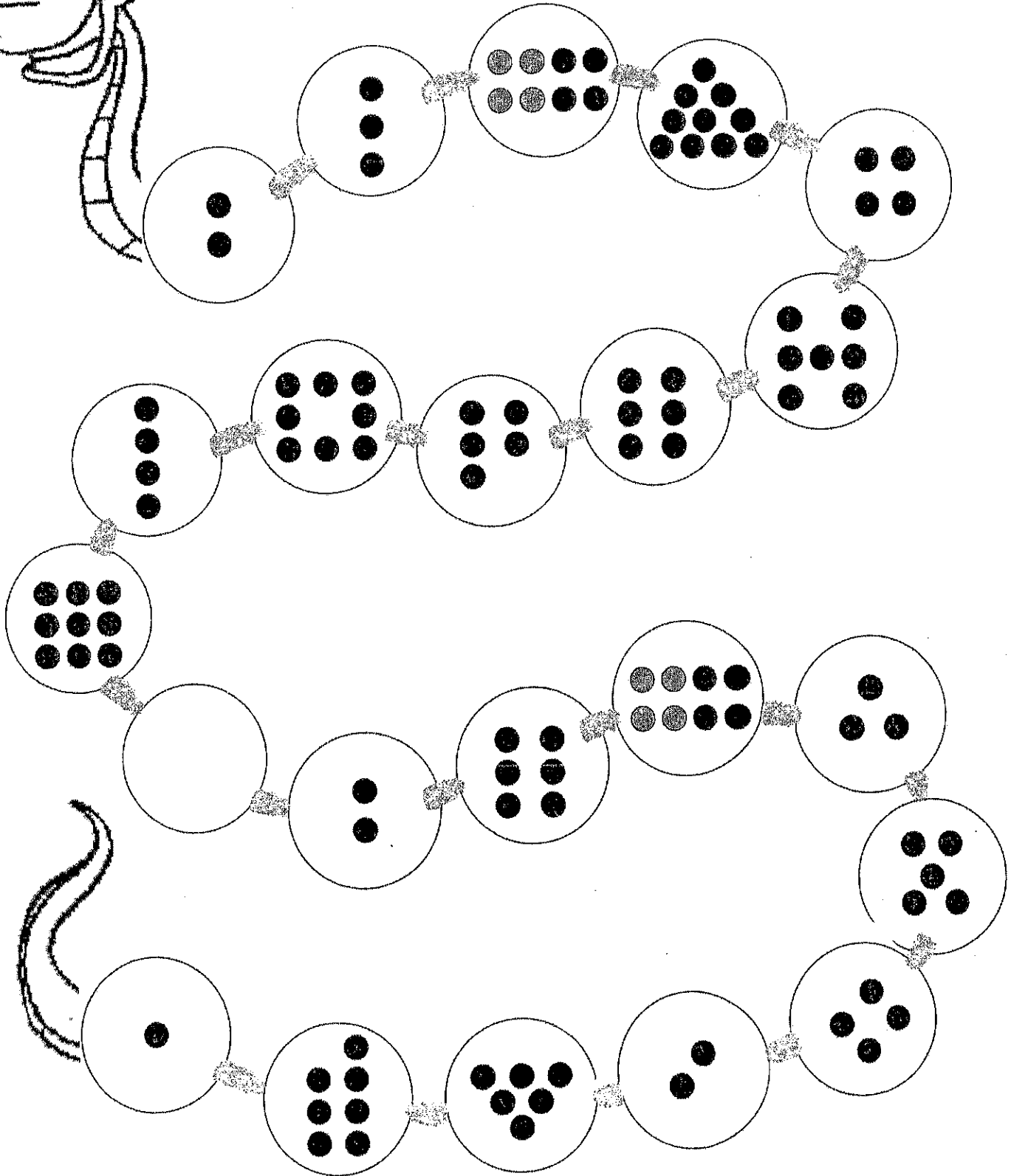
Directions: 2 - 4 players.
Each player has 6 discs.
Take turns rolling 1 die.
Place disc on numeral that equals the number of dots on die.
If that square is already covered, skip turn.
First player to cover all 6 squares is winner.

6	5	4	3	2	1
1	 <p>ROLL A NUMBER</p>				6
2					5
3					4
4					3
5					2
6					1
1	2	3	4	5	6

Terrific 10 Snake !

