

“Chess for the Third Millennium and Beyond!™”

## INTRODUCTION

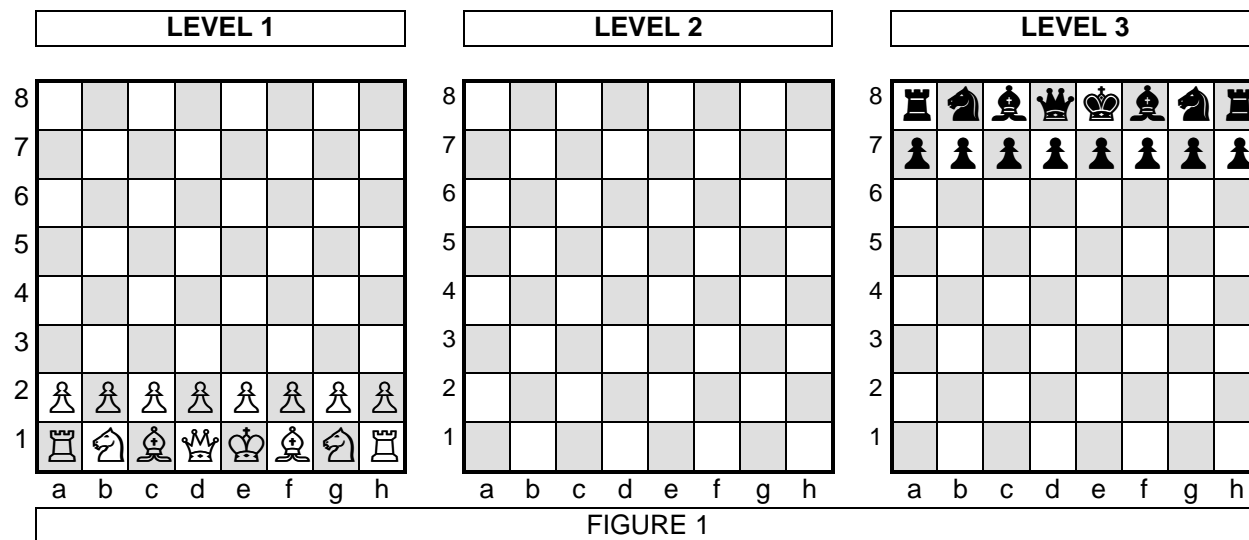
Over the years, there have been numerous attempts to develop rules for three dimensional (3D) chess using three standard 8 by 8 chess boards (8x8x3), however, many of these games suffered from major problems that distracted the players from the essential characteristics of traditional chess. Some of these 3D chess variations created new chess pieces while other 3D rules imposed mandatory or unusual moves. In addition, these “rules” were generally incomplete causing inconsistent interpretations. None of these game variations offered a truly playable chess game.

Because of the lack of playable rules, the Millennium Three Dimensional Chess™ chess rules were written with the objective of extending the traditional chess game into a multilevel environment without distorting the basic game. To this end, Millennium Three Dimensional Chess™ has not “created” new chess rules, but instead extended the traditional rules to allow for multiboard play. Other than the concept of moving between chess boards (levels), all traditional two dimensional chess rules apply.

## MILLENNIUM THREE DIMENSIONAL (3D) CHESS™ RULES

### 1.0 The Chess Boards

- 1.1 Millennium Three Dimensional Chess™ is played using three standard chess boards with 64 squares each. The boards can be physically stacked above each other, stacked with an offset, placed side-by-side, or positioned in any other manner. Regardless how the boards are physically placed, the game is played by assuming (visualizing) that the three boards are positioned directly above each other with the white (light) colored corner square at both players’ right-hand side when the players are located on opposite sides of the playing boards. The terms “board” and “level” are synonymous and used interchangeably. Figure 1 shows the White and Black starting positions.



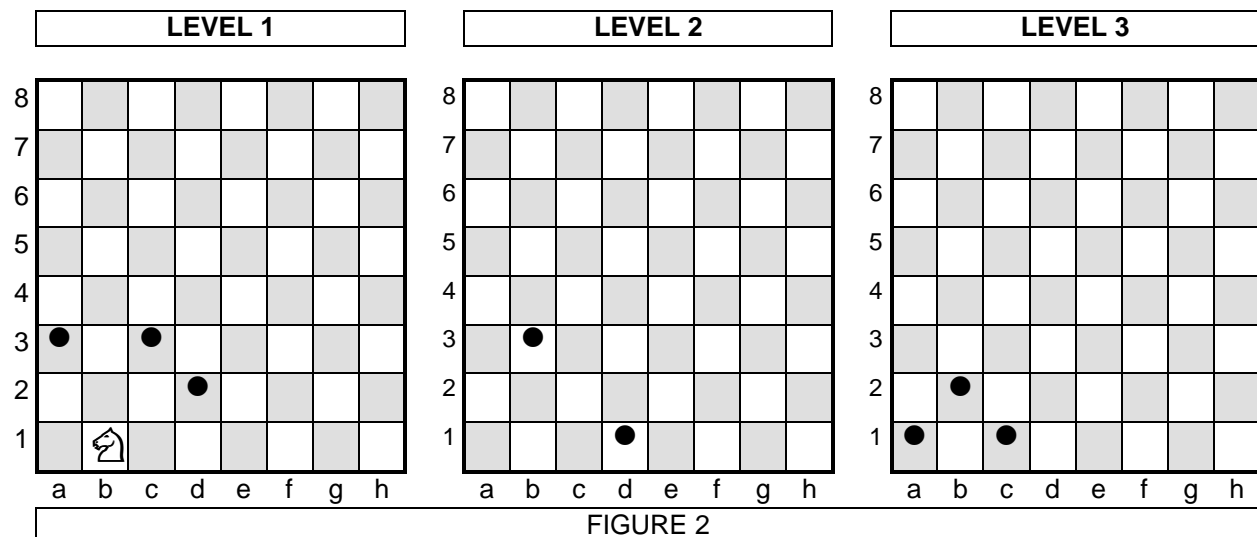
- 1.2 Standard algebraic chess notation is used with the files (columns going across the board away from each player) being lettered from “a” to “h” and the ranks (rows going from left to right) being numbered from “1” to “8” starting with White’s left-hand corner square as “a1”. In addition, a prefix number from “1”, “2” or “3” is added to the standard algebraic notation which represents the board (level). Therefore, the complete 3D algebraic notation for White’s left-hand corner square is 1a1. Likewise, the starting location for the White King is always 1e1 and starting location for the Black King is always 3e8.

