Highlights contain the most recent rule updates to the Mathematics Pentathlon ${ }^{\circledR}$ Tournament Rule Manual.

## DIVISION IV (Grades 6-7) Common Rules

## PENTATHLETE ${ }^{\text {TM }}$

 CODE OF CONDUCTA Pentathlete ${ }^{\mathrm{TM}}$ is to treat adults and fellow Pentathletes with courtesy and respect and play by the rules that they know to be true. Any infraction of this Code, including intimidation of an opponent or other forms of disruptive and/or uncooperative behavior, will be handled by the Tournament Director. Such infractions can result in 0 points and/or being required to leave the tournament site.

Each Pentathlete is to complete a turn within one minute. If a player exceeds this time limit, the Monitor issues a reminder to take the turn immediately. If the player does not do so, the player forfeits that turn. The third violation of this rule results in a forfeiture of the game.

A player must be in possession of the flag card while taking a turn. The player does not have to be holding the flag card when completing a turn.

The Score Card is THE ONLY Official Record of a Pentathlete's score. After the game is complete, Pentathletes are to verify the information on their score card and sign their own score card. This signature means the information/score on the card was correctly recorded by the Monitor. Scores are also recorded on the Star and GM Record Sheet but are NOT the Official Record.

DON'T CLEAR PLAYING AREA $\quad \begin{aligned} & \text { Do NOT clear the Gameboard, Pieces or Playing area until Scorecards have been collected, i.e. leave }\end{aligned}$ everything intact after a win is declared.

| STAYING SEATED | Pentathletes are to remain seated at their game until their score cards are checked and picked up by a <br> Game Leader. |
| :---: | :--- |
| SCRATCH PAPER | Scratch paper is provided for ALL games |
| DIVISION IV (Grades 6-7) ~ CHALLENGING - OVERVIEW |  |
| NO CHALLENGE | Challenges can NOT be issued on the starting rules, passing of the flag card, or exceeding the <br> one minute time limit. The Monitor oversees these issues. |
| START OF GAME, |  |
| ANNOUNCING A CHALLENGE | Players must challenge at the appropriate time. Time out is granted by the Game Monitor and <br> the player must state the nature of the challenge before the Monitor rules Correct, Incorrect, <br> or Inappropriate (see 2nd \& 3rd opinions). Once play has resumed, changes of prior game <br> rulings will NOT be considered. |
| OPINIONS | 2nd \& 3rd Opinions: After the Game Monitor has made a ruling, either Pentathlete "may" <br> hold up the Opinion Card to ask for a 2nd ruling from the Game Leader. After the Game <br> Leader has ruled, either Pentathlete may then ask for a 3rd and FINAL OPINION from the <br> Tournament Director. |
| INVO | If a challenge situation involves more than one rule, each challenged rule is treated as a <br> separate challenge. Each challenge is ruled on in the order announced by the player. |
| ONE RULE |  |

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| GOAL | 1) A player can win when all of the OPPONENT'S 5 pentominoes are entrapped. <br> 2) During PLACEMENT: A player wins when the opponent can NOT place 5 pentominoes onto gameboard. <br> 3) During MOVEMENT: A player wins for correctly challenging the opponent for moving the same pentomino three consecutive times, even if interspersed with chip movement. <br> NOTE: Game Monitor can award a win to a player when the opponent can not make a legal move. |
| :---: | :---: |
| START | Monitor puts a chip of one color in one hand and chip of different color in another. Ask one player to determine what the starting color will be and ask the other player to pick a hand. Player who has starting color receives the flag card and play begins. |
| BEGINNING OF TURN | when player receives the Movement Record Flag Card |
| END OF TURN | when player passes the Movement Record Flag Card to opponent |
| DECLARING A WIN | A player must announce a win while in possession of the flag card. |
| NOT A ROUND GAME EXCEPT GAME TIME LIMIT | The first player to reach the goal of game wins. If the game has not ended when time is called and the beginning player has touched a piece, both players are allowed to complete a turn. |
| GAME TIME LIMIT MONITOR DECLARES | If time is called and neither player has won, the Game Monitor declares a TIE. |
|  | OTHER RULES ~ Pent 'Em In'M |
| PHASE I: <br> INITIAL PLACEMENT | The Game Monitor assures that each player has placed exactly 5 pentominoes onto the gameboard. No sixth pentomino is allowed to be placed. No pentomino may be placed over the squares with sheriff stars on the gameboard. Also, a pentomino may NOT be placed so that it shares a common edge with the opponent's pentomino. (If a player PICKS UP a piece and cannot place it, another piece may be selected. If a player has already PLACED a piece, it CANNOT be changed. If a player cannot place a pentomino, the player forfeits the game.) |
| PHASE II: <br> MOVEMENT OF PENTOMINOES \& CHIPS | PENTOMINOES: Pentominoes may now be moved so that they share a common edge with the opponent's pentominoes. A pentomino may be slid, flipped, OR rotated, but no combinations of these movements can be made within a turn. Pentomino pieces may be flipped or rotated over chips, Sheriff Stars, or parts of another pentomino. They may NOT be slid over spaces occupied by chips or pentominoes or over the gameboard's Sheriff Stars. <br> CHIPS: After the Placement Phase, chips may be moved. A chip may NOT be slid through or placed on the Sheriff Stars. |
| TRACKING MOVEMENT | In Phase II, Pentathletes MUST keep track of movement on the Movement Record Flag Card. |
| LAID IS PLAYED \& MOVE IT-USE IT | Once a player places or moves a piece and releases hold of it, the piece may not be repositioned. If a player has moved a piece off of it's space, that piece must be moved to complete a turn. |
| BOOTS \& HATS | Playing pieces may be moved into or through unoccupied boot and hat spaces. |
| No 3 CONSECUTIVE MOVES OF THE SAME PENTOMINO | A player may NOT move the same pentomino 3 consecutive times, even if interspersed with a chip movement. NOTE: Being challenged results in loss of game. |
| NO CONSECUTIVE CHIP MOVEMENTS ALLOWED | A player may NOT make 2 consecutive chip movements. If a chip has been moved during one turn, the player must move a pentomino in the next move. Note: If challenged see Correct Challenge (Other Challenges). |