- Materials:** One game board for two players
20 counters (10 counters of each colour)
- Players:** Group of two players
- Rules:** Players take turns covering pairs of digits that add to 10 along a "snake" of numbers. Each player has their own set of coloured counters. When all the digits are covered- the winner is the one with the longest string of digits covered in their colour.

Terrific 10 snake!



BEAN WAR!

PLAYERS: 2

SKILL STRESSED: -

YOU NEED all the cards in a deck numbered 1 to 10 (40 cards).
supply of beans

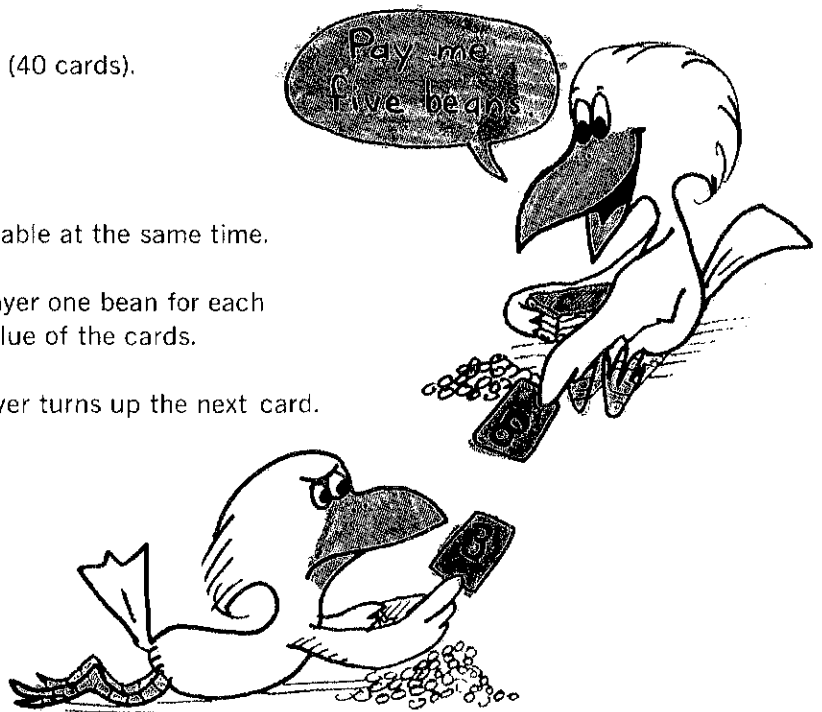
DEAL OUT all the cards.

EACH PLAYER PLACES one card face up on the table at the same time.

PLAYER HOLDING LOW CARD gives the other player one bean for each number of the difference between the face value of the cards.

IF BOTH CARDS FACE UP are the same, each player turns up the next card.

WINNER is the player with the most beans.



FISH FOR TEN

PLAYERS: 2 to 4

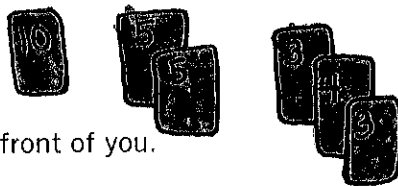
SKILL STRESSED: + to 10

YOU NEED all the cards in the deck numbered 1 to 10 (40 cards)

DEAL OUT 4 cards to each player.

THE OBJECT is to make sums of ten with your cards.

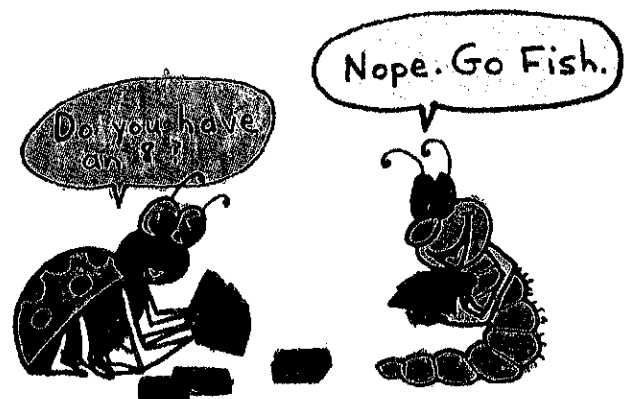
For example:



KEEP your sums of ten in front of you.

ON YOUR TURN ask another player of your choice for a card you need (for example: 6). If he has it, he gives it to you. If he does not have it, he says "GO FISH." Draw a card from the pile in the center.

THE WINNER is the player with the most sums of ten when all the cards are used up.