1.3 Black always has the option to set-up the Black chess pieces on the top or bottom board (when the playing boards are physically stacked above each other), unless previously established by tournament rules. Likewise, if the chess boards are positioned in some other manner (such as side-by-side), Black has the option to set-up first, unless previously established by tournament rules. In all cases, no player can place starting chess pieces on the center board while setting-up the game. Regardless of how the physical boards are placed, the starting board with the White chess pieces is always level “1” and Black always starts on level “3” for chess notation purposes. Black’s option to select the starting board does not apply when playing a correspondence game of Millennium 3D Chess™ as the starting boards are customarily represented by Figure 1 for all correspondence games.

## 2.0 Chess Movement

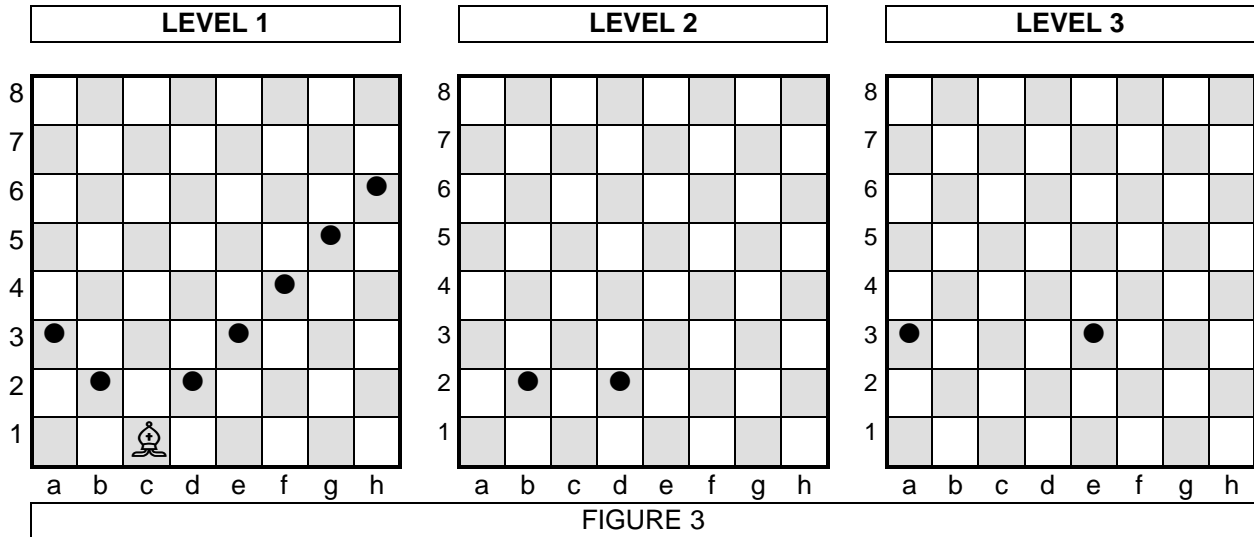
2.1 Throughout these rules, the generic term “chess piece” refers to any chessman including a Pawn, Knight, Bishop, Rook, Queen or King of either color. As in traditional two dimensional (2D) chess, a chess piece may never be moved into the same square as another chess piece of the same color nor capture a chess piece of the same color. With the exception of the Knight (and with a special exception of a Rook during “castling”), no chess piece may move past nor jump over any other chess piece. The following “chess movement” section has numerous illustrations showing the movement of the White chess pieces, however, the Black pieces move in an analogous manner.

2.2 **Knight.** The best way to describe how a chess piece moves in three dimensions is to start with a common example. A Knight in traditional 2D chess has an “L” shaped movement which can be described as moving two squares along a file (column) and one square along a rank (row), or visa versa, moving one square along a file (column) and two squares along a rank (row). In traditional 2D chess, the White Knight starting at b1 may be moved to a new position at a3, c3 or d2. In Millennium 3D Chess™, the Knight moves in exactly the same “L” shaped manner (i.e., up two and over one, or up one and over two), however, now the Knight may move to a new level using the same “L” shape movement. Therefore, a White Knight starting at 1b1 can move to 1a3, 1c3, 1d2, 2b3, 2d1, 3a1, 3b2 or 3c1. See Figure 2. A Knight can capture an opposing chess piece by moving into the same square which is occupied by the enemy piece. A Knight’s movement can never be blocked as a Knight can jump over any chess piece. Like all chess pieces, a Knight can never occupy the same square nor capture a chess piece of the same color.

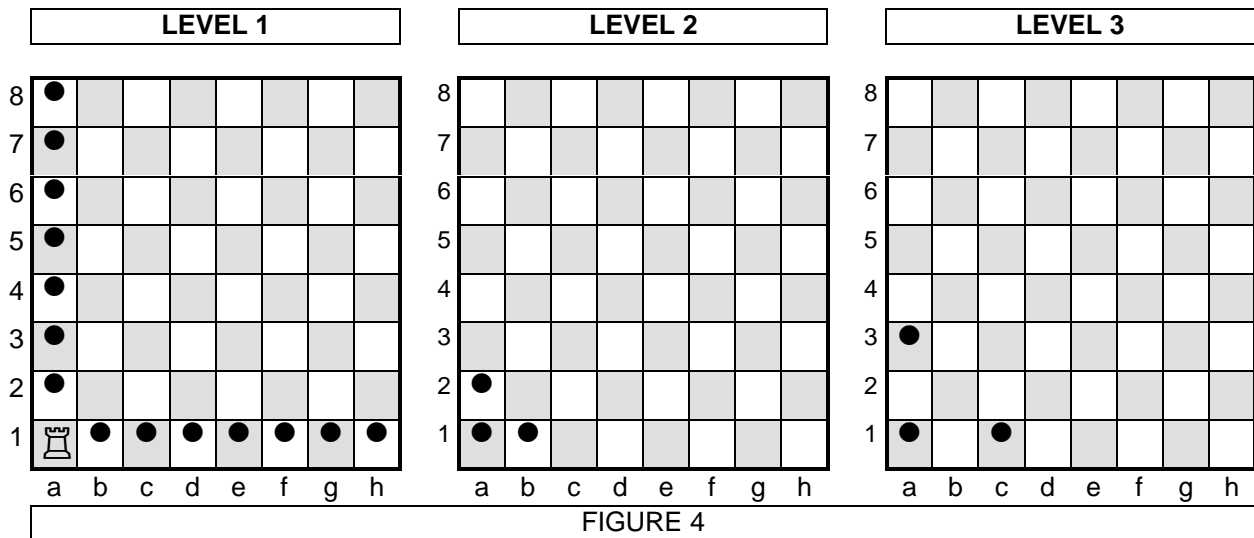


2.3 **Bishop.** Using a similar illustration, a traditional 2D chess Bishop can move any number of spaces in a straight line along a diagonal when there are no other chess pieces blocking the way. In traditional 2D chess, the White Bishop starting at c1 can move to a new position at a3, b2, d2, e3, f4, g5 or h6 (assuming that there are no other chess pieces in the way). In Millennium 3D

