

## *Rules*

### FACTOR THINKING GAMES

Prime Challenge

Prime Solitaire

Factor Rummy

Prime Canasta

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Mary Kay Beavers

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## DECK LEVELS

The full deck of 171 cards includes the images listed below. The frequency that the card appears in the deck is wrapped in parentheses. When no frequency is given, there is only one of that value in the deck.

### The Full Deck

Prime (13), 2 (25), 3 (18), 5 (12), 7 (8), 11 (5), 13 (4), 17 (3) 19 (3), 4 (2), 8 (2), 10 (2), 20 (2), 25 (2), 50 (2), 6 (2), 9 (2), 15 (2), 14 (2), 21 (2), 16, 32, 64, 40, 80, 100, 200, 12, 18, 24, 27, 30, 36, 45, 48, 54, 60, 72, 75, 81, 90, 96, 120, 600, 900, 28, 35, 42, 49, 56, 63, 70, 84, 98, 280, 420, 22, 33, 44, 55, 66, 77, 88, 99, 26, 39, 52, 65, 78, 91, 34, 51, 68, 85, 38, 57, 76, 95

The four card games defined in this rules booklet can be played at various levels by omitting selected cards. Below we define six different deck levels. Because the number of *prime wild* cards varies from game to game, refer to the rules for each game for this information.

**Level 1** - 2 (25), 5 (12), 4 (2), 8 (2), 16, 32, 64, 10 (2), 20 (2), 25 (2), 40, 50 (2), 80, 100, 200

**Level 2** - Add the following cards to level 1: 3 (18), 6 (2), 9 (2), 12, 15 (2), 18, 24, 27, 30, 36, 45, 48, 54, 60, 72, 75, 81, 90, 96, 120, 600, 900

**Level 3** - Add the following cards to level 2: 7 (8), 11 (5), 14 (2), 21 (2), 28, 35, 42, 49, 56, 63, 70, 84, 98, 280, 420, 22, 33, 44, 55, 66, 77, 88, 99

**Level 4** - Add the following cards to level 3: 13 (4), 26, 39, 52, 65, 78, 91

**Level 5** - Add the following cards to level 4: 17 (3), 34, 51, 68, 85

**Level 6** - Add the following cards to level 5: 19 (3), 38, 57, 76, 95. This is the full deck of number cards. The number of *prime wild* cards included varies depending on the game.

Play with level 1, then level 2, until players learn the multiplication facts. Play with level 3 until players learn to think in terms of *factoring* to help multiply and divide.

## TERMINOLOGY

### • Math Jargon

**Prime Number** - A whole number larger than 1 that is divisible only by itself and 1. The *prime* numbers in the *PrimePak* deck are 2, 3, 5, 7, 11, 13, 17 and 19. Because  $9 = 3 \times 3$ , the number 9 is divisible by 3. Therefore, 9 is not a *prime* number.

**Composite Number** - A whole number larger than 1 that is not *prime*. The numbers 4, 6, 8, 9, 10 and 12 are the first few *composite* numbers. Each *composite* number can be written as the product of *prime* numbers. For example,  $40 = 2 \times 2 \times 2 \times 5$ .

**Factor** - (as a noun) In a multiplication statement like  $8 \times 5 = 40$ , the numbers 8 and 5 are called *factors of 40*. Each one divides evenly into 40. *Factors* are sometimes called *multipliers* or *divisors*.

**Factor** - (as a verb) The act of expressing a whole number as the product of whole numbers. The number 40 can be *factored* in several ways. Two ways to *factor 40* are  $40 = 4 \times 10$  or  $40 = 2 \times 5 \times 4$ .

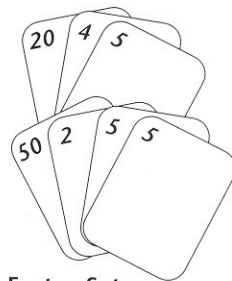
### • PrimePak Jargon

**Prime Wild Card** - A card with the word "prime" printed on it. When included in a game, this card can be used as any *prime* number that is part of the game. It cannot be used as a *composite* number. The prime numbers in the *PrimePak* deck are 2, 3, 5, 7, 11, 13, 17, and 19.

P  
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**Natural Card** - A card that is not a *prime wild* card. It can be either a composite or prime number.