"Getting To A Dollar" Game

This game is a rather quick one that practices counting by tens and ones from any number. There are some strategies involved that are somewhat sophisticated. However, knowing those strategies is not required to play the game. They just increase your chances of winning.

Players: 2

Materials: 10 pennies and 10 dimes for each player

How to Play: Each player starts with 10 pennies and 10 dimes. Players take turns contributing one, two or three coins to the "pot". On placing the coins in the pot, the player calls out the cumulative total after each coin. The person who puts in the coin to make the pot one dollar is the winner.

The use of a Hundreds Chart will be useful for students.

Variations: a) You can give parameters such as, start at 17 and the first person to reach 114 is the winner OR start at \$1.23 and the first person to reach \$2.00 is the winner.

b) If you want to reinforce counting backwards by tens and ones, then rename the game "Getting to Zero Pennies" OR give the parameter of starting at \$2.31 and the first person to reach \$1.73 is the winner.

This game was presented by Mary Altieri (Lakeland Central School District, Shrub Oak, New York, USA) at the NCTM Conference in Montreal on August 15, 2002.

Addition Strategy War

By the end of grade 2, students are expected to have a fast recall of the basic facts up to $9+9$. In order to support this, we teach the students "strategies" to help them quickly add the numbers. This game is great for helping students quickly identify and name their strategies.

Number of players: 2

Materials: a deck of cards with the 10's and face cards removed

Prior knowledge of the strategies is required.

The cards are shuffled and dealt into two piles, one for each player.

Players turn over their top cards at the same time. The first player to call out an appropriate strategy for adding those two cards wins them.

Note: sometimes there can be more than one applicable strategy.

In the event of a tie, players turn over their next cards and play again. The winner gets all of the cards.

When a player's deck is gone, he/she can shuffle the cards won, turn them face down, and draw from them.

The game is over when one player has won all of the cards.

Strategies:

Doubles

1-Aparts (also known as Doubles + 1)

2-Aparts (also know as Doubles + 2 OR Double the in-between)

Make 10 (usually used when one addend is an 8 or a 9, or with facts that = 10)

Count up (should only be used with +1, +2, or occasionally +3)

"MICE" (for 2 players)






How to play:

When it's your turn:

- 1) Roll both dice and say the numbers; for example, 2 & 5.
- 2) You can choose to
 - a) add the numbers ($2+5=7$)
 - b) multiply them ($2\times 5=10$)
 - c) find the difference (subtract) the numbers ($5-2=3$)
- 3) Say the answer of what you've decided to do with the two numbers and put a counter on your answer.
For example, Player 1 multiplied 2×5 and put the counter on the answer = 10.
- 4) The game ends when somebody gets three of their counters in a line, they win.

Rules:

- 1) If you can't put your counter anywhere, roll again.
- 2) If you get a double (two 5's), you may put your counter on any mouse picture.

1		2	3	4
	5	6	7	8
9	10	11		12
15	16		18	20
24	25	30	36	

Closest to 1000

You need: a deck of playing cards with face cards removed
Paper
Pencil

1. Deal out eight cards to each player
2. Use six cards to make two 3-digit numbers. Aces are worth 1.
3. Write the two numbers on your paper. Add your numbers together to get your total.
4. Subtract your total from 1000 to get your score. Example:
 $542 + 426 = 968$. $1000 - 968 = 32$. Your score is 32.
5. Put all the cards you used to create your two numbers in the discard pile. Keep the two you did not use for the next round.
6. Deal out 6 new cards to all players for round two. Repeat steps 2 -5.
7. The lowest score after 5 rounds wins!

How Long? How Many?

You need: A washable marker
A die
"How Long? How Many?" Recording Sheet
A partner

1. Each player uses a different 10x10 recording sheet.
2. On your turn, roll the die twice to find out how many squares to shade in. The first roll tells you how many squares across to colour. The second roll tells you how many squares down to colour to create a rectangle or square.
3. Write a multiplication sentence inside the rectangle you created.
4. The game is over when one or both partners can not place a rectangle because there is no room on the grid.
5. Write a fraction to show how many of your squares are coloured. Check your partner's answers.
6. Play again.

How Long? How Many? Record Sheet

Covered _____

Uncovered _____

Covered _____

Uncovered _____

MATHO

MathQuest 5 Unit 12, pages 290-291

Objective

- Multiplying decimal numbers

Number of Players: 2

Starter: the player with the longer last name

Materials

- 1 game board per player (Line Master 100)
- 25 markers per player
- paper and pencils



How to Play

- Player 1 chooses any 2 numbers from the Number List and multiplies them, using paper and pencil. If the product appears on the game board, he or she covers it with a marker.
- Player 2 does the same. Play continues with players taking turns.
- The first player to cover 5 squares in a row, column, or diagonal wins.

