## DOMINOIDS

| Version | 1.0 |
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| Version Date | 17-Jun-2002 |
| Number of Players | 2 |
| Game Length | $30-45$ minutes |
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| E Q UIP M E N T |  |
| - 1 piecepack (see www.piecepack.org) |  |
| - 1 standard Double-6 Domino set |  |

Note - This design is fairly dependent on "standard" piecepack and domino dimensions. These rules assume that your piecepack tiles are 2" x 2", your piecepack coins are $3 / 4 "$ x $3 / 4$ ", and your dominoes are $7 / 8 "$ x $13 / 4$ ". You should have no problem as long as one domino fits within 2 adjacent squares on the back of a piecepack tile.

## INTRODUCTION

Recently, scientists have discovered an interesting new two-celled lifeform that they have dubbed "Dominoids". It seems that these little critters are composed of two different halves, each of which have different characteristics. Having only two cells means there isn't much room for brains, so these microscopic creatures spend their time just swimming around, breeding, and eating. The typical Dominoid environment isn't terribly rich in nutrients, so there is fierce competition among the Dominoids for the available food. Fortunately, Dominoids are also cheerfully cannibalistic, so where there are other Dominoids, there is food.
The players control the activities of a small Dominoid colony living in a tiny drop of water. On a player's turn, he gets the opportunity to move a couple of Dominoids and possibly cause them to eat food, mate with another Dominoid, or attack another Dominoid. The player who has collected the most points worth of food at the end of the game wins.

## DEFINITIONS AND ASSUMPTIONS

1. "Ace" coins have a value of 1. "Blank" coins have a value of 0 . All other coins have the value shown on the coin.
2. In all cases, "adjacent" means "orthogonally adjacent" only (not diagonally).
3. "Active player" always refers to the player currently taking his turn. "He", "him", and "his" are used as generic pronouns for convenience, but no gender preference is intended.

## INITIAL SETUP

1. Create the game board in the middle of the table by placing 16 piecepack tiles to make an $8 \times 8$ grid, as shown in figure 1. It doesn't matter which tiles you use, since they will be kept face down throughout the game. This is the droplet of water that is home to the Dominoids.
2. Randomly place the 4 piecepack pawns in the positions shown in figure 1. (Pawns are shown as triangles with a suit symbol on them.)


Figure 1
3. Turn the 24 piecepack coins number side down, shuffle them, and place them in 4 stacks, separated by suit, as shown in figure 2. Draw the top coin from each stack and, without looking at the number values, place


Figure 2 them adjacent to the appropriate pawns as shown in figure 1. This is the food that the Dominoids eat and the source of victory points for the players.
4. Remove all dominoes that have a blank or a six-spot on them from the game. This leaves only the 1-1, 1-2, 1-3, 1-4, 1-5, 2-2, 2-3, 2-4, 2-5, 3-3, 3-4, 3-5, 4-$4,4-5$, and $5-5$ dominoes. Shuffle these 15 dominoes face down and draw 4 randomly. Place them face up on the board as shown in figure 1. These are the Dominoids that begin the game in play. The remaining 11 dominoes are now turned face up and left in a common pool (the "gene pool") at one side of the board.
5. Cut out the simple dice box at the end of these rules (or create your own anything that will enable you to keep track of which dice have just been rolled) and place it beside the board. Roll all 4 piecepack dice and place them in the "Old Dice" box.
6. Select the first player randomly. The first player is now ready to begin the game.

## OBJECT OF THE GAME

The winner is the player who has collected the highest point value worth of food coins at the end of the game. Each player's score is equal to the total value of the coins he collected, plus a bonus of +3 points for each suit in which he has more coins than his opponent.

Example - Player A has collected Arms 0, 1, 3; Crowns 2, 3, 5; Moons 1; and Suns 1, 3, 4, 5. Player B has collected Arms 2, 5; Crowns 0, 1, 4; Moons 0, 2, 3, 4, 5; and Suns 0, 2. Player A has a score of $(0+1+3)+(2+3+5)+(1)+$ $(1+3+4+5)+3$ (Arms bonus) +3 (Suns bonus) $=34$. Player B has a score of $(2+5)+(0+1+4)+(0+2+3+4+5)+(0+2)+3($ Moons bonus $)=31$. A wins. Note that no one got the Crowns bonus because both players had 3 coins.
The game ends as soon as all of the food coins of any three types (suits) have been collected.