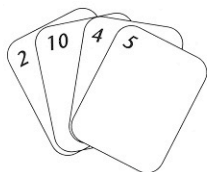
**Factor Set** - A set of at least three cards that includes a *composite* number and two or more numbers that multiply to give that number. For example 20, 4 and 5 make a *factor set* because  $20 = 4 \times 5$ . The numbers 50, 2, 5, and 5 also form a *factor set* because  $50 = 2 \times 5 \times 5$ .



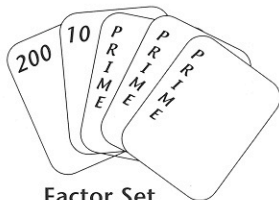
Factor Sets

The numbers 2, 10, 4, and 5 are not a *factor set* even though  $2 \times 10 = 4 \times 5$ . A *factor set* must include the answer that is the product of all the other numbers.

If the game includes *prime wild* cards, a *factor set* must contain no more than three *prime wild* cards and at least two *natural* cards. The *prime wild* cards shown here are being used for the primes 2, 2, and 5.



**Not a Factor Set**



**Factor Set**

## MATH RULES & STRATEGIES

### **Multiplication Facts**

Playing with the *PrimePak* deck will help players learn the multiplication facts. Players not only need to know that 3 times 6 is 18 but they must also recognize that 18 is 3 times 6. It will be necessary for players to get beyond using repeated addition to calculate multiplication.

Play with deck level 1 to help players learn the facts that contain prime factors 2 and 5. Play with deck level 2 to help players learn the facts that contain prime factors 2, 3, and 5. Play with deck level 3 to help players learn the remaining multiplication facts through 11. Continue to play with deck level 3 until players know how to think of numbers in factored form. For example, when they see 72, they should think of it as  $9 \times 8$ .

### **Divisibility Rules**

Players need to know the divisibility rules in mathematics. Here we list the ones that are very useful to learn.

- **Divisibility by 2** - Any number that ends in a digit that is a 0, 2, 4, 6 or 8 is *divisible by 2*. For example, the numbers 50, 22, 34, 26 and 98 are all divisible by 2. Furthermore, this means that each of these numbers can be expressed as the product of 2 times a whole number. For example,  $50 = 2 \times 25$ ,  $22 = 2 \times 11$ ,  $34 = 2 \times 17$ ,  $26 = 2 \times 13$ , and  $98 = 2 \times 49$ .
- **Divisibility by 5** - Any number that ends in a 0 or 5 is *divisible by 5*. For example, the numbers 100 and 35 are both divisible by 5. Each of these numbers can be expressed as 5 times a whole number:  $100 = 5 \times 20$  and  $35 = 5 \times 7$ .
- **Divisibility by 10** - Any number that ends in a 0 is *divisible by 10*. For example, the numbers 40, 280 and 900 are all divisible by 10. Each of these numbers can be expressed as 10 times a whole number:  $40 = 10 \times 4$ ,  $280 = 10 \times 28$  and  $900 = 10 \times 90$ .
- **Divisibility by 100** - Any number that ends in two 0 digits is *divisible by 100*. For example, the numbers 200 and 900 are both divisible by 100. These numbers can be expressed as 100 times a whole number:  $200 = 2 \times 100$  and  $900 = 9 \times 100$ .
- **Divisibility by 3** - If the sum of the digits of a number is divisible by 3, then the number itself is *divisible by 3*. For

example, the number 51 is divisible by 3 because  $5 + 1 = 6$  and 6 is divisible by 3. The number 78 is also divisible by 3 since  $7 + 8 = 15$  and 15 is divisible by 3. The numbers 51 and 78 can be expressed as 3 times a whole number:  $51 = 3 \times 17$  and  $78 = 3 \times 26$ .

• *Divisibility by 9* - If the sum of the digits of a number is divisible by 9, then the number itself is *divisible by 9*. For example, the number 81 is divisible by 9 because  $8 + 1 = 9$  and 9 is divisible by 9. The number 99 is also divisible by 9 because  $9 + 9 = 18$  and 18 is divisible by 9. These numbers can be expressed as 9 times a whole number:  $81 = 9 \times 9$  and  $99 = 9 \times 11$ . The number 96 is not divisible by 9 because  $9 + 6 = 15$  and 15 is not divisible by 9.

• *Divisibility by 11* - Two-digit numbers with identical digits like 22, 33 and 77 are all divisible by 11. For example,  $22 = 2 \times 11$ ,  $33 = 3 \times 11$  and  $77 = 7 \times 11$ .