MATHO

Number List	
1.2	17.6
0.85	2.49
4.12	19.2
3.8	0.09

0.102	66.88	15.656	9.462	21.12
16.32	4.944	0.0765	72.512	2.988
72.96	14.96	4.56	337.92	0.3708
3.23	0.342	0.108	79.104	1.584
0.2241	23.04	1.728	47.808	3.502

Pig

Why: To develop computational skills

No. of Players: 2

Materials: 2 number cubes (1 - 6)
Paper and pencils

Directions:

1. The goal is to be the first to reach a total of 100.
2. On your turn, roll the number cubes as many times as you like, mentally keeping a running total of the sum.
3. When you decide to stop, record the total for your turn. Add this total to the total from previous turns.
4. The game is over when a player reaches a total of 100 or more.

Caution!!

If you roll a 1, your turn ends and your score for that round is 0.

If you roll two 1's, your turn ends and your total score for the game so far goes back to 0.

Cover Up

Why: To practice adding doubles and near doubles.

No. of players: 2

Materials: Spinner with numbers 1 - 9
Gameboard with numbers 2 - 19
Counters

Directions: In turn, spin the spinner and cover double the number or double the number plus 1.
The first player to cover all his or her numbers wins.

Cover Up

2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19

Cover Up

2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19

Four-in-a-Row

Topic: Multiplication Facts

Object: Cover four-in-a-row with "your" markers

Groups: 2 pair players

Materials for each group

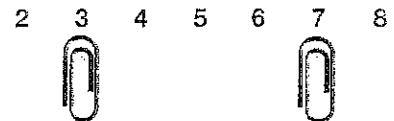
- *Four-in-a-Row* gameboard, p. 125
- 2 paper clips
- markers (different kind for each pair)

Tip If players feel insecure with the facts, you may allow three in a row to win.

Directions

1. The first pair places two paper clips at the bottom of the gameboard, indicating two factors. The same pair multiplies the selected factors and places a marker on the resulting product.
2. The other pair moves one of the paper clips to a new factor. Next, this pair multiplies the two factors and places a marker on that product. (It is permissible to have two paper clips on the same factor.)
3. Pairs continue alternating turns, moving one paper clip each time, multiplying the factors, and placing markers on the product on the gameboard.
4. The winner is the first pair to have four markers in a row horizontally, vertically, or diagonally.

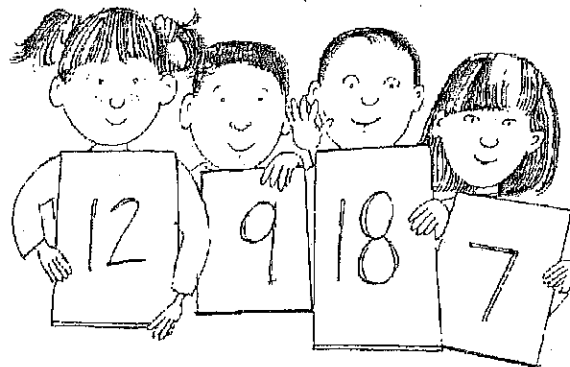
1	2	3	4	5
6	7	8	9	10
12	14	15	16	18
20	21	24	25	27
28	30	32	35	36



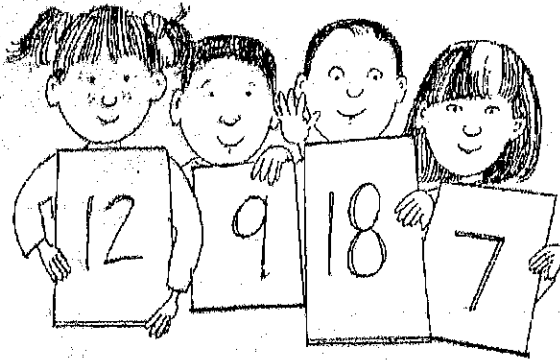
Making Connections

Promote reflection and make mathematical connections by asking:

- What strategies helped you line up your markers in a row?
- What do you notice about the numbers used on the gameboard?
Why do you think this is so?