Example - In the scoring example above, the game ended because all of the Crowns, Moons, and Suns had been collected. There was only one Arms coin remaining.

## SEQUENCE OF PLAY

1. Once setup is complete, the players alternate turns, beginning with the first player.
2. Each turn consists of the active player choosing two dice and taking exactly two actions as allowed by those dice.
3. Choose Dice - The active player chooses exactly two dice that will dictate what moves he may make this turn.
3.1. The player must choose 2 dice.
3.2. At least one of the dice chosen must be taken from the "Old Dice" box. The second die may be taken from either the "Old Dice" or "New Dice" box, as the player desires.
3.3. The faces showing on the chosen dice indicate what sort of moves the player can make, as given in the following table. The actions offered by the dice taken may be performed in any order, but one action must be completed before the next is taken.

| Die Face Showing | Action Allowed |
| :--- | :--- |
| Number (2-5) | Move Dominoid (and possibly Eat, <br> Attack, Breed, or Bud) - See 4 below. |
| Ace | Shift Board - See 5 below. |
| Blank | Pass (No Action) |

Example - At the beginning of Player A's turn, the dice are as shown in figure 3. Player A may choose the 5 and the ace, thus allowing himself one Dominoid move and one board shift (in either order). Player A may instead take the 2 and 5, if he wants two Dominoid moves this turn. However, he may not take the ace and the blank, since both are in the "New Dice" box.
4. Move Dominoid - For each selected die showing a number (2-5), the active player must move one Dominoid according to the following restrictions:
4.1. A Dominoid moves by either sliding in a


Figure 3 straight line in either direction, or by rotating in either direction. At the end of this move, the Dominoid may be able to eat, attack, or breed.
4.2. A Dominoid may not both slide and rotate in the same move. It may only do one or the other.
4.3. In either a slide or a rotation, one end of the Dominoid is the leading end. The value (as shown by the number of spots) of the leading end must be less than the value shown on the face of the die used to activate the Dominoid. The value of the other end of the Dominoid is irrelevant for that move.

Note - This means that it is never possible to move the 5-spot end of a Dominoid. The 5-5 Dominoid cannot move at all under its own power and pretty much just gets in the way of the other Dominoids.

Example - In figure 4, if Player B chooses a 3 die, he could move the 2-3 Dominoid by sliding it 2 squares in the 2 direction, or by rotating the 2 end in either direction. To move the 3 end, he would have needed to choose a 4 die or higher.
4.4. Sliding - When a Dominoid slides, it must travel a number of squares in the direction of its leading end equal to the value of the leading end, or until it is stopped by running into another


Figure 4 Dominoid, a pawn, or a food coin.
4.4.1. The Dominoid must be able to slide at least 1 square or it does not count as a move.
4.4.2. A moving Dominoid is not blocked by the edge of the board, and may not move past the edge of the board.
Example - In figure 5, if Player B chooses a 5 die, he could slide the 2-3 Dominoid 2 squares in the 2 direction or 3 squares in the 3 direction. However, the Dominoid would actually only move 1 square in either direction because it is blocked one way by a pawn and the other way by another Dominoid. The 3-4 Dominoid could slide the full 3 in the 3 direction, but it is not allowed to move in the 4 direction since that would cause it to leave the board.


Figure 5
4.5. Rotating - When a Dominoid rotates, the leading end rotates 90 degrees in either direction around the non-leading end, which stays in its place.
4.5.1. The Dominoid must be able to rotate exactly 90 degrees, or it does not count as a move.
4.5.2. Another object in the square "between" the starting and ending squares of the rotation is considered to block the moving Dominoid.
4.5.3. A rotating Dominoid is not blocked by the edge of the board, and may not rotate past the edge of the board.