There is no easy way to check divisibility by 7. For example, to see that 91 is divisible by 7 one must divide 91 by 7 to get the whole number 13. Therefore,  $91 = 7 \times 13$ .

When players recognize that a number like 51 is divisible by 3, they need to divide 51 by 3 to obtain the other factor. Here we show the long division.

$$\begin{array}{r} 17 \\ 3 \overline{)51} \\ \underline{3} \phantom{0} \\ 21 \\ \underline{21} \\ 0 \end{array} \quad \text{Therefore, } 51 = 3 \times 17.$$

To help do this type of problem mentally it can be helpful to first learn how to write up the above problem in a briefer format as shown here.

$$\begin{array}{r} 17 \\ 3 \overline{)51} \end{array} \quad \begin{array}{l} 3 \text{ into } 5 \text{ goes } 1 \text{ with } 2 \text{ left over.} \\ \text{The } 2 \text{ is placed in front of the } 1 \\ \text{to make } 21. \text{ Then } 3 \text{ into } 21 \text{ is } 7. \end{array}$$

### Think Factor! Don't Just Multiply and Divide

Another skill needed for *PrimePak* players is to think of numbers in factored form to help with multiplication and division. To be able to do this one needs to not only know the basic multiplication facts but also the divisibility rules discussed above.

For example, when thinking about the number 56, think of it as  $7 \times 8$  and then realize that 8 is  $2 \times 4$ .

$$\begin{aligned} 56 &= 7 \times 8 \\ &= 7 \times 2 \times 4 \end{aligned}$$

Now you see that 56 is divisible by 14 because it contains factors  $7 \times 2$ . In fact, you can see that the other factor is 4 without doing long division. Therefore,  $56 = 14 \times 4$ .

• If you want to know if 420 is divisible by 15, you do not need to do long division of 420 by 15. Think

$$\begin{aligned} 420 &= 42 \times 10 \\ &= 6 \times 7 \times 10 \\ &= 2 \times 3 \times 7 \times 2 \times 5 \end{aligned}$$

Now you see 420 is divisible by 15 because it contains factors  $3 \times 5$ . In fact, you can see what the other factor is. Dividing 420 by 15 undoes the multiplication by both 3 and 5 leaving  $2 \times 7 \times 2 = 28$ . Therefore,  $420 = 15 \times 28$ .

If you want to see that 900 is not divisible by 27, note that 900 has only two factors of 3.

$$\begin{aligned} 900 &= 9 \times 10 \times 10 \\ &= 3 \times 3 \times 10 \times 10 \end{aligned}$$

The number 27 has three factors of 3.

$$\begin{aligned} 27 &= 9 \times 3 \\ &= 3 \times 3 \times 3 \end{aligned}$$

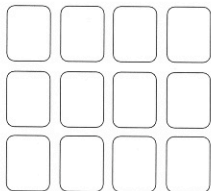
Therefore, it is impossible for 27 to divide evenly into 900 because there are more factors of 3 in 27 than in 900.

## PRIME CHALLENGE

**Players** - 2 to 4 players or teams

**Deck** - Level 1 or 2, include no *prime wild* cards; Level 3, include 7 *prime wild* cards; Level 4 or 5, include 11 *prime wild* cards; Level 6, include 13 *prime wild* cards.

**Layout** - The dealer lays out a foundation that is replenished at the beginning of each turn. For deck levels 3 through 6, the foundation is a rectangular array of 12 cards face up, three rows of four cards each. For deck levels 1 and 2, lay out only nine cards face up. The remaining cards form the draw pile that is controlled by the dealer. Cards are added outside the main foundation by the dealer when a player requests, "hit." As play progresses, players collect cards by forming *factor sets*. These cards are saved for scoring at the end of the round.



**Objective** - To collect as many cards as possible from the foundation by forming *factor sets*. A *factor set* consists of a composite number and two or more numbers that multiply to give that number. For example, the numbers 42, 6, and 7 form a *factor set*. *Prime wild* cards may replace the actual prime numbers in a *factor set* with some restrictions. A *factor set* may contain no more than three *prime wild* cards and must contain at least two *natural* cards.

The collected cards are kept in a stack face down to be counted and recorded at the end of a round. Each round ends when the draw pile is out of cards and there are no more *factor sets* in the foundation. One point is awarded for each *natural* card and two points for each *prime wild* card. The winner is the player with the highest total score.