Four-in-a-Row



1	2	3	4	5
6	7	8	9	10
12	14	15	16	18
20	21	24	25	27
28	30	32	35	36

1 2 3 4 5 6 7 8 9

Practice

Play this game with a partner.

You will need 1 number cube, 2 game markers, and 24 small counters.

$1\frac{4}{5}$	$3\frac{6}{7}$	$4\frac{2}{5}$	$6\frac{1}{2}$	$4\frac{3}{4}$	$5\frac{1}{4}$
$9\frac{1}{2}$	<ul style="list-style-type: none"> • Decide who will be player A and who will be player B. • Put your markers on Start. • Take turns to roll the number cube. Move that number of spaces in either direction. • Put a counter on your strip on the improper fraction that names the same amount as the mixed number you landed on. If you can't place a counter on your strip, the other player takes your turn. • The first player to cover the full strip wins. 				$1\frac{3}{7}$
$5\frac{1}{4}$					$2\frac{2}{3}$
$2\frac{2}{3}$					$5\frac{1}{3}$
$5\frac{1}{3}$					$2\frac{3}{8}$
$1\frac{3}{7}$					$1\frac{4}{5}$
$2\frac{7}{8}$					$2\frac{7}{8}$
$4\frac{2}{5}$	$6\frac{1}{2}$	$9\frac{1}{2}$	$3\frac{6}{7}$	$4\frac{3}{4}$	START

Player A	$\frac{22}{5}$	$\frac{8}{3}$	$\frac{13}{2}$	$\frac{16}{3}$	$\frac{9}{5}$	$\frac{19}{4}$	$\frac{19}{2}$	$\frac{27}{7}$	$\frac{19}{8}$	$\frac{21}{4}$	$\frac{23}{8}$	$\frac{10}{7}$
Player B	$\frac{22}{5}$	$\frac{8}{3}$	$\frac{13}{2}$	$\frac{16}{3}$	$\frac{9}{5}$	$\frac{19}{4}$	$\frac{19}{2}$	$\frac{27}{7}$	$\frac{19}{8}$	$\frac{21}{4}$	$\frac{23}{8}$	$\frac{10}{7}$

The Factor Game



Play with a partner.

You will need one game board and 2 coloured markers.

The object of the game is to circle the factors of a number.

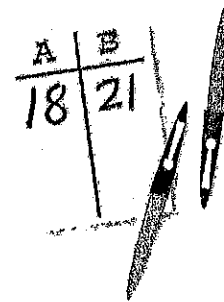
Decide who will be Player A and Player B.

- Player A circles a number on the game board and scores that number. Player B uses a different colour to circle all the factors of that number not already circled. She scores the sum of the numbers she circles.

For example, suppose Player A circles 18.

Player B circles 1, 2, 3, 6, and 9 (18 is already circled)

to score $1 + 2 + 3 + 6 + 9 = 21$ points



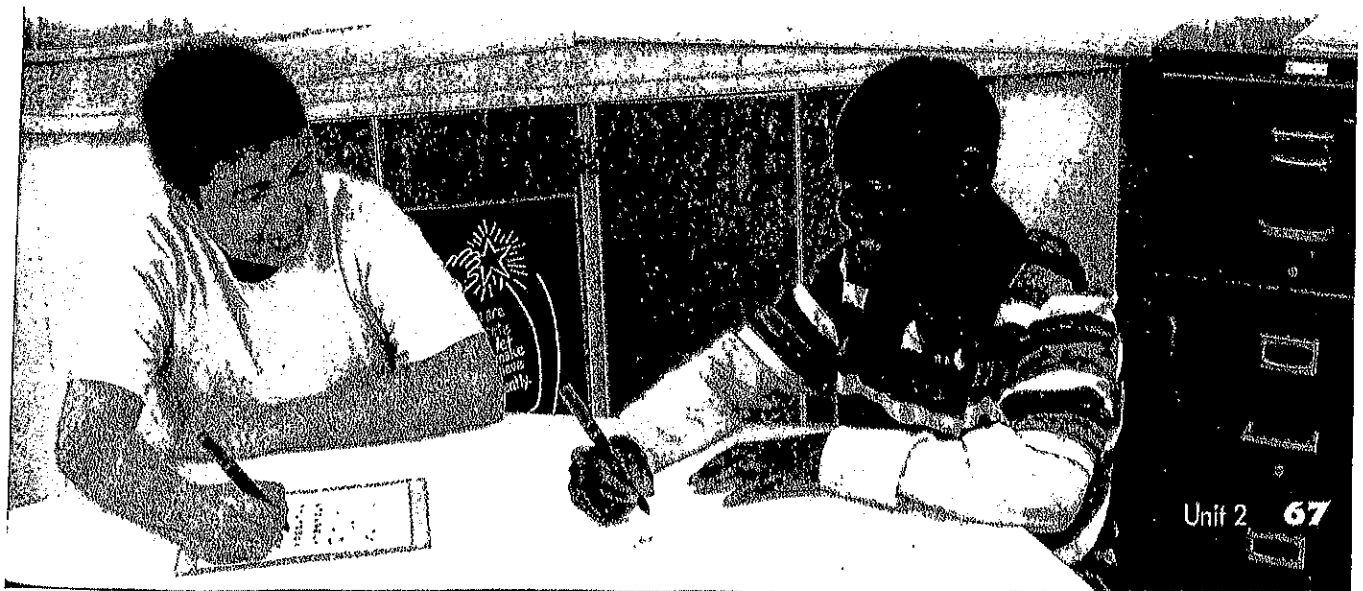
- Player B circles a new number. Player A circles all the factors of that number not already circled. Record the scores.
- Continue playing.