## CHALLENGING ~ Pent 'Em In ${ }^{\text {TM }}$

## WHEN TO CHALLENGE

CORRECT - "C" 3 Consecutive Same Pentomino Moves: Game Monitor declares the win when challenged.
Other Challenges: The Game Monitor restores the board to prior status and challenger EITHER begins a turn OR forces the opponent to move a pentomino.
NOTE: Record "C" on Challenge Sheet

INCORRECT - "।"
Initial Placement: Challenged player may move one of the opponent's chips to a new location and challenger begins a turn. Other Challenges: Challenger either loses turn OR is forced to move by challenged player - Record " I " on Challenge Sheet. Any combination of 3 "I"s and/or "IA"s results in a loss that is declared by the Monitor.

## INAPPROPRIATE - "IA"

An Inappropriate Challenge is one that is made at the wrong time or is about a procedure that is not a tournament rule. Such a challenge DOES NOT result in loss of turn, but is recorded as an "IA" on the Record Sheet. Any combination of 3 " I"s and/or "IA"s results in a loss that is declared by the Monitor.

| Player A－Name | Player B－Name |
| :--- | :--- |


|  |  |
| :--- | :--- |



Pentomino \＆Chip Legend
ILL「「I「1PT」＋0 ILVUSZFYPTWXO

Pent＇Em In ${ }^{\text {TM }}$ Movement Record Flag Card

| Player A－Name | Player B－Name |
| :--- | :---: |
|  |  |
| P S Z F Y P T W X O |  |


| GOAL | To acquire the greater number of 3-strip tricks for each game in a 3 game series. <br> 2 WAYS TO WIN - Win 2 out of 3 games, OR win 1 game and tie 2 games. |
| :---: | :--- |
| REMOVE | One copy of zero strips \& whole strips (10 strips) are removed to make this a more challenging game. |