**Basic Play** - At the beginning of a round, the player to the left of the dealer plays first. A player's turn begins by the dealer filling up the main foundation. (See the paragraph entitled *Dealer Options* at the end of this section for ways of incorporating the dealer into the game.) During his turn, the player forms as many *factor sets* as possible. When picking up a *factor set* the player is required to pick up the answer first, then the numbers that multiply to give that result. This must be done using only one hand. The order and method is important so that opponents can easily check the accuracy of a play. More details are

7

discussed in the following paragraphs.

**Time Limits** - Initial player action must take place within about 30 seconds, additional actions within about 15 seconds. A challenge must come within 2 seconds of the offense. The dealer monitors the time.

**"Hit" Request** - When a player sees no *factor set* in a full foundation, the player says "hit" to request an additional card from the dealer. If there is no challenge from an opponent the dealer places a card outside the main foundation. The player may now use this card to help make a *factor set*. Additional hit cards may be requested until at least one card from the main foundation is used in a *factor set*. Any hit cards that accumulate outside are left there until used in a *factor set*. It's okay for players to form *factor sets* using only those hit cards that are outside the main foundation. Within a single turn, a player may not request a *hit* if he has already formed a *factor set* using a card from the main foundation.

**Ending a Turn** - After a player has made at least one *factor set* that uses at least one card from the main foundation, and the player sees no more *factor sets* to form, he says "done" to end the turn.

**Challenges** - Opponents may challenge players for overlooking *factor sets* or breaking rules of the game. When they see an offense, they simply say, "challenge," to interrupt the play. Here are some challenge opportunities.

- If a player says "hit" or "done" and an opponent sees that the foundation actually has a *factor set*, an opponent may challenge. The challenge must be made within about two seconds. The challenger picks up as many *factor sets* as possible from the foundation and puts these cards in his own stack. When finished the challenger says, "done." The challenged player's turn ends. The foundation is replenished by the dealer and play passes to the left of the challenged player.
- If a player picks up a set of cards that do not form a valid *factor set*, an opponent may challenge. If the challenge is valid, the invalid *factor set* is put back in the foundation and the challenger wins three cards (or 3 points) from the player. The original challenged player's turn ends and play passes to the left.
- There are some offenses that do not end a player's turn and the challenged player is penalized only one card (or one point). These offenses include picking up cards in the

wrong order (the correct order is the answer first, then the numbers that multiply to give that result), using two hands to pick up cards, using more than three *prime wild* cards in a *factor set*, or not using at least two *natural* cards in a *factor set*. After the challenge, the player corrects the action and gives up 1 card (or 1 point) to the challenger. The player says "done" to end the turn.

Penalty scores are combined if the challenger identifies more than one offense. If a challenge is invalid, the challenger must give up 3 cards (or 3 points) to the player that was falsely challenged. Any invalid *factor sets* collected are placed back in their original positions and play continues normally.

If there is more than one challenger, the first to say "challenge" gets the opportunity. In case of a tie, the player with fewer total points gets the opportunity. The dealer settles all disputes.

**Dealer Options** - The dealer continues to deal throughout an entire round. A round ends when the draw pile is out of cards and there are no more *factor sets* in the foundation. Because playing *Prime Challenge* requires concentration and the dealer is active throughout a round, his duties can interfere with his ability to focus as a player. For this reason, we suggest three different alternatives for incorporating the dealer into the game. Choose the one that best fits your situation.

**Option 1** - Players can drop out of play while dealing. You will need at least three players to use this alternative. Draw to see who is the first drop-out dealer – highest card chooses the first dealer. The next drop-out dealer passes to the left. The drop-out dealer does not take a usual turn during play but is allowed to collect cards or points by making challenges. When playing with drop-out dealers, the game does not end until each player has been the drop-out dealer the same number of times.

**Option 2** - If a teacher (or parent) is playing with learners, the teacher can be the dealer all the time. This can be done with or without the teacher taking a turn. The teacher should definitely make challenges.

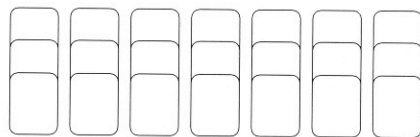
**Option 3** - If participants want to play while dealing, draw to see who deals first – highest card chooses the first dealer. After the first round, the player who has the highest total score deals. In case the score is tied, draw to see who deals next – highest card chooses which of the tied players deals.