If a player chooses a number with no factors left to circle, the number is crossed out. The player loses her or his turn, and scores no points.

For example, if player A circled 16, but 1, 2, 4, and 8 have already been circled, he would lose his turn and score no points.

①	②	③	4	5	⑥	7	8
⑨	10	11	12	13	14	15	16
17	⑮	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

- The game continues until all numbers have been circled or crossed out. The player with the higher score wins.



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

Nine Men's Morris

Objective

Using logical thinking

Number of players: 2

Materials

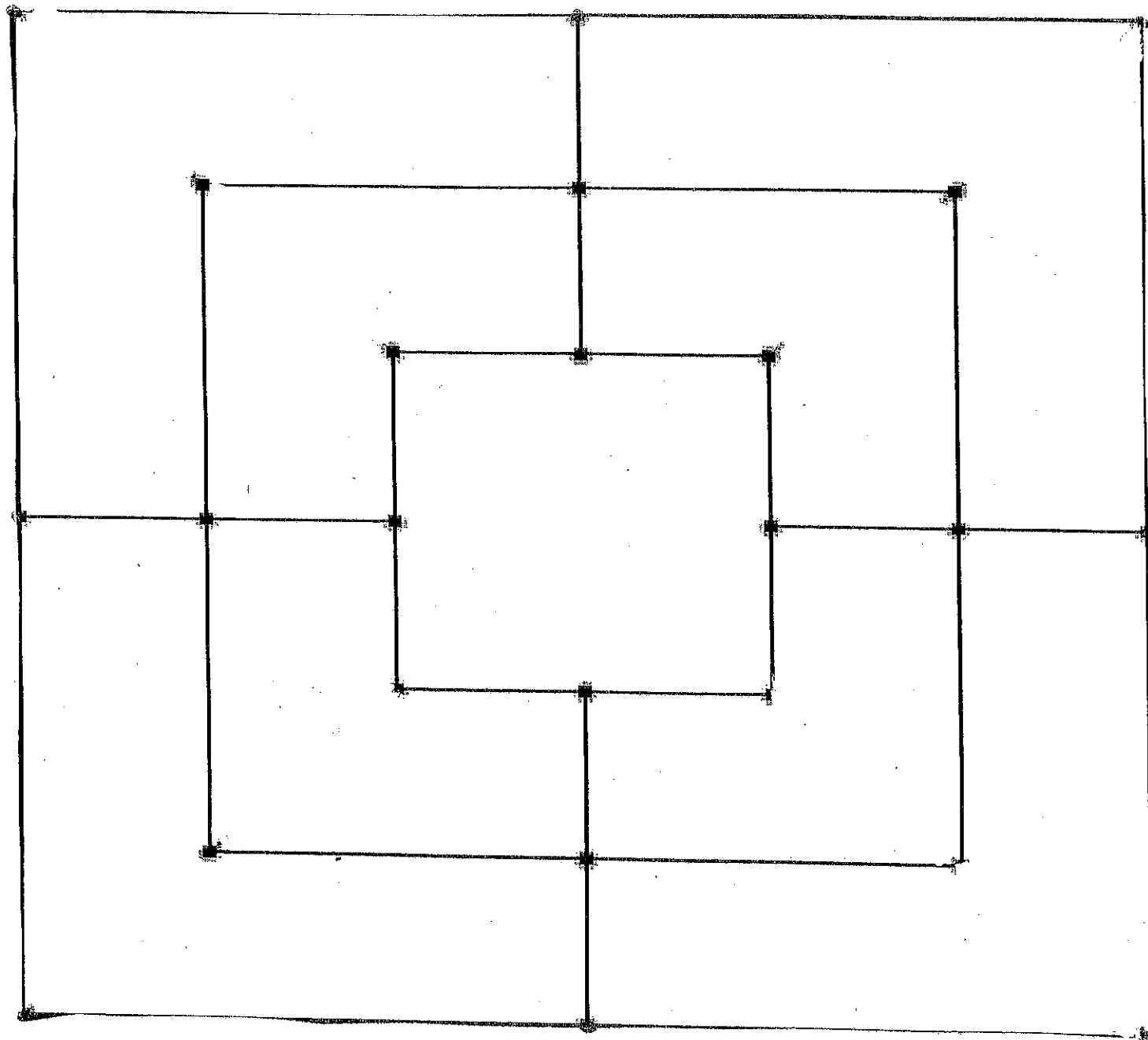
- game board as shown
- 2 sets of 9 markers, each set a different colour