# Fraction Pinball ${ }^{\text {TM }}$ Tournament Highlights 

| GOAL | A player may win based on any of the following conditions: <br> a) being the first to OBTAIN \& IDENTIFY an accumulated score between 4.95 and 5.05 ; <br> b) the opponent's pinballs are trapped and the opponent is unable to untrap either of their pinballs for movement; <br> c) at the beginning of a turn and before touching a piece the score is between 4.95 and 5.05 and the opponent has not declared a win; or <br> d) at the beginning of a turn and before touching a piece the score is less than 1.5 or greater than 8.5 in Phase III. |
| :---: | :---: |
| START | Blue is the designated starting color. A player picks up a pawn of each color and places one in each hand, out of view of the opponent. Opposing player selects a hand. Player who has starting blue pawn receives the Acccumulated Score Flag Card and play begins. |
| BEGINNING OF TURN | when player receives the Acccumulated Score Flag Card. |
| END OF TURN | when the player passes the Acccumulated Score Flag Card |
| DECLARING A WIN | A player must announce a win while in possession of the Acccumulated Score Flag Card. |
| GAME TIME LIMIT MONITOR DECLARES | If time is called and the starting player has moved a piece, a round is allowed to be completed. TIE: If neither player has won, a tie is declared. |
|  | OTHER RULES ~ Fraction Pinball ${ }^{\text {TM }}$ |
| PHASE I: <br> PINBALL PLACEMENT | After pinball lands onto the first positive fraction circle, a player: 1) states the decimal equivalent of the fraction (see Note); 2) records and adds this value to the accumulated score on the Acccumulated Score Flag Card; 3) announces the new accumulated score; and 4) passes the Acccumulated Score Flag Card to opponent to end the turn. Pinballs may not enter negative fraction circles in this phase. <br> NOTE: If a player lands on the Fraction Circle $1 / 2$, player can state "Point 5 " or "Five Tenths". |
| PHASE II: <br> CHIP PLACEMENT | Only blocking chips are placed on Nodes and cannot be moved a second time. Pinballs cannot be moved in this phase. Neutralization is NOT allowed in Phase II. |
| PHASE III: MOVEMENT | Player can move a pinball or blocking chip according to same procedures used in Phases I and II. Pinballs may now enter negative fraction circles. |
| NEUTRALIZATION OF BLOCKING CHIPS | During Phase III a player may neutralize an opponent's blocking chip by moving one of the player's blocking chips along a path containing 1 or more fraction circles before arriving at a Node occupied by an opponent's blocking chip. The player's chip is placed on top of the opponent's chip. A player may choose to leave the stack of 2 chips on that Node OR pick up and move the stack of chips to the CAPTIVE PENTAGON provided no other chip(s) occupy that position. No more that 2 chips may be stacked on any Node or the Captive Pentagon. (The blocking chip may NOT be moved directly from one Node (or the Captive Pentagon) to another to neutralize an opponent's chip.) Note: Only the top blocking chip of a neutralized stack may be moved within a turn. |
| CENTER STAR | A player may NOT change the direction of movement of a pinball or blocking chip at the Center Star. |
| MOVE IT-USE IT \& LAID IS PLAYED | If a player has moved a piece off of it's space, that piece must be moved to complete a turn. Once a player moves a piece and releases hold of it, the piece may not be repositioned. |

## CHALLENGING ~ Fraction Pinball ${ }^{\text {TM }}$

## WHEN TO CHALLENGE

upon receiving the Acccumulated Score Flag Card and before touching a piece

1) The Game Monitor restores gameboard and score (if changed) to prior status.

CORRECT - "C"
2) The challenger must take the opponent's turn in Phase I \& II, but in Phase III the player has the option of taking the opponent's turn or forcing the opponent to take a turn.
3) The challenger then completes a regular turn.

Record "C" on Challenge Sheet
INCORRECT - "I"
In all 3 Phases the challenged player takes the opponent's turn and then takes a regular turn. Any combination of 3 " I"'s and/or "IA"s results in a loss that is declared by the Monitor.

## INAPPROPRIATE - "IA"

An Inappropriate Challenge is one that is made at the wrong time or is about a procedure that is not a tournament rule. Such a challenge DOES NOT result in loss of turn, but is recorded as an "IA" on the Record Sheet.
Any combination of 3 "I"s and/or "IA"s results in a loss that is declared by the Monitor.


## Prime Gold ${ }^{\text {TM }}$ Tournament Highlights

| GOAL | A player must be the only player at the end of a round who has: <br> 1) constructed one continuous path of chips from top to bottom or from side to side of the gameboard <br> OR; <br> 2) mined 4 veins of Prime Gold (4 veins of 3 or more chips covering prime numbers in a contiguous <br> diagonal line). Note: Extending veins on a diagonal line can only be counted as one (1) vein. <br> However, any chip in a vein can be used to form another intersecting diagonal vein. |
| :---: | :--- |
| START | Players each toss one of the ICOSAHEDRA dice (a 20 sided die). The player with the lower value <br> begins. |
| BEGINNING OF TURN | when player receives the Equation Flag Card |
| END OF TURN | when player passes the Equation Flag Card to the opponent |
| END OF GAME | when a player receives the Equation Flag Card and has no chips to play |
| DECLARING A WIN | A player must announce a win before releasing the Equation Flag Card. If the beginning player <br> announces a win, the second player is allowed to complete the round. If both players construct a win <br> and properly announce it, the Monitor declares a TIE. |
| ROUND GAME | YES ~ consists of the beginning and second player completing a turn |
| GAME TIME LIMIT <br> MONITOR DECLARES | If time is called and the starting player has rolled the dice, a round is allowed to be completed. If <br> neither player has won, the Game Monitor declares a TIE. |