Chess™, the White Bishop starting at 1c1 can move to a new position at 1a3, 1b2, 1d2, 1e3, 1f4, 1g5, 1h6, 2b2, 2d2, 3a3 and 3e3 (assuming that there are no other chess pieces in the way). See Figure 3. A Bishop at 1b2 cannot move straight “up” to locations such as 2b2 nor 3b3, likewise the Bishop must move in a straight line along a diagonal which means a Bishop at 1c1 cannot move to 2a3, 2c2, 2c3, 2d1, 3b2 nor 3e1 as examples of prohibited movement. A Bishop can capture an opposing chess piece by moving into the same square which is occupied by the enemy piece. A Bishop can never move past nor jump over any chess piece from either side. Like all chess pieces, a Bishop can never occupy the same square nor capture a chess piece of the same color.



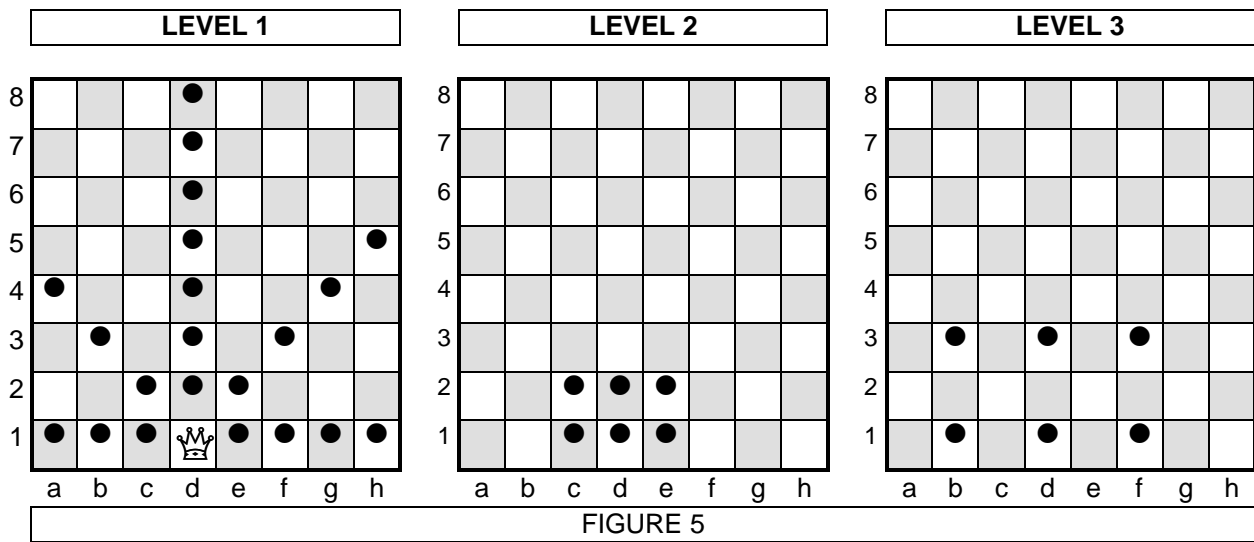
2.4 **Rook.** In traditional 2D chess, the Rook can move any number of squares in a straight line along any rank (row) or file (column) as long as there are no other chess pieces in the way. In traditional 2D chess, a White Rook starting at a1 can move to a2, a3, a4, a5, a6, a7, a8, b1, c1, d1, e1, f1, g1 or h1. In Millennium 3D Chess™, the White Rook starting at 1a1 can move to 1a2, 1a3, 1a4, 1a5, 1a6, 1a7, 1a8, 1b1, 1c1, 1d1, 1e1, 1f1, 1g1, 1h1, 2a1, 2a2, 2b1, 3a1, 3a3 and 3c1 (assuming that there are no other chess pieces in the way). See Figure 4.



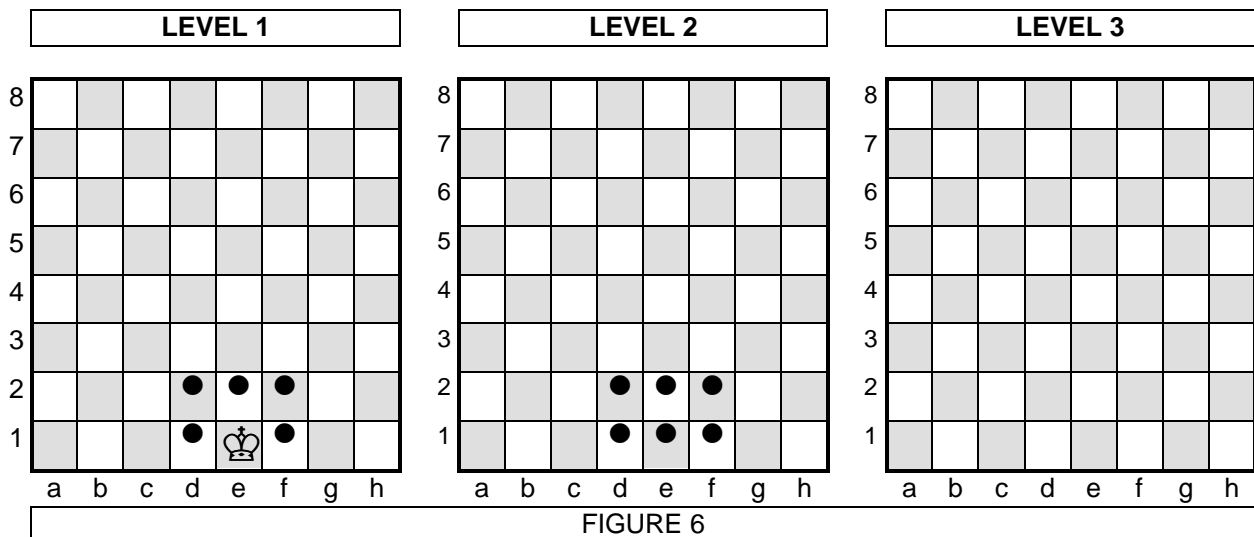
Whereas a Bishop or a Knight cannot move straight up or down vertically, a Rook can move to the squares which are vertically above or below it. A White Rook at 1a1 cannot move to 1b2, 2a3, 2b2, 2c1, 3a2, 3a4, 3b1, 3b2, 3c3 nor 3d1 as examples of prohibited movement. A Rook can never move past nor jump over any chess piece from either side (with an exception when castling

with the King). A Rook can capture an opposing chess piece by moving into the same square which is occupied by the enemy piece. Like all chess pieces, a Rook can never occupy the same square nor capture a chess piece of the same color.