## PRIME SOLITAIRE

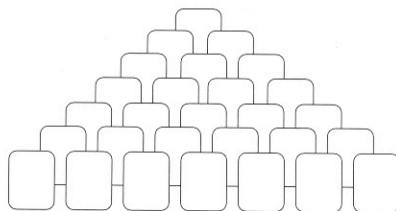
**Players** - 1

**Deck** - Levels 1, 2, 3, 4, 5 or 6, no *prime wild* cards.

**Layout** - For deck levels 3 through 6, lay out a foundation of three rows of seven cards each face-up where each row overlaps the previous row without hiding it.



For deck levels 1 and 2, lay out five overlapping rows of seven cards each. A pyramid layout of overlapping rows can make any level more challenging. Add more rows to either type of foundation to slightly increase the difficulty.



Cards in the foundation cannot be moved to a different position within the foundation, and no cards can be added to the foundation during play.

The remaining cards form a face-down draw pile. These are turned face-up one at a time to form a single stack that may be fanned out to see the cards below the top card. The order of the face-up stack may not be changed. As play progresses, the player places the collected *factor sets* face-down in a single stack off to the side. These cards are out of the game.

**Objective** - To win, the player must clear the entire foundation by forming *factor sets*. See page 2 for the definition of a *factor set*. The foundation must be cleared before going through the draw pile once, one card at a time.

**The Play** - After laying out the desired foundation, the player turns face-up one card at a time from the draw pile. This forms a face-up stack from which cards may be taken to help form *factor sets* with available cards in the foundation. Available cards in the foundation are those that are not covered by another card in the foundation. Two or more overlapping cards may be collected all at once if they belong to the same *factor set*. Likewise, consecutive cards at the top of the face-up stack may be collected all at once if they belong to the same *factor set* and if at least one foundation card is included in the *factor set*. No *factor set* may be formed entirely from the face-up stack. The order the cards are taken is not an issue. The answer can be collected before, after or in between the factors that multiply to give it. Players may fan out the face-up stack to see the cards below the top card but only consecutive cards may be taken. Skipping a card is not allowed. Once a card from the draw pile is exposed it becomes the top card of the face-up stack. No fair putting it back on the draw pile after you have taken a peek at what it is.

**Chance of Winning** - At levels 3 through 6, a player should win about 1 out of 4 attempts when playing with the foundation of three overlapping rows of seven cards each. At levels 1 and 2, a player should win almost every time, even when playing with the pyramid foundation. In fact, at these lowest two levels, the win should come fairly early before many cards have been turned over from the draw pile.

**Strategy** - To win at levels 3 through 6, players need to sacrifice *factor sets* to set up other ones later. In general, keep the smaller prime numbers like 2, 3, and 5 available on the foundation to help you clear larger numbers later. Also look over the foundation to spot any numbers that will be difficult to clear such as the larger prime numbers like 11, 13, 17 and 19; composite numbers that contain larger prime factors like 44, 51 and 57; composite numbers that contain several factors of 2 or 3 like 32, 64, 81 and 96; and larger numbers like 70 or above. Plan ahead and make sacrifices to help clear these numbers.

## FACTOR RUMMY

**Players** - 2 to 6 players

**Deck** - We recommend using deck levels 2 or higher for *Factor Rummy*. For levels 4, 5 and 6, include 11 *prime wild* cards; for levels 2 and 3, include 7 *prime wild* cards.

**Player's Hand** - Deal a hand of 11 cards when playing with deck levels 3 or higher. For deck level 2, deal a hand of only 10 cards.

**Layout** - The dealer gives each player 11 (or 10) cards, one card at a time beginning with the player on his left and ending with himself. Each player picks up the cards and holds them so that the opponents cannot see them. These cards constitute the player's hand. The dealer places the remaining stack face-down in the middle of the play area. This stack is now the *draw pile*. The top card of the *draw pile* is turned face-up to initiate the *discard pile*.

No cards are laid down until a player *goes out*. When this happens, the other players expose their cards by laying them face-up in front of them while grouping as many as possible into *factor sets* and identifying the number of cards that are outside of *factor sets*. Cards in a hand that are outside *factor sets* are called *deadwood* cards.

**Objective** - The immediate objective is to begin filling the hand with *factor sets*. A *factor set* consists of a composite number and two or more numbers that multiply to give that number. For example, the numbers 42, 6, and 7 form a *factor set*. The numbers 42, 2, 3 and 7 form a *prime factor set* because all the multipliers are prime numbers. *Prime wild* cards may replace the actual prime numbers in a *factor set* with some restrictions. A *factor set* may contain no more than three *prime wild* cards and must contain at least two *natural* cards. Players strive to *go out* to receive bonus points. Catching opponents with *deadwood* cards (cards outside of *factor sets*) awards additional points. There are three ways to *go out*. These are discussed later. The first player to get 200 points wins.