## OTHER RULES ~ Prime Gold ${ }^{\text {TM }}$

| CALCULATOR USAGE | Non-programmable calculators may be used if each Pentathlete has one. If one player chooses not to use a calculator, the opposing player may not make use of a calculator. |
| :---: | :---: |
| WRITING THE NUMBER SENTENCE | A player MUST WRITE the number sentence on the Equation Flag Card before completing a turn. The Order of Operations must be used. (The operations of multiplication and division precede the operations of addition and subtraction.) E.g.: if a 2, 5, and 6 were rolled many possible number sentences could be written such as $2 \times 5+6=16$, or $(2+5) \times 6=42$, or 5 to the 2 nd power - $6=19$, or $(6-5) 2=2$. Note: Players do NOT have to announce their number sentence. |
| ANNOUNCING GOLDBACH'S DOUBLE PRIME PLACEMENT | In addition to writing the number sentence, the player MUST ANNOUNCE the 2 prime numbers that add up to the result constructed with the dice BEFORE completing a turn. |
| LAID IS PLAYED | Once a chip is laid it can not be repositioned |
| PASSING A TURN | If a player is unable to place a chip within the 1 minute time limit, the player passes the Equation Flag Card to end the turn. |
| PRIME GOLD VEINS <br> MUST have ample chips on bases to exercise this rule | VEIN of 3: 1 chip may be removed from composite number - chip returned to the opponent <br> VEIN of 4: 2 chips may be removed from composite numbers AND 2 of players chips may be placed onto the composite numbers that were covered by removed chips - removed chips returned to the opponent <br> VEIN of 5: same as vein of 4 but one chip which covering a prime number may be removed and return this chip to opponent |
| SHAFTS (5 or more chips) | SHAFTS of 5: ANY 2 OR FEWER of opponent's chips MAY be removed - chips returned to the opponent SHAFTS of 6 or more: ANY 3 OR FEWER of opponents chips MAY be removed - chips returned to the opponent |
| PRIME NUMBERS | Numbers other than 0 or 1 that can only be divided by 1 or the number itself: <br> $2,3,5,7,11,13,17,19,23,29,31,37,41,43,47,53,59,61,67,71,73,79,83,89,97,101,103,107,109,113$ |
| COMPOSITE NUMBERS | Can be divided by a number other than 1 and itself. NOTE: 1 is neither prime nor composite. |
| FACTORIALS | Factorials such as 3 ! or 5 ! equate to $3 \times 2 \times 1$ and $5 \times 4 \times 3 \times 2 \times 1$, respectively. By definition, 0 ! is equal to 1 . $0!=1, \quad 1!=1, \quad 2!=2, \quad 3!=6, \quad 4!=24, \quad 5!=120, \quad 6!=720, \quad 7!=5,040$, and so on |
|  | CHALLENGING ~ Prime Gold ${ }^{\text {TM }}$ |
| WHEN TO CHALLENGE | upon receiving the Equation Flag Card and before rolling the dice |
| CORRECT - "C" | The Game Monitor returns board to prior status and the challenger begins a turn. Record "C" on Challenge Sheet |
| INCORRECT - "I" | The challenger forfeits a turn. Record "I" on Record Sheet. Any combination of 3 "I"s and/or "IA"s results in a loss that is declared by the Monitor. |
| INAPPROPRIATE - "IA" | An Inappropriate Challenge is one that is made at the wrong time or is about a procedure that is not a tournament rule. Such a challenge DOES NOT result in loss of turn, but is recorded as an "IA" on the Record Sheet. <br> Any combination of 3 "I"s and/or "IA"s results in a loss that is declared by the Monitor. |

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Prime Gold ${ }^{\text {TM }}$ Equation Flag Card

Prime Gold ${ }^{\text {TM }}$ Equation Flag Card

K

| Player A - Name | Player B - Name |
| :--- | :--- |
|  |  |


| Player A - Name | Player B - Name |
| :---: | :---: |
| DowneroAD FREE AT |  |

## Remainder Islands ${ }^{\text {TM }}$ Tournament Highlights

| GOAL | The player having the greater number of chips when the game has ended wins the game. THE MONITOR COUNTS THE <br> CHIPS AND ANNOUNCES THE WIN. |
| :---: | :--- |
| START | Players each toss a dodecahedron die (12 sided). The player with the lower value begins. |
| BEGINNING OF TURN | when player receives the flag card |$\left|\begin{array}{c|l|}\hline \text { END OF TURN } & \text { when player passes the flag card to the opponent }\end{array}\right|$| END OF GAME | When a player has chips on all 6 islands and the second player has been allowed to complete the Round the Game Monitor <br> announces the end of game AND declares the winner based on the greater number of chips. |
| :---: | :--- |
| ROUND GAME | YES ~ consists of the beginning and second player completing a turn |

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