2.5 **Queen.** In traditional 2D chess, the Queen can move any number of squares along a diagonal like a Bishop and can move any number of squares along any rank or file like a Rook as long as there are no other chess pieces blocking the way. For example, a White Queen starting at d1 can move to a1, a4, b1, b3, c1, c2, d2, d3, d4, d5, d6, d7, d8, e1, e2, f1, f3, g1, g4, h1 or h5 (assuming that there are no other chess pieces in the way). In Millennium 3D Chess™, the White Queen starting at 1d1 can move to 1a1, 1a4, 1b1, 1b3, 1c1, 1c2, 1d2, 1d3, 1d4, 1d5, 1d6, 1d7, 1d8, 1e1, 1e2, 1f1, 1f3, 1g1, 1g4, 1h1, 1h5, 2c1, 2c2, 2d1, 2d2, 2e1, 2e2, 3b1, 3b3, 3d1, 3d3, 3f1 and 3f3 (assuming that there are no other chess pieces in the way). See Figure 5. A Queen at 1d1 cannot move to 1b2, 1c3, 2b1, 2b3, 2d3, 3c1, 3d2 nor 3d4 as examples of prohibited movement. A Queen can never move past nor jump over any chess piece from either side. A Queen can capture an opposing chess piece by moving into the same square which is occupied by the enemy piece. Like all chess pieces, a Queen can never occupy the same square nor capture a chess piece of the same color.

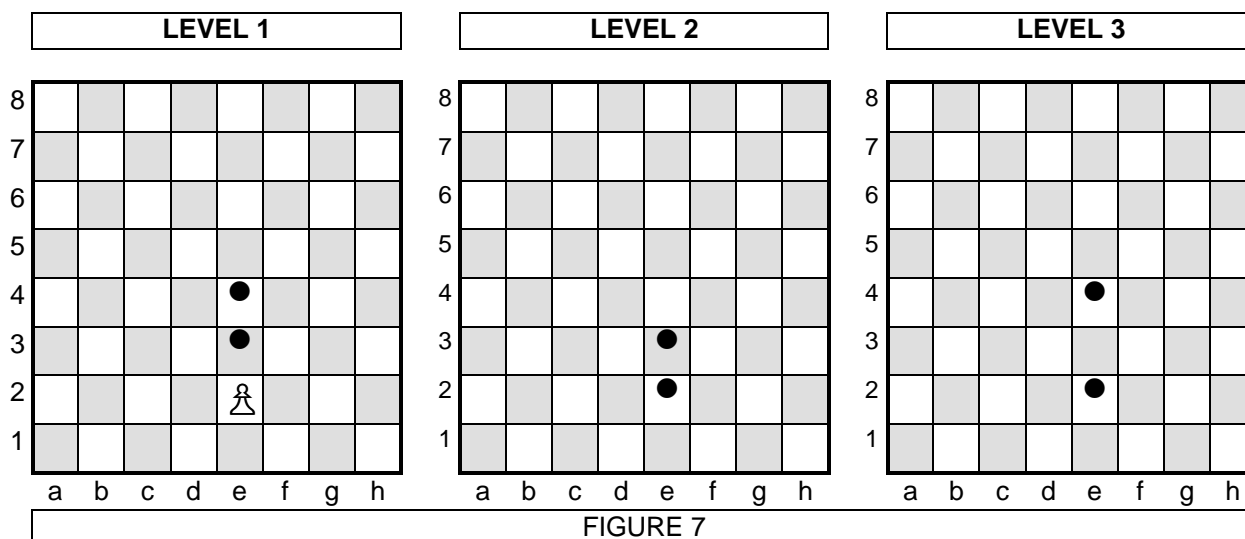


2.6 **King.** In traditional 2D chess, the King can move one square in any direction. For example, the White King starting at e1 can move to d1, d2, e2, f1 or f2. In Millennium 3D Chess™, the King starting at 1e1 can move to 1d1, 1d2, 1e2, 1f1, 1f2, 2d1, 2d2, 2e2, 2f1 or 2f2. See Figure 6.

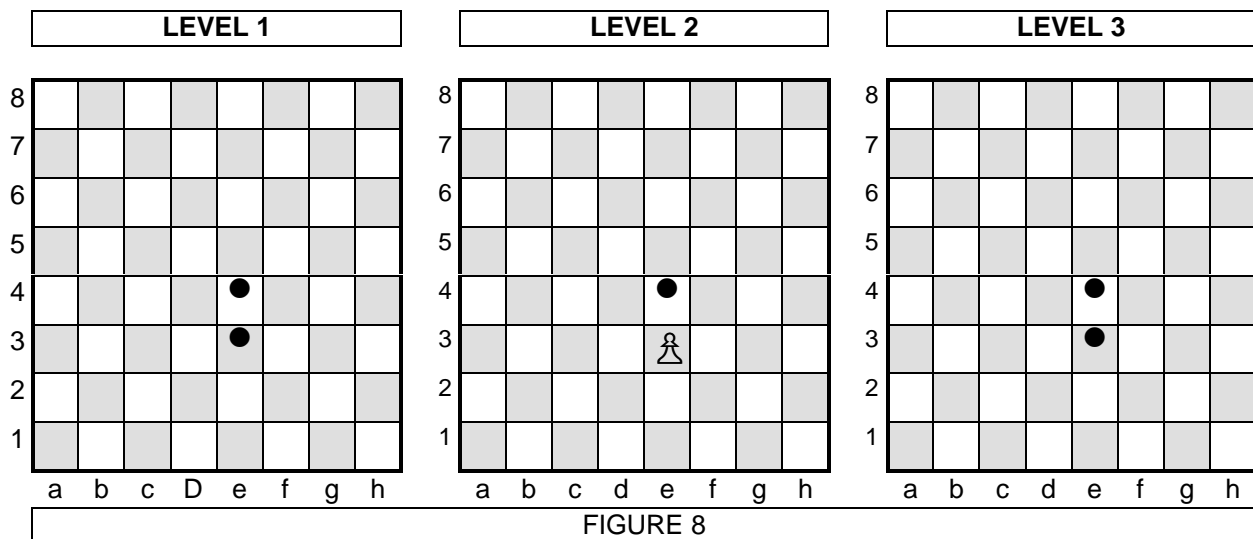


The King can capture an opposing chess piece by moving into the same square which is occupied by the enemy piece. Like all chess pieces, the King can never occupy the same square nor capture a chess piece of the same color. Likewise in traditional chess, the King can perform a special “castling” move. The King can *never* be moved into a square which is under attack from any opposing chess piece (i.e., the King can never be moved into “check”), nor can a player move a chess piece which opens a previously blocked attack against the same player’s King (i.e., a “discovered” check). Any such attempted move which places the moving player’s King in “check” is illegal. This move must be immediately taken back and a legal move must be played.