Example - In figure 6, if Player A chooses a 3 die, he could rotate the 2-3 Dominoid to point up or down. He could not rotate the 2-4 Dominoid at all because both possible rotations are blocked. He also could not rotate the 1-5 Dominoid as indicated because that would take it off the board.
4.6. Eating - For some reason that scientists have
 not yet been able to explain, Dominoids can only eat while on the move. If, after sliding 1 or more squares, a Dominoid ends its move with either one of its ends orthogonally adjacent to a food
coin, the active player turns that coin number side up (if it is not already). If the food coin number is less than or equal to the value of the Dominoid's adjacent end, the food is eaten. The player may pick up the coin and place it in front of himself, number side up. (If the food coin's value is greater than the moving Dominoid's activated number, leave the food coin number side up where it is.)
4.6.1. Either the leading end or the non-leading end of the moving Dominoid may eat. It doesn't matter which direction the Dominoid moved.
4.6.2. If more than one food coin is adjacent to the moving Dominoid, it may choose to eat only one of the food coins.
4.6.3. Eating is mandatory if possible.
4.6.4. If only one type (suit) of food coins is left in the game at this point, the game ends now. Both players computer their scores as given in "Object of the Game" above. Highest score wins!
Example - In figure 7, Player A may slide the 2-3 Dominoid to eat the 1 (ace) food, but it cannot eat either of the 3-point foods because it cannot eat without sliding at least 1 space. Or Player A may slide the 3-4 Dominoid and eat either the 2 food or the 0 (blank) food, but not both. The 3-4 Dominoid could not eat the 5 food because it is too large.
4.7. Attacking - Attacking is sort of just another type


Figure 7 of eating for Dominoids. If, after sliding 1 or more squares, a Dominoid ends its move with either one of its ends orthogonally adjacent to another Dominoid, the active player may be able to attack. If the value of the attacked Dominoid's end is less than the value of the attacking Dominoid's adjacent end, the attacked Dominoid is removed from the board and returned face up to the gene pool. (Dominoids don't eat other Dominoids that have the same value. They view them as potential mates!)
4.7.1. Either the leading end or the non-leading end of the moving Dominoid may attack. It doesn't matter which direction the Dominoid moved.
4.7.2. If more than one other Dominoid is adjacent to the moving Dominoid, it may choose to attack only one of the other Dominoids.
4.7.3. Attacking is mandatory if possible.
4.7.4. Only the moving Dominoid may attack. If the moving Dominoid ends its move adjacent to a higher-valued Dominoid, the moving Dominoid is not attacked.

Example - In figure 8, the 2-3 Dominoid may attack neither the 1-5 Dominoid nor the 3-4 Dominoid, the first because a Dominoid must slide to attack, and the second because the prospective attacker's value does not exceed the prospective victim's value. If the 3-4 Dominoid slides as shown, it could choose to attack either the 1-3 Dominoid or the 2-5 Dominoid, but not both. (The 2-5 Dominoid is a valid target because its 2 side is adjacent to the attacker's 4


Figure 8 side.) Note that the 3-4 Dominoid could not both eat the 2 food coin and attack one of the adjacent Dominoids. It must choose to do one or the other.
4.8. Breeding - If, after sliding 1 or more squares, a Dominoid ends its move with either one of its ends orthogonally adjacent to another Dominoid, the active player may be able to breed. If the value of the moving Dominoid's end is equal to the value of the adjacent Dominoid's end, a new child Dominoid may be placed on the board from the gene pool.
4.8.1. Either the leading end or the non-leading end of the moving Dominoid may breed. It doesn't matter which direction the Dominoid moved.
4.8.2. If more than one other Dominoid is adjacent to the moving Dominoid, it may choose to breed with only one of the other Dominoids.
4.8.3. Breeding is mandatory if possible.
4.8.4. The active player chooses any one Dominoid from the gene pool that has at least one number in common with at least one of its parents. The new baby Dominoid must be placed such that it is orthogonally adjacent to a matching end of one of its parents.
4.8.5. The new baby Dominoid does not eat, attack, or breed if it is placed adjacent to another Dominoid or food coin.
4.8.6. The new baby Dominoid is immediately available to be moved as early as the next action.