Aim

- To block the other player's markers so that a move is not possible or to remove all but 2 of the other player's markers from the game board

How to Play

- Players decide who plays first.
- Players take turns placing a marker at an angle or an intersection on the game board. When a player forms a vertical or horizontal row of 3 markers, he or she removes from the game board a marker belonging to the other player. A marker that is in a row of 3 cannot be removed. A marker that is removed is not used again in the game.
- After all the markers have been placed on the game board, players take turns moving their markers along line segments to empty intersections. Jumps are not allowed.
- A marker can be moved from a row to form another row and then be returned to the other row on the next turn. Each time a player forms a row, he or she removes a marker belonging to the other player.
- The game continues until a player cannot move a marker or until a player has only 2 markers left



Fraction War.

Create decks of 52 fraction cards -- a different fraction on every card. Arrange students into groups of four. Deal the cards, face down, one card at a time until all students have a pile of 13 fraction cards. Students turn over the top cards in their piles in unison. The student with the largest fraction wins the four cards in play. If a student runs out of cards, s/he is out of the game. The player with the most cards at the end of the game is the winner. Alternate game: The student with the *smallest* fraction wins the cards in play.

Fraction Concentration.

If you teach elementary grade students, [print this page](#), which has on it 24 fraction cards (12 pairs of equivalent fraction cards). Have students cut the cards along the ruled lines to create 24 cards. Turn the cards face down in a grid of 6 cards x 4 cards. Each player takes turns turning over two cards. If the two cards turned are equivalent fractions, the player who turned them over keeps them. If the two cards are not equivalent, players try to remember where they saw the cards. When all cards have been matched, the player with the most cards is declared the winner. If you teach older students, you might create your own decks of cards with more complex fractions. Note that there are examples of four equivalent fraction cards on the printable page provided:

Example:

$\frac{1}{3}$ $\frac{2}{6}$ $\frac{1}{3}$ $\frac{3}{9}$

In this case, students might match the $\frac{1}{3}$ card with a $\frac{2}{6}$ card, a $\frac{3}{9}$ card, or the other $\frac{1}{3}$ card. If a student matches the two $\frac{1}{3}$ cards, then the $\frac{2}{6}$ and $\frac{3}{9}$ cards will form the other match.

Slap Fraction.

This game is for two players. Write a wide variety of fractions on at least 50 index cards. Shuffle the cards and turn the deck upside down. Students take turns flipping over the top card on the deck. If the card turned over can be reduced (for example, a card that says $\frac{4}{12}$ can be reduced to $\frac{1}{3}$), the first player to slap the card and tell what it can be reduced to takes the card. If the card turned over cannot be reduced, the first player to slap the card and say "it can't be reduced" takes the card. When all the cards are gone, the player with the most cards wins the game.

Largest Fraction.

For this game, students can use a regular deck of playing cards with all the face cards and joker cards removed. Ace cards = a value of 1." Shuffle the cards. Deal four cards to each player. Players use the cards they were dealt to make the largest possible fractions.