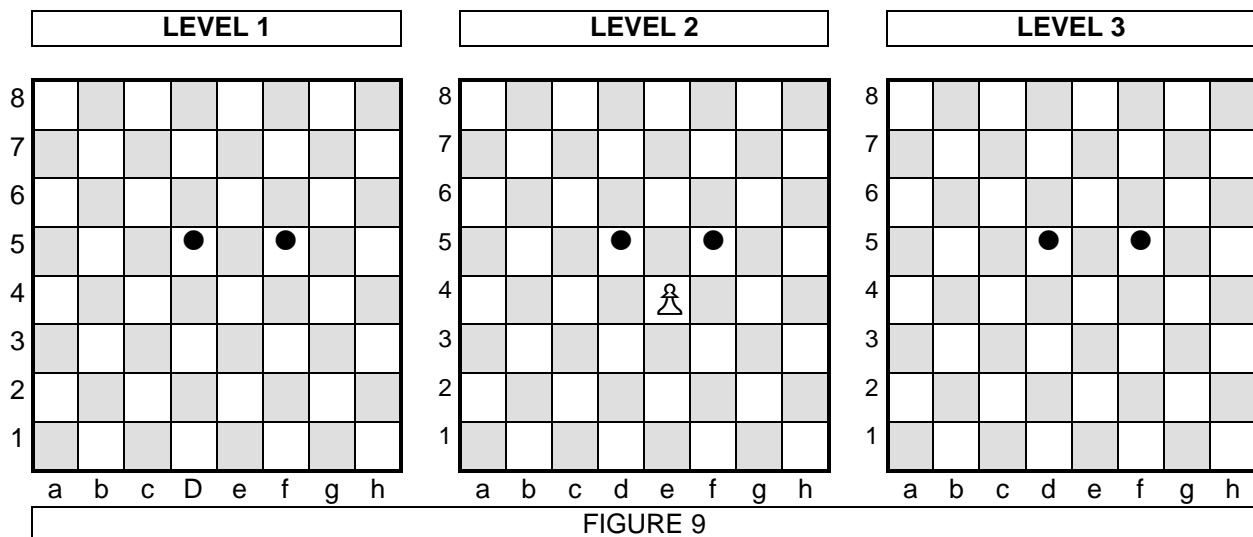
2.7 **Pawn.** In traditional 2D chess, a Pawn normally moves one square at a time and only in a forward direction along a file (column) into an empty square. A Pawn can never advance directly into an occupied square, which also means that a Pawn cannot capture an opposing piece by moving straight ahead. A Pawn can never move backwards nor sideways. However in traditional 2D chess, a Pawn has several special moves. Whenever a Pawn is moved for the first time, the Pawn may advance two squares straight ahead (provided that both squares are empty) which means that a White Pawn starting at e2 could move to e3 or e4 on its first move. In Millennium 3D Chess™, a White Pawn starting at 1e2 can move to 1e3, 1e4, 2e2, 2e3, 3e2 or 3e4 on its first move. See Figure 7.



Each move thereafter, a Pawn may move only one square at a time. In Millennium 3D Chess™, a Pawn may move forward, change levels, or move forward and change levels, but a Pawn may never move backwards. A Pawn may change levels in either direction which means that a White Pawn at 1e4 may move up to an empty square at 2e4, and on a future turn, move back down to an empty square at 1e4, since a Pawn is not restricted to changing levels in only one vertical direction. Likewise, a White Pawn at 1e4 could move to an empty square at 2e5, and on a future turn, move to an empty square at 1e6. For example, a White Pawn at 2e3 may move to 1e3, 1e4, 2e4, 3e3 or 3e4 provided that the space is unoccupied. See Figure 8.



Since a Pawn can never move backwards nor sideways, then a Pawn may not move backwards nor sideways when changing levels. A White Pawn at 2e3 cannot move to 1d2, 1d3, 2e2, 2e5, 3f2 nor 3f3 as examples of prohibited movement. Unlike every other chess piece, a Pawn can only capture an opposing chess piece by moving one square on a “forward diagonal” into the square occupied by the opposing piece. In traditional 2D chess, a White Pawn at e4 could capture an opposing chess by moving along a “forward diagonal” if the opposing chess piece was in d5 or f5, but this White Pawn could not capture an opposing chess piece at d3, e5 nor f3. In Millennium 3D Chess™, a White Pawn starting at 2e4 could capture an opposing chess piece on a “forward diagonal” if the opposing chess piece was in 1d5, 1f5, 2d5, 2f5, 3d5 or 3f5. See Figure 9. A Pawn is always prohibited from moving or capturing on a backwards diagonal.



### 3.0 Special Moves and Promotions

- 3.1 **Castling.** The King and a Rook can perform a special move which is calling “castling” where both the King and a Rook move together. For example, the White King at 1e1 can “castle” on the King’s right side by moving to 1g1 and immediately moving the White Rook at 1h1 to 1f1. Likewise, the White King at 1e1 can “castle” on the King’s left side by moving to 1c1 and immediately moving the White Rook at 1a1 to 1d1. As with traditional 2D chess, there are several important rules which must be followed for castling. All of the following required conditions must be met to castle: [a] It must be the first move for both the King and the Rook, [b] No chess piece can be between the King or the Rook, [c] The King cannot be in check (i.e., under attack) at

the time of castling, [d] The King may not move into nor through a square which is in check (i.e., under attack). For example, once the King has been moved during the game, then the King loses the privilege to castle. Once a Rook has been moved, then that Rook loses the privilege to castle with the King, however, it may still be possible for the other Rook to castle with the King provided all of the required castling conditions are met. It does not matter if the Rook is under attack to castle, however, the King can never be under attack at the time of castling as stated above. Neither the King nor the Rook (nor both) can change levels while castling. When castling, the King must be moved two squares first, and then the Rook is moved. Only during castling can a Rook move past or “jump” over the King which is the only exception to the rule that a Rook cannot move past or “jump” over any chess piece. The official chess notation for castling on the King’s side is “0-0”, and the chess notation for castling on the Queen’s side is “0-0-0”.

