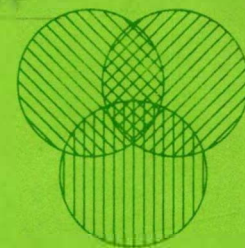




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# Delta-k

*(Formerly Mathematics Council Newsletter)*

VOLUME XI, NUMBER 4, AUGUST, 1972

## Cards, Anyone?

The use of games instead of drill increases in popularity. Games can be invented to correspond to the concept of your concern. The following is adapted from an article by Stephen Krulik in the *New York State Mathematics Teachers' Journal*, June, 1971.

Card games are essentially mathematical in nature, but games of bridge or poker may not yet be acceptable math class activities, especially if there is money on the table. Simple games, such as fish, casino or rummy, are easily adaptable to the lesson you are teaching, and the "deck" is easily made.

### FRACTION WAR

To practice comparing values of fractions. Sixty-six cards about two and one-half inches by three inches (half a three inch by five inch index card will do) are marked with a fraction on each as follows:  $1/2$ ,  $1/3$ ,  $2/3$ ,  $1/4$ ,  $2/4$ ,  $3/4$ ,  $1/5$  ... Do not reduce to lowest terms. Shuffle and deal entire deck face down to any number of players up to six. To play, each player turns up top card. High card wins and winner places all exposed cards face down at the bottom of his deck. To break a tie, tied players turn up another card each. Winner is the player who has the most cards at the end of the game. Game ends if a player runs out of cards.

### FACTOR CASINO

Casino is essentially a matching game. Prepare a 45-card deck by marking in black on each of 20 cards an algebraic expression to be factored; mark in red on another card the factored form of each of these. On each

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of the remaining five cards, mark in red some incorrect factored form, preferably common student errors.

Shuffle and deal five cards to each player and five cards face up on the table; the remainder of the deck is placed face down on the table. Play proceeds around the table in the usual fashion. A player takes a trick when he matches an expression from his hand with its alternate form from the table. Tricks are held in front of each player on the table, face down, in a manner that permits them to be counted easily. If a player takes a trick, he replaces the card from his hand with the top card from the deck. If he cannot take a trick, he must place one card from his hand face up on the table and replace it with the top card from the deck. If a card placed on the table matches one already there and the player discarding it does not notice the matching, the trick belongs to the first player who notices it. A renege occurs if an incorrect matching is made, and the trick belongs to the player who calls the renege. Game ends when deck is finished and there are no more tricks to be taken. Winner is the player who has the most tricks.

#### FACTORUMMY

A little more complex in play, this game follows the usual rummy pattern. Fifty-two cards are prepared in four suits, using differently colored felt-tipped markers. Each of five cards in a suit will be marked with polynomial expressions to be factored (for best results, some should require three factors, even if one factor be a constant). The remaining eight cards in each suit are marked with a factor each. All suits are marked the same, but each in a different color. Cards are dealt seven to a player, face down; the remainder of the deck is placed on the table, face down, with the top card turned up, as in regular rummy.

Each player attempts to arrange his hand so that it consists of groups (three or four cards having the same expression) or runs (a polynomial expression together with its factors).

Play proceeds thus: each player in turn chooses either the top card of the facedown deck or the top card of the faceup deck on the table. He adds this card to his hand. He then discards from his hand one of the eight cards he now holds so that between plays his hand consists of seven cards only. Play ends when a player has no card that does not belong to a run or a group, but no card in that hand may belong to a run and a group at the same time. The winner, of course, must declare the win by the use of the word "rummy".

Each of these games will require a deck for each five players or thereabouts. The level of difficulty can be tailored to suit your needs, all the way from practice in addition to identities in trigonometry. Cost is practically nothing.

If your students enjoy this form of activity, they will invent their own variations. Listen well; you are about to meet the *real* mathematicians.