Example:

Player 1 holds the cards 2, 3, 6, and 8

Player 2 holds the cards 1, 3, 3, and 7*

Player 3 holds the cards 2, 5, 6, and 8

Player 4 holds the cards 1, 2, 7, and 10

Each player makes the largest proper fraction s/he can make:

Player 1: $\frac{6}{8}$

Player 2: $\frac{3}{7}$ *

Player 3: $\frac{5}{6}$

Player 4: $\frac{7}{10}$

In this example hand, the winner is Player 3 because $\frac{5}{6}$ is a larger fraction than all the others.

*Note: Player 2 could make the fraction $\frac{3}{3}$, but that is not a proper fraction. A proper fraction always has a smaller number in the numerator than it has in the denominator.

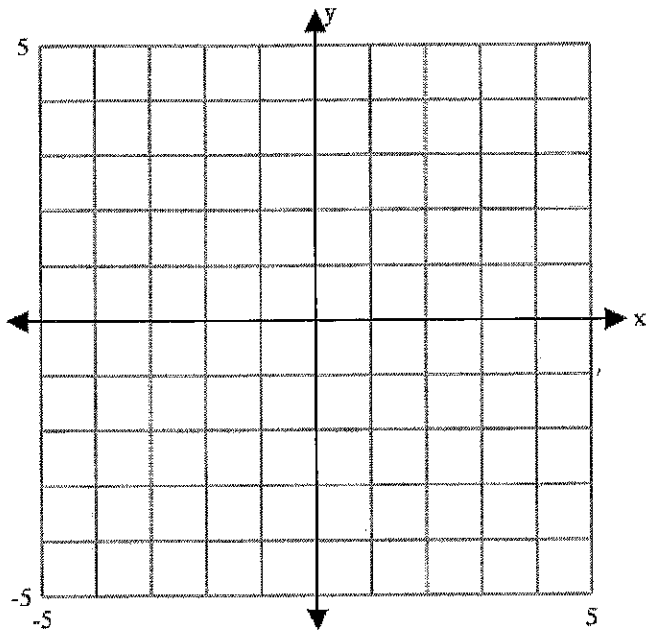
Award Player 3 a point, place all cards from that round at the bottom of the pile, and play another round. The player with the most points at the end of the game is the winner. - See more at:

http://www.educationworld.com/a_lesson/dailylp/dailylp/dailylp139.shtml#sthash.UNJ8dY5x.dpuf

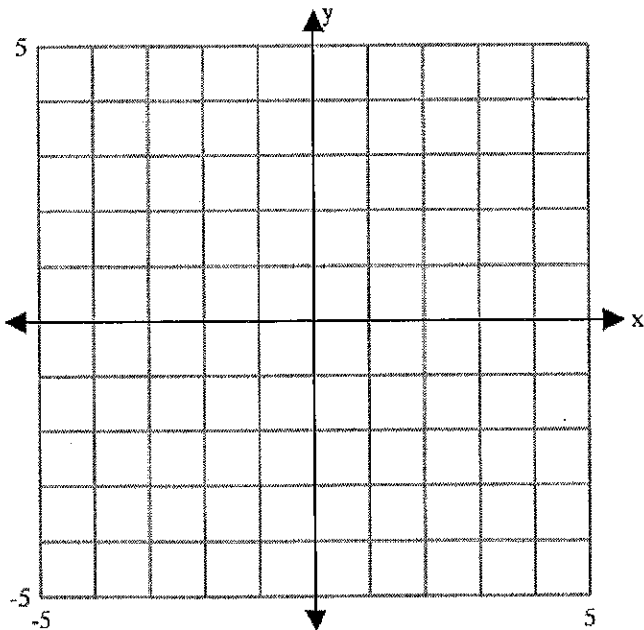
BattleShip - The Coordinate Game



Your Grid



Opponent Grid



Put the following ships on your grid by placing the appropriate letters horizontally, vertically or diagonally.

1 - Aircraft Carrier



1 - Battleship



1 - Cruiser



2 - Destroyers



Instructions (2 Players) :

Both players place their ships on their grid according to the chart above. Whoever goes first calls out a position i.e. 2,-5). The other player says either "Hit" or "Miss" depending upon whether one of his ships is in the position called out. The person calling out should mark a hit or a miss on the "opponent grid" to keep track of the shots. The other person should mark the shot on the "defensive grid". If the shot is a "Hit", the player goes again--otherwise the other player takes a turn. Once the opposing player has scored a hit on all of the spaces for a particular ship, you must call out Hit...you sunk my Cruiser" (or whatever type of ship it was). Once a player has sunk all the opponents ships, he is declared the winner.