- 3.2 **En Passant.** As in traditional 2D chess, a Pawn in Millennium 3D Chess™ has a special privilege to immediately capture an opposing Pawn when the following conditions are met: [a] The opposing Pawn has just made a two-square initial move, [b] The attacking Pawn is currently in its fifth rank and could legally capture the opposing Pawn if the opposing Pawn only advanced one square. The “fifth rank” for White is the row from a5 to h5 (on all levels), and the “fifth rank” for Black is the row from a4 to h4 (on all levels). For example, if there is a White Pawn at 1e2 and a Black Pawn at 1f4, and if the White Pawn makes a two-square move to 1e4, then the Black Pawn may immediately capture the White Pawn using this “En Passant” rule by moving the Black Pawn into 1e3 and removing the White Pawn from the game. This “En Passant” (“In Passing”) rule allows the attacking Pawn in the fifth rank the privilege to immediately capture an opposing Pawn as if the opposing Pawn only advanced one square instead of two squares. If the Pawn in the fifth rank does not immediately capture the advancing Pawn, then this “En Passant” privilege to capture the advancing Pawn is lost. For example, if a White Pawn at 1e2 is advanced two squares to 1e4, then any Black Pawn at 1d4, 1f4, 2d4 or 2f4 could immediately capture the White Pawn by moving the Black Pawn into 1e3 and removing the White Pawn from the game. If Black chooses to move any other chess piece, then this “En Passant” privilege to capture this advancing White Pawn is lost. To further illustrate this rule, if a White Pawn at 1e2 is advanced two squares to 3e4, then any Black Pawn at 1d4, 1f4, 2d4, 2f4, 3d4 or 3f4 could immediately capture the White Pawn by moving the Black Pawn into 2e3 and removing the White Pawn from the game. It is important to state that a Pawn in its sixth rank is afforded no special privileges in traditional 2D chess nor in Millennium 3D Chess™. Therefore, if a White Pawn at 1e2 is moved two squares to 3e2, and if a Black Pawn was at 2f3, then the Black pawn cannot capture the White Pawn by attempting to move into 2e2. However, the Black Pawn at 2f3 could still capture the White Pawn at 3e2 by a normal Pawn attack by moving the Black Pawn into 3e2 and removing the White Pawn.
- 3.3 **Promotion.** Whenever a Pawn reaches the starting rank and level of the opposing King (also known as the back rank), then that Pawn is immediately promoted to either a Queen, Rook, Bishop or Knight of the same color as the Pawn. This means when a White Pawn reaches any of the squares from 3a8 to 3h8 (inclusive), then this White Pawn is promoted immediately, and the White player immediately selects either White Queen, White Rook, White Bishop or White Knight. Likewise, when a Black Pawn reaches any of the squares from 1a1 to 1h1 (inclusive), then this Black Pawn is immediately promoted, and the Black player selects either Black Queen, Black Rook, Black Bishop or Black Knight. The promotion of a Pawn is immediate upon reaching the starting rank and level of the opposing King which means that the newly promoted piece has all of the ability to immediately force a check, checkmate or stalemate as the game position dictates. A Pawn can never be promoted to a King nor can a Pawn remain as a Pawn. Since a Pawn must reach the starting rank and level of the opposing King, then a White Pawn reaching 1a8 through 1h8, or 2a8 through 2h8, is not promoted. Likewise, a Black Pawn reaching 2a1 through 2h1, or 3a1 through 3h1, is not promoted. In both examples, the Pawn must move to the starting rank and level of the opposing King to be promoted.
- 3.4 **Illegal Moves.** Any chess move which violates these rules is an illegal move and cannot be played. A common example of an illegal move is when the King is moved into check. All illegal moves must be immediately taken back, and a legal move must be played. Procedures to correct

illegal moves which are discovered and proven to have occurred previously during a game may be imposed by mutual consent of the players or by tournament rules.

#### 4.0 Special Rules

- 4.1 **Check.** The term “Check” describes the situation when a chess piece is attacking the opposing King. This occurs by moving a chess piece to directly attack the opponent’s King, by moving another “blocking” chess piece out-of-the-way which allows a different chess piece to attack the King (commonly called a “discovered” check), or by attacking the opposing King by a direct attack and by a discovered check simultaneously. Regardless how the opposing King is placed in “check,” the opposing player must immediately make a legal move to stop the attack on the King. If the opposing player cannot immediately protect the King (i.e., cannot stop the attack on the King), then the game is finished as the attacking player has “Checkmated” the opposing King. It is customary that the attacking player should notify the opposing player that the opposing King is being attacked by communicating the word “Check,” since the game cannot proceed until the opposing King is safely protected.
- 4.2 **Checkmate.** The objective of traditional 2D chess and Millennium 3D Chess™ is to “Checkmate” the opponent’s King. This is accomplished by having one or more chess pieces attacking the opponent’s King, and the opponent is unable to protect the King by either moving the King to a safe square, or by eliminating the attacking threat to the King (which can be usually be done by blocking or capturing the attacking chess piece). If the King is under attack (i.e., in “Check”) and there are no legal moves to prevent the attack, then the game ends in “Checkmate” and the attacking player wins.
- 4.3 **Stalemate.** Whenever a chess player has no legal moves and the player’s King is not currently in “Check,” then the game immediately ends as a “Stalemate.” A “Stalemate” is a draw where neither player wins or loses. If a player has no legal moves and the player’s King is currently in “Check,” then the game immediately ends as a “Checkmate,” and the attacking player wins.
- 4.4 **Draw by Mutual Agreement.** A chess game can end in a draw if both players mutually agree to end the game without a winner.
- 4.5 **Draw by 50 Moves.** A chess game can be declared a draw if either player can prove that 50 complete moves have occurred without a Pawn being advanced forward, without a Pawn being promoted, or without a chess piece being captured. This rule may be modified by mutual consent of the players prior to the start of the game or modified by tournament rules. Please note that a White Pawn moving vertically such as from 1e2 to 2e2 is not considered as advancing a Pawn forward, whereas the same Pawn moving from 1e2 to 2e3 is considered a forward advance.
- 4.6 **Draw by Triple Repetition.** A chess game can be declared a draw if either player can prove that the exact position with identical privileges of all the chess pieces has occurred three times during the game with the same player about to move. This triple repetition can occur at any time during the game and with any number of moves between the reoccurrences. As in traditional 2D chess, all of the chess pieces must have the same privileges when the exact positions reoccur three times. An example when the physical positions of the chess pieces can occur three times yet not qualify for a “Draw by Triple Repetition” is when the White King still had the privilege to castle during the first “repetition,” yet the White King no longer had his castling privilege during the second and third “repetition.” In this example, the board position would have to reoccur one more time to declare a draw by triple repetition, since the White King’s privileges and position must reoccur three times. Likewise, the privilege of a Pawn to make an “En Passant” capture would also preclude that particular board position from a triple repetition claim (since the privilege to capture by “En Passant” only exists for one turn and therefore can never for replicated).
- 4.7 **Draw by Insufficient Material.** A chess game is immediately declared a draw if both players have insufficient chess pieces (material) to checkmate the other player. For example, if both players only have their Kings on the Board, then the game is a draw due to insufficient material.