**The Play** - Play begins with the person that sits to the left of the dealer. A player begins a turn by either picking up the top card of the face-up *discard pile* or drawing the top card from the face-down *draw pile*. If the player is not *going out* he must discard to end the turn. No cards are laid down until a player *goes out*. A player can *go out* only during his turn. This can be done before drawing and if he draws, he can *go out* with or without a discard. Since discarding ends a turn, the player must announce he is *going out* and lay down his cards before discarding.

**Going Out & Scoring** - There are three ways to *go out*.

- **Going out "Prime Factor"** - The hand is completely filled with *prime factor sets* where all multipliers are prime numbers or *prime wild* cards. The player says, "prime factor" as he lays down the hand with or without a discard. The opponents lay down their cards and identify the number of *deadwood* cards. The player that went out is awarded a 25-point bonus. In addition, the going-out player gets 2 points for each of the opponent's *deadwood* cards.
- **Going out "Factor Rummy"** - The hand is completely filled with *factor sets* where at least one multiplier is *not* a prime number. The player says, "factor rummy" or simply "factor" as he lays down the hand with or without a discard. The opponents lay down their cards and identify the number of *deadwood* cards. The player that went out is awarded a 20-point bonus. In addition, the going-out player gets 2 points for each of the opponents' *deadwood* cards.
- **Going out "Factor with Deadwood"** - A player can *go out* if left with only one or two *deadwood* cards after discarding. The player says, "factor with deadwood" as he lays down the hand with a discard. This type of going out does not award bonus points. It is used as a defensive ploy. The going-out player receives 2 points for each of the opponents' *deadwood* cards that exceed the number of *deadwood* cards that the going-out player has. For each opponent that has an equal or fewer number of *deadwood* cards, the going-out player is penalized 10 points.

At the end of a round, all points or penalties are applied to the going-out player's score. The first player to get 200 points wins.

## PRIME CANASTA

**Players** - 2 to 4 individual players. (Four players can play in two partnerships. See the paragraph on "Alternative Rules for Partnerships.")

**Deck** - Deck level 6, including 13 *prime wild* cards; deck levels 4 or 5, including 11 *prime wild* cards; or deck level 3, including 7 *prime wild* cards.

**Dealer** - Draw to see who deals first. Highest card decides who deals. After the first deal, the player with the highest score deals. In case of a tie, the tied players draw to see who chooses which of the tied players deals.

**Player's Hand** - Deal a hand of 13 cards.

**Layout** - The dealer gives each player 13 cards, one card at a time beginning with the player on his left and ending with himself. Each player picks up the cards, fans them out, and holds them so that the opponents cannot see them. These cards constitute the player's hand. The dealer places the remaining stack face-down in the middle of the play area. This stack is now the *draw pile*. The top card of the *draw pile* is turned face-up to initiate the *discard pile*. If this card is a *prime wild* card, the dealer immediately turns up two more cards so that the discard pile is three cards deep.

Unlike *Factor Rummy*, players may lay down sets during a turn without going out. The various types of sets formed in *Prime Canasta* are discussed in the next paragraph. The cards used in the *initial laydown* must have a total *minimum point value* that depends on the player's total score at the beginning of the round. The *initial laydown* requirements are discussed later.

**Objective** - The immediate objective is to begin filling the hand with *factor sets*, *factor canastas*, or *consecutive prime canastas*. A *factor set* that contains five or more cards is called a *factor canasta*. A set of six or more consecutive prime numbers makes a *consecutive prime canasta* (or *prime canasta*). Groups of five or fewer consecutive prime numbers cannot be laid down as a special set. *Prime wild* cards may replace the actual prime numbers in *factor sets* and *canastas* with two restrictions. A set of any type may contain no more than three *prime wild* cards and must contain at least two *natural* cards.

Players lay down *factor sets* to receive point values for individual cards. They lay down *canastas* to receive bonus

points as well as points for individual cards. A certain number of *canastas* are required to go out. This number depends on the player's score at the beginning of the round. Players strive to go out to catch their opponents holding cards that will count against them. Unlike *Factor Rummy*, at the end of the round, all cards left in the hands of opponents count against them even if some form *factor sets* or *canastas*. The scoring is done at the end of a round. The first player to get 5000 points wins.

