

Glossary of Terms for On-Sets®

Additional minute	The extra 60 seconds a player receives to complete what he must do after the first time limit has expired; by the end of this extra minute, the player must complete the action or receive a second -1 and forfeit what he is doing
Advanced On-Sets	The form of On-Sets in which Restrictions are used; Middle, Junior, and Senior Divisions play Advanced On-Sets
Adventurous On-Sets	The form of On-Sets in which players choose variations at the beginning of each shake; all four divisions play this form of the game
Adventurous variation	One of a list of special rules used in On-Sets; for each shake each player must select one or two rules from the list for the appropriate division
Ambiguous Goal	A Goal that has more than one legal interpretation; this can happen only when the Absolute value variation is in effect in Middle, Junior, or Senior division
Ambiguous Solution	A Solution that has more than one legal interpretation
Basic On-Sets	The form of On-Sets in which neither Restrictions nor adventurous variations are used
Blank card	The On-Sets card that has no color dots on it
“Bonus”	The word a Mover must say before making a bonus move
Bonus move	A move to Forbidden which a player makes after saying the word “Bonus” and before making another move to any one of the three sections of the mat
Chain Restriction	An On-Sets Restriction that contains two or more = or <u>C</u> symbols
Challenge	A claim by an opponent that a Solution is possible Now or that it is Never possible
Challenge block	An object that a Challenger must pick up in order to challenge
Challenger	The player who makes a legal challenge
Clockwise	To the left
Color cube	A cube with a color dot on each of its faces
Complement of a set	The set of cards in the Universe that not in the set; this operation is indicated by the symbol ‘
Correct Solution	A Solution that satisfies all the requirements listed in Section VII-B of the On-Sets Tournament Rules
Cube	A block containing a symbol on each of its six faces

Deal cards	Shuffling the cards, then setting out of the required number of cards from the top of the face-down deck in the dealer's hand (that is, the dealer may not select which cards to deal)
Digit	One of the symbols 0, 1, 2, 3, 4, 5, 6, 7, 8, 9
Digit cube	A cube containing the digit 1 on two of its faces and the digits 2, 3, 4, and 5 on the other four faces
Division	One of the four levels of competition: Elementary (grade 6 and below), Middle (grade 8 and below), Junior (grade 10 and below), and Senior (grade 12 and below)
Elementary Division	The division of play for students in grade 6 and below
Empty set	The set consisting of no cards
Forbidden	The section of the playing mat labeled FORBIDDEN; cubes in this section may not be used in any Solution
Forceout	The term used for the situation in which the last cube from Resources is played to Required or Permitted
Goal	The physical configuration of one or more digit cubes placed on the GOAL section of the playing mat; also any number represented by a legal interpretation of those cubes
“Goal”	The word the Goal-setter says when finished setting the Goal
Goal section	The section of the playing mat where the Goal is placed
Goal-setter	The player who rolls the cubes and sets the Goal
Grouping symbols	Symbols used in pairs (such as parentheses, brackets, and braces) to indicate the order of operations in a Solution
Illegal challenge	After a player picks up the challenge block, (a) a claim other than Now or Never or a No Goal challenge, (b) a Now or Never claim by the last Mover (who is therefore challenging himself), (c) a Now or Never claim before the Goal has been completed, (d) a Now claim with no cubes in Required or Permitted, (e) a Now claim with fewer than two cubes left in Resources, or (f) a Never claim after the first minute following the move of the last cube in Resources to Required or Permitted
Illegal procedure	A move or other action that violates a procedural rule; examples: moving out of turn, attempting to make a bonus move without first saying “Bonus”
Illegal Universe	A Universe consisting of too many or too few cards; in Elementary, Middle, and Junior Divisions, the Universe must contain from 6 to 10 cards; in Senior Division, the Universe must contain from 10 to 14 cards

Incorrect Solution	A Solution that violates one or more stipulations of section VII-B of the On-Sets Tournament Rules
Insulation	The process whereby an illegal procedure is protected from correction by a subsequent legal action by another player
Intersection	The operation represented by the symbol \cap ; the intersection of two sets is the set consisting of the cards contained in <i>both</i> sets
Invalid challenge	Same as Illegal challenge
Junior Division	The division of play for students in grade 10 and below
Legal interpretation	An evaluation of the Solution or the Goal that does not violate the rules of mathematics or the game of On-Sets
Legal move	(a) A bonus move by the Goal-setter (who is not leading in the match), (b) setting a legal Goal by the Goal-setter, or (c) , after the Goal has been set, the transfer of a cube from Resources to Required, Permitted, or Forbidden by the player whose turn it is with the exception that the last cube in Resources may not be legally played to Forbidden
Match	A sequence of shakes played continuously by two or three players until a specified time limit has been reached
Middle Division	The division of play for students in grade 8 and below
Minus	A word used for the operation of set subtraction ($-$)
Minute	The length of time it takes all the sand to pass from the top half of the timer to the bottom half
Move	The setting of the Goal or the transfer of a cube from the Resources to Required, Permitted, or Forbidden
Mover	The player who made the most recent move
Negative number	A number smaller than 0
“Never”	The word a player says when making a Never Challenge
Never Challenge	A challenge that no correct Solution can be written using all the cubes in Required, none, some, or all the cubes in Permitted, and none, some, or all the cubes in Resources
“No Goal”	The words the Goal-setter must use to make a no Goal declaration
No Goal challenge	The claim by an opponent that the no Goal declaration of the Goal-setter is incorrect; section III-D of the On-Sets Tournament Rules explains how to work out this challenge
No Goal declaration	The claim by the Goal-setter that no Goal can be set which has a possible Solution from the remaining Resources