Example - In figure 9, Player A could slide the 2-3 Dominoid to breed with the 3-4 Dominoid, and could, for example, choose the 3-5 Dominoid from the gene pool and place it next to the 3-4 parent as shown. There are several other ways the 3-5 child could be placed next to the 2-3 or 3-4 parents, but below the 2-3 parent as shown is not one of them (because it would not be
 adjacent to the 2-3 parent's 3 side. The 2-3
Dominoid cannot breed with the 2-5 Dominoid because it cannot slide over to it. Even if it rotates in place as shown, no breeding is possible there. Another alternative would be sliding the 3-4 Dominoid up to breed with the 1-3 Dominoid. A 4-4 child could be produced (the child does not necessarily have to share a number with both parents).
4.9. If it is possible for the moving Dominoid perform two or more of above actions (eat, attack, or breed) after moving, the active player may choose which one of those actions to perform.
4.10. Budding (No Valid Move) - If the active player is unable to use a selected die to make any valid move with any of the Dominoid(s) remaining on the board, he must cause one Dominoid to "bud". This is treated exactly like breeding (see 4.8 above), except the new baby Dominoid only has the one parent.
Example - In figure 10, Player A has chosen a 2 die, and he has no valid move to make with it. (The 1-4 Dominoid could move with its 1 end, but all possible moves are blocked.) Therefore, the player must choose one of the Dominoids on the board to bud. A couple of the possible buddings are shown.
5. Shift Board - For each selected die showing an


Figure 10 ace (suit symbol), the active player must shift one row or column on the board according to the following restrictions:
5.1. The row or column shifted must currently contain the pawn of the suit matching the ace rolled.
5.2. When a row or column is shifted, it may be shifted in either direction.
5.3. To shift a row or column, the active player takes the tile from either end of the row, slides the remaining three tiles to fill the gap, and then replaces the tile taken at the other end.
5.4. Dominoids do not eat, attack, or breed as a result of the board shifting.
5.5. A row or column may not be shifted if one or more Dominoids straddle the edge of that row or column.
5.6. If no shifts are possible with the chosen ace, it must be treated as a blank (Pass) instead. (Budding is not performed in this case.)

Example - In figure 11a, Player A has chosen the Moon die, so he must shift either the row or the column currently containing the Moon pawn. Therefore, he must shift either the $1^{\text {st }}$ column or the $3^{\text {rd }}$ row, but in this case, the 1-3 Dominoid is straddling the $1^{\text {st }}$ and $2^{\text {nd }}$ columns, so the $1^{\text {st }}$ column cannot be shifted. Player $A$ decides to shift the $3^{\text {rd }}$ row to the right. In figure 11 b, the $3^{\text {rd }}$ row shifts right and the rightmost tile is moved to the left side. In figure 11c, the shift is complete.

6. Pass - For each selected die showing a blank face, the active player must pass his action. Passing simply means he neither moves a Dominoid nor shifts the board.

Note - This may be useful if the player's only other options would set up the other player for his turn. Otherwise, it's usually desirable to stick the other player with the missed action.


Figure 11b
7. Replace Food - After the active player has taken both of his actions, he must replace any missing food coins.
7.1. For each type (suit) of food coin that is not represented on the board, the active player draws the top coin from the stack of the same suit and places it face down in any open square orthogonally adjacent to the pawn of that suit.
7.2. If there are no coins of the necessary suit


Figure 11c remaining, that coin is not replaced this turn.
7.3. If there are no open squares adjacent to the necessary pawn, that coin is not replaced this turn.
Example - In figure 12, player B finds that the Sun, Moon, and Arms food coins are missing at the end of his turn. He takes the next coin from the top of the Arms coin stack and places it adjacent to the Arms pawn as shown. Note that this was the only valid placement for this coin since the other possible spaces were blocked by Dominoids. There is no valid placement for the Sun coin, so it is not replaced this turn, although it must be replaced after the next player's turn, if possible. The Moon coins have been exhausted, so it is not replaced (and will remain


Figure 12 unreplaced for the remainder of the game).
8. Reroll Dice - Finally, to end his turn, the active player must reroll both of the dice he selected and place them both in the "New Dice" box for the next player to choose from on his turn. If all 4 dice are now in the "New Dice" box, move all 4 dice to the "Old Dice" box.
Note - This, combined with the rule that at least one die must be chosen from the "Old Dice" box each turn, forces the players to eventually use all of numbers rolled. It becomes a matter of trying to force the other player to use the dice that are least beneficial to him.
Example - At the end of Player A's turn, he rerolls the two dice he used and gets a 3 and a blank, which are both placed in the "New Dice" box. The next player will now be forced to use the Sun die and one of the dice in the "New Dice" box, either a 2 or blank.


Figure 13

## Dice Box