**Basic Play** - Play begins with the person that sits to the left of the dealer. A typical turn begins with the player drawing two cards from the face-down draw pile and discarding one card to end the turn. After the discard pile is at least three cards deep, a player may choose to select cards from the discard pile rather than drawing two cards from the draw pile. There are certain requirements attached to this action. See the section entitled "Selecting from the Discard Pile" for this information.

A player can lay down sets only during his turn. The cards used in the *initial laydown* must have a total *minimum point value* that depends on the player's total score at the beginning of the round. See the section entitled "Initial Laydown Requirements" for this information. Unless a player can go out, he is required to keep at least one card in his hand and must discard to end the turn.

A player can go out only during his turn. To go out, all cards in the player's hand, except a discard, must fit into *factor sets* or *canastas*. There can be no *deadwood* cards as are allowed in *Factor Rummy*. The going-out player must also have a minimum number of *canastas* that depends on the player's total score at the beginning of the round. Here is a list of the *canasta* requirements.

TOTAL SCORE	NUMBER of CANASTAS To Go Out
below 0	1
0 - 2990	2
3000 & up	3

Going out can be done with or without a discard. Because discarding ends a turn, a player that is going out with a discard must lay down the cards in his hand and announce that he is going out before he discards.

**Card Point Values** - Each card is worth a specified number of points as listed in the following table.

PRIMES	COMPOSITES	POINT VALUE
prime wild	100 & up	50
17 & 19	80s & 90s	40
13	60s & 70s	30
7 & 11	40s & 50s	20
2, 3 & 5	below 40	10

For example, the prime number 7 is worth 20 points, the composite number 120 is worth 50 points and the composite number 72 is worth 30 points.

**Initial Laydown Requirements** - Each card is worth a specified number of points as listed above. The first time that a player lays down sets in a round, the cards used in this *initial laydown* must be worth a total *minimum value* depending on the player's total score at the beginning of the round. Here is a list of the *minimum values* required.

TOTAL SCORE	MINIMUM VALUE For Initial Laydown
below 0	50
0 - 990	100
1000 - 1990	150
2000 - 2990	200
3000 & up	250

Players may use *prime wild* cards (worth 50 points each) to help reach the total *minimum value*. Players cannot use *canasta* bonus points to help reach the *minimum value*.

In case the player is selecting cards from the discard pile instead of drawing two cards from the draw pile in the same turn that he is making his *initial laydown*, none of the cards from the discard pile may be used to help reach the *minimum value*. However, the point values of the *natural* cards from the hand that are laid down to make a set with the top card of the discard pile can be used to help reach the *minimum value*.

**Selecting from the Discard Pile** - After the discard pile is at least three cards deep, a player may choose to select cards from the discard pile rather than drawing two cards from the draw pile. To be eligible to do this, the player must be able to lay down the top card of the discard pile in a *factor set* or *canasta* with cards from his hand or use the top card to expand a set that has already been laid down. If the discard pile is not *frozen* the player may use *prime wild* cards from his hand to help make this set.

In case the discard pile is *frozen* (see below), the top card of the discard pile must be put with *natural* cards from the *player's hand*. No *prime wild* cards are allowed and the top card of the discard pile cannot be added to expand an existing set that has already been laid down.

After a player exhibits that he is eligible to select cards from the discard pile, he must now choose at least two more cards from the discard pile. In doing this the player fans out the discard pile and chooses two or more of the remaining cards. He lays these cards face up in his play area until he has finished the selection. The player is not allowed to put them in the hand until he has completed the selection. After completing the selection, he folds the discard pile back in a stack and puts the selected cards either in his hand or uses them to lay down more sets. If the player is not *going out*, there must be at least one card left in his hand after discarding to end the turn.

**Frozen Discard Pile** - There are two situations that *freeze* the discard pile. First, the discard pile is *frozen* for all players anytime it contains a *prime wild* card. Second, it is *frozen* with respect to a player who has not yet made the *initial laydown*.

If a *prime wild* card is the first card of the discard pile, the dealer immediately turns up two more cards to make the *frozen* discard pile three cards deep.

A *frozen* discard pile limits a player's ability to choose the option of selecting cards from the discard pile instead of drawing two cards from the draw pile. Specifically, when the discard pile is *frozen*, the top card of the discard pile must be laid down with *natural* cards from the hand to make a *factor set* or *canasta*. *Prime wild* cards cannot be used to help make this set and the top card of the discard pile cannot be used to expand a set that has already been laid down.