“Now”	The word a player says when making a Now Challenge
Now Challenge	A challenge that a Solution can be written using all the cubes in Required, none, some, or all the cubes in Permitted, and, if needed, one cube in Resources
Null set	Same as empty set
Numeral cube	Same as digit cube
Operation cube	A cube with an operation symbol on every face
Operation symbol	One of the symbols \underline{U} , $\underline{\Omega}$, $-$, or $'$; this definition applies whether these symbols have their usual mathematical meanings or special meanings defined by variations
Order of operations	The sequence in which operations are to be performed in the Goal or a Solution
Penalty	The punishment a player receives for an illegal action; examples: loss of one point, returning an illegally played cube to Resources
Permitted	The section of the playing mat labeled PERMITTED; cubes in this section may be used in any Solution
Playing mat	The rectangular piece of cardboard (or, in older games, two rectangular cardboards) that contains the REQUIRED, PERMITTED, FORBIDDEN, and GOAL sections; even if the physical mat contains a RESOURCES section, this is not considered part of the playing mat
Regular move	A move that is not a bonus move; that is, play of a cube from Resources to the mat without calling “Bonus” or the second move on a turn after a bonus move
Required	The section of the playing mat labeled REQUIRED; cubes in this section must be used in any Solution
Resource cube	A cube that has been rolled for the shake but has not yet been played to the Goal, Required, Permitted, or Forbidden sections
Resources	The symbols that appear on the top faces of the cubes after they have been rolled for the shake
Restricted Universe	The Advanced On-Sets Universe after the Restriction part of a Solution has been applied to the original Universe
Restriction	In Advanced On-Sets, a statement containing one or more $=$ or \underline{C} symbols
Restriction cube	A cube containing the symbols $=$, \underline{C} , \underline{V} , and $\underline{\Delta}$ on its faces
Restriction part	That part of an Advanced On-Sets Solution consisting of one or more Restrictions
Restriction statement	Same as Restriction

Round	Same as Match
Scoresheet	A piece of paper on which players' scores for the shakes of a match are recorded and totaled and which the players sign or initial and which the winner of the match (or one of the winners if there is a tie) turns in to a designated person or place when the match ends
Senior Division	The division of play for students in grade 12 and below
Set-Name	An expression which names a set of zero or more cards from the Universe
Set-Name part	That part of a Solution which consists of one Set-Name
Set Subtraction	The operation represented by the symbol $-$; $Set1 - Set2$ produces the cards that are in $Set1$ but not in $Set2$
Shake	A play of the game starting with the roll of the cubes and a deal of the cards and ending with at least one player writing a Solution
Solution	A Set-Name part and, if necessary in Advanced On-Sets, a Restriction part
Solution-writer	A player who must present a Solution after a challenge or after the last Resource cube is moved to the playing mat
Subtraction	Same as Set subtraction
Symbols of grouping	Same as grouping symbols
Symmetric difference	The operation defined by the Symmetric difference variation for the symbol $-$; $Set1 - Set2$ produces the cards that are in either $Set1$ or $Set2$ but not in both
Table	A group of two or three players competing against each other in a match
Ten-second warning	The countdown from 10 to 1 that an opponent must make out loud when the sand runs out on a player's time limit
Third Party	In a three-player match in which a challenge has been made, the player who is neither the Challenger nor the Mover
Timed player	A player who is being timed to complete a task (roll the cubes, set a Goal, make a move, write or check a Solution, etc.)
Time limit	The amount of time allotted by the rules for a player to complete an action
Timer	An hour-glass-shaped piece of plastic (or glass) containing sand that is used to determine one- and two-minute time limits during a match; the sand in a timer usually takes about 60 seconds to pass through

Turn	The time when a player is obligated to move (which includes setting the Goal), challenge, or complete a required action (e.g., selecting a variation) within some specified time limit
Union	The operation represented by the symbol \cup ; the union of two sets is the set of cards that are in <i>either</i> set or both
Universal set	The set of all cards dealt for a shake
Universe	Same as Universal set
Universe chart	A chart consisting of squares in which the cards in the Universe can be recorded
Valid challenge	A challenge that is not illegal
Variation	Same as Adventurous variation
Variation selection	A player's choice of one or two variations from the appropriate list; the player indicates the selection by circling the name of the variation(s) on the variation selection chart and, if necessary, filling in the blank to indicate which cube is wild or required, etc.
Variation selection chart	A chart printed either on the back of the scoresheet or on a separate page on which each player must record his/her variation selection for each shake on this chart
Warning	The announcement that the time limit for the match (round) has been reached and that no new shakes are to be started
Wild cube	A cube containing a symbol on its top face which may represent another symbol because of a variation chosen for the shake