Other examples of a draw by insufficient material include a King verses a King and a Knight, or a King verses a King and a Bishop.

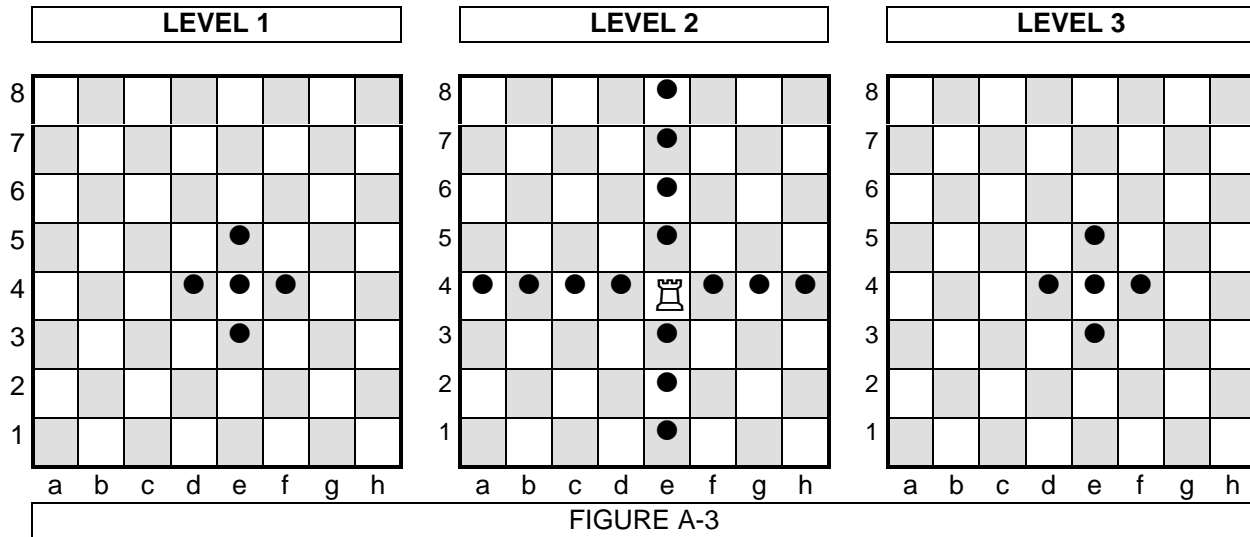
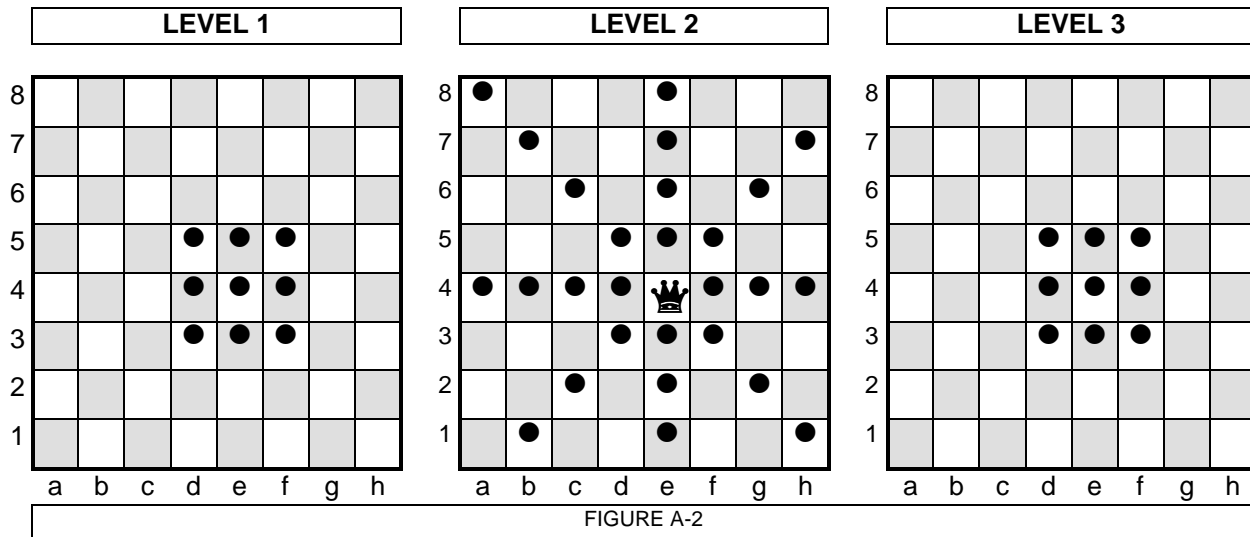
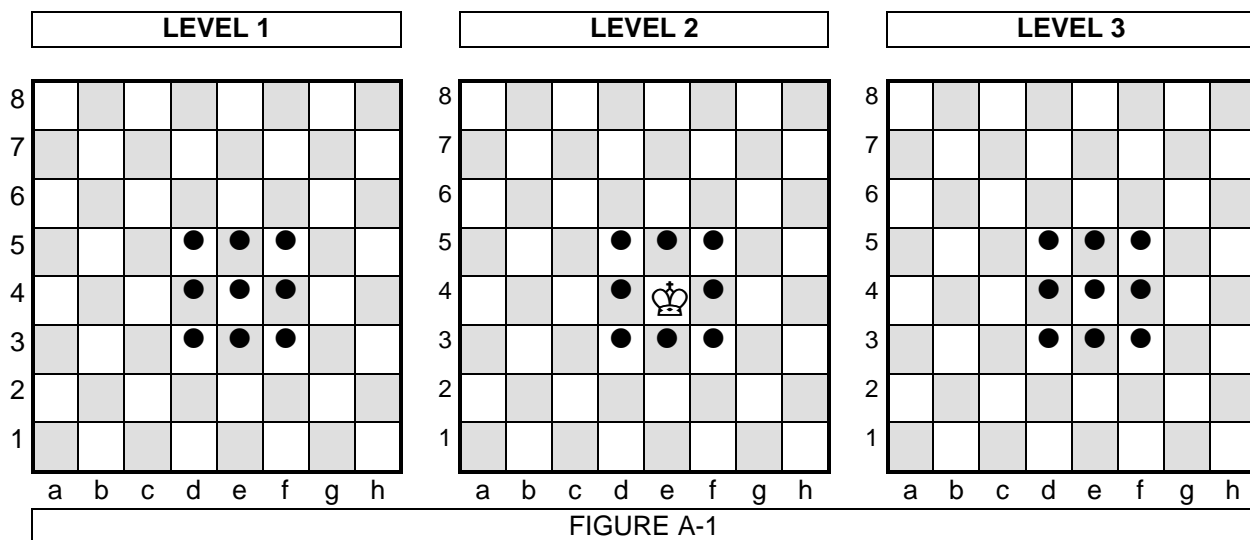
- 4.8 **White Moves First.** The White player always moves first to begin the game, and then the game play continues to alternate between Black and White. No player may skip (or pass) a turn to move. Each turn, a player can only move one chess piece (with an exception when castling). If it is a player's turn to move, yet there are no legal moves available, then the game immediately ends in "Checkmate" when the player's King is in "Check", or the game ends in "Stalemate" when the player's King is not in "Check".
- 4.9 **Time Limits.** Unless mutually agreed by both players prior to the start of the game, or imposed by tournament rules, then there is no time limit for playing Millennium 3D Chess™. If a time limit is imposed by mutual agreement or by tournament rules, then the player who runs out of time first loses the game unless the opposing player has insufficient material for checkmate. If this situation with insufficient material should occur, then game is declared as a draw.
- 4.10 **Miscellaneous.** Other common chess rules may be imposed (such as the "touch" rule or other chess "etiquette" rules) when mutually agreed by both players prior to the start of a game or imposed by tournament rules.