**Types of Canastas** - There are two categories of *canastas*: *factor canastas* and *consecutive prime canastas*. *Factor canastas* are factor sets that contain at least five cards. For example, 81, 3, 3, 3 & 3 make a five-card *factor canasta*. *Consecutive prime canastas* (or *prime canastas*) contain at least six consecutive prime numbers. For example, 2, 3, 5, 7, 11 & 13 form a *consecutive prime canasta*. A *prime canasta* that includes all of the prime numbers in the deck from 2 to 19 is called a *royal prime canasta*. A *canasta* that contains *prime wild* cards is called a *mixed canasta* and a *canasta* that contains no *prime wild* cards is called a

*natural canasta*. All *canastas* must contain at least two *natural* cards and no more than three *prime wild* cards.

*Canastas* that have been laid down before a player *goes out* are awarded bonus points. Here is a list of the bonus points awarded for *factor canastas*.

FACTOR CANASTAS	BONUS POINTS
6 or more cards, natural	600
6 or more cards, mixed	400
5 cards, natural	400
5 cards, mixed	200

The following table gives the bonus points awarded for *consecutive prime canastas*, also called *prime canastas*.

CONSECUTIVE PRIME CANASTAS	BONUS POINTS
Royal (2 thru 19, natural)	600
Royal (2 thru 19, mixed)	400
6 or more cards, natural	400
6 or more cards, mixed	200

Sets of consecutive primes cannot be laid down unless they form a *canasta*; that is, they must contain at least six cards. There are no *prime canastas* when playing with deck level 3 because there are only five different primes at this level.

**Scoring** - Scores are recorded at the end of a round when a player *goes out*. The player that *goes out* is awarded a 100-point bonus. Players that are left holding cards in their hand must first add up the point values of these cards and subtract the total from their score. Next, players record their *canasta* bonus points. See the charts above for bonus points awarded for the various types of *canastas*. Finally, the players total their card point values and record them. They count the point values of all the cards that make up their *canastas* as well as all cards that were laid down in *factor sets* that are not *canastas*. The first player to reach 5000 points wins.

**Penalties** - Players are penalized 100 points for each irregular action that occurs during play. Here is a list of possible offenses.

- A player attempts to lay down cards for the *initial laydown* then has to retract because he discovers that he does not have the *minimum point value* required.

- A player exposes cards from his hand then realizes he wants to put them back in his hand. For example, attempting to lay down an invalid *factor set* or *canasta*.
- A player attempts to choose from the discard pile then realizes that he is not qualified to do so.
- A player accidentally draws more than two cards from the draw pile or inappropriately exposes a card from the draw pile.
- A player announces that he is going out but then changes his mind.

As the offenses are committed, the 100-point penalties are immediately recorded on the score sheet but are not subtracted until the end of the round.

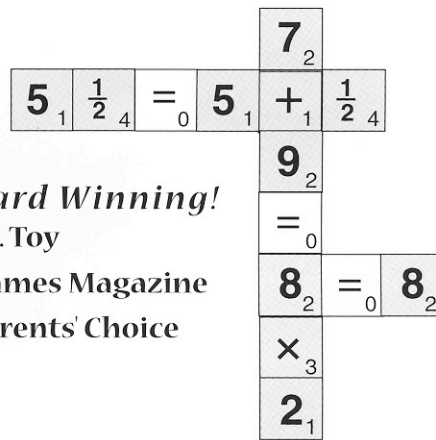
**Alternative Rules for Partnerships** - Four players can play as two partnerships. Partners sit across from each other. Players take individual turns as in the regular game. A player cannot lay down sets, add to sets or *go out* unless it is his turn.

The *initial laydown* requirements, the number of *canastas* required to *go out*, and scoring all apply to the partnership not the individual player. For example, if a partner has already made the *initial laydown*, both players of the partnership benefit. Also, partners combine their *canastas* to fulfill the *canasta* requirement for *going out*. Partners may want to lay down all of their sets in only one player's play area.

Partners may not verbally discuss the game during play except in one situation. During his turn, a player may ask his partner, "May I go out?" The partner responds, "yes" or "no." The player must abide by the response or get penalized 100 points. The player can go out without asking permission from his partner. If players correspond verbally in any other way, that partnership is penalized 100 points for each offense.

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