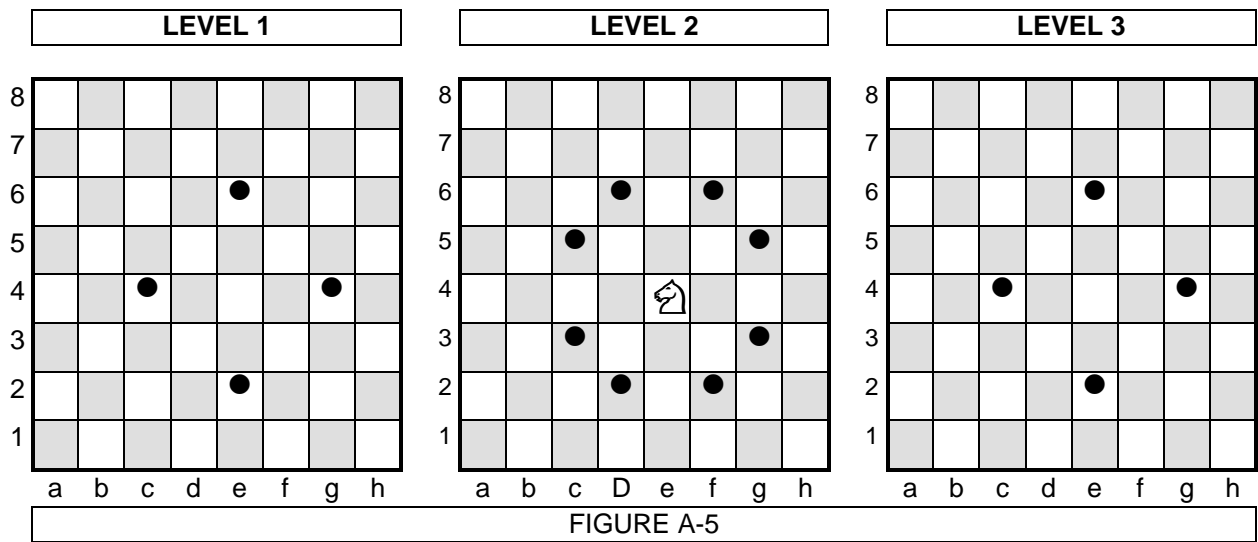
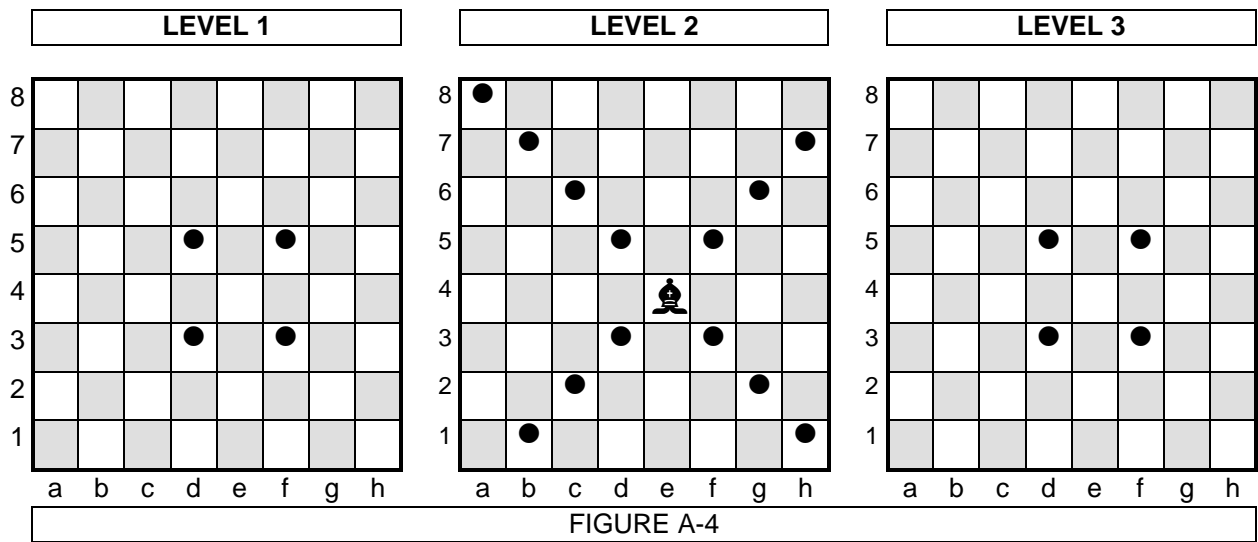
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**APPENDIX**

Additional Examples of Millennium Three Dimensional (3D) Chess™ Movement





**Symbols**

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| <ul style="list-style-type: none"> <li> = White King</li> <li> = White Queen</li> <li> = White Rook</li> <li> = White Bishop</li> <li> = White Knight</li> <li> = White Pawn</li> </ul> | <ul style="list-style-type: none"> <li> = Black King</li> <li> = Black Queen</li> <li> = Black Rook</li> <li> = Black Bishop</li> <li> = Black Knight</li> <li> = Black Pawn</li> </ul> |
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