World Cube Association

Competition regulations

Version: 2010 final, April 14, 2010

Notes

Latest textual revision: January 26, 2011

To make the regulations easier to read we use 'he' where the reader should read 'she or he'.
The use of the words 'must', 'must not', 'should', 'should not' and 'may' comply with RFC 2119.

Contact
For questions and feedback, please contact the WCA Board.

Information on internet
Website of World Cube Association: www.worldcubeassociation.org.
Original source of the WCA regulations: www.worldcubeassociation.org/regulations.
WCA regulations in PDF format.

Translations
Chinese translation by Shihang Wang. Version 2010.
Traditional Chinese translation by Han Wu Version 2010.
Estonian translation by Ivo Kruusamägi. Version 2010.
German translation by Florian Weingarten. Version 2010.
Hungarian translation by Olivér Nagy. Version 2010.
Japanese translation by Kentaro Nishi, Takeshi Akuzawa, Yohei Oka, Toru Omura, Shun Sakurai, Kotaro Terada, Takafumi Haseda and Ayano Yoshida. Version 2010.
Polish translation by Stefan Lapicki. Version 2010.
Portuguese translation by Pedro Santos Guimarães, Carlos Alberto de Alcântara Jr. and Rafael Werneck Cinoto. Version 2010.
Romanian translation by Radu Faciu. Version 2010.
Slovenian translation by Ziga Lesar. Version 2010.
Spanish translation by Alexandre Toledo Guillén and Carlos Angosto. Version 2010.

Italian translation by Luca Feliciotto. Version 2009.
Russian translation by Anton Rostovikov. Version 2009.
Thai translation by Chonlathep Kitsinthopchai. Version 2009.

Finnish translation by Petri Vanhala. Version 2008.
French translation by Pierre Calendini and Gilles Roux. Version 2008.
Korean translation by Park Joon-Ho. Version 2008.

Czech translation by Josef Jelinek. Version 2006 v1.

Contents

Article 1: Officials

1a) A competition must have the following officials: an organisation team (with one or more members), a WCA delegate, a main judge per event, judges,

scramblers and score takers.

1b) The organisation team of a competition is responsible for:

- 1b1) Making all arrangements before and during the competition.
- 1b2) Making a printed or electronic version of the WCA regulations available at the competition.

1c) The WCA delegate for a competition is responsible for:

- 1c1) Reporting to the WCA Board about whether the full WCA regulations were followed during the competition. Reports must be available within one week after the competition.
- 1c2) Reporting to the WCA Board about the overall course of the competition, and about incidents. Reports must be available within one week after the competition.
- 1c3) Sending the competition results to the WCA Board. Results should be available at the end of the last day of the competition.
- 1c4) Sending corrections to the competition results to the WCA Board. Corrections should be available within one week after the competition.
- 1c5) Advising the other officials when needed.
- 1c6) Approving all events and event formats of a competition, before the competition starts and when changes are needed during the competition.
- 1c7) Decisions on disqualification of a competitor for the competition, as described in other articles.
- 1c8) Providing the scrambles.

1d) Each event must have one main judge. The main judge for an event is responsible for:

- 1d1) Making sure that the regulations are followed.
- 1d2) Decisions on disqualification of a competitor for an event, as described in other articles.
- 1d3) Decisions on starting a round later or earlier than scheduled. In case of changes in the time schedule, there should be a clear announcement to all competitors.

1e) Each event must have one or more judges.

- 1e1) A judge for an event is responsible for executing the procedures of the event.
- 1e2) All competitors should be available for judging, if needed by organisation team. Penalty: disqualification of the competitor for the competition.

1f) Each event (except for puzzles that are not scrambled) must have one or more scramblers.

- 1f1) A scrambler for an event is responsible for applying the scramble sequences to the puzzles.
- 1f2) All competitors should be available for scrambling, if needed by organisation team. Penalty: disqualification of the competitor for the competition.

1g) Each event must have one or more score takers.

- 1g1) A score taker for an event is responsible for registering the event results.
- 1g2) Changes to the score sheets must only be made with consent of the main judge.

1h) Competitors can be divided into groups to handle large events or to enable competitors to help with scrambling or judging.

- 1h1) Competing judges/scramblers for a round must not judge or scramble in their own group, until after they have completed all their solves for the round.
- 1h2) Groups must have different scramble sequences.

1i) The WCA delegate (before the competition starts) and main judge (before the event starts) must be announced to the competitors.

1j) All officials may compete in the competition, but a main judge for an event must not compete in the event unless the WCA delegate is also the main judge.

1k) Officials can have several roles combined (organisation team, WCA delegate, main judge, judge, score taker, scrambler).

Article 2: Competitors

2a) Any person may be a competitor during a competition, if he:

- 2a1) accepts the WCA regulations;
- 2a2) meets the competition requirements, which must be clearly announced before the competition;
- 2a3) is not suspended by WCA Board.

2b) Competitors younger than 18 must first ask their parent(s)/guardian(s) for permission.

2c) Registrants must provide all required information (at least: name, country, date of birth, gender, contact information, selected events) for their registration to be considered complete.

2d) All information (except: name, country, date of birth, gender, selected events and competition results) must be used for the competition only, and may only be given to other organisations/persons after permission from the competitor.

2e) Competitors must be able to show a passport/id-card during registration at the location to prove their identity.

- 2e1) Competitors may represent the country that they have the nationality of.
- 2e1a) The eligible countries are defined by Wikipedia List of sovereign states ("Internationally recognized sovereign states" and "Other states").
- 2e2) Competitors with more than one nationality may change representing a country in their first competition of a calendar year.

2f) Competitors must obey venue regulations and conduct themselves in a manner considerate of others at all times during the competition and while at the competition venue.

2g) Competitors must remain quiet when inside the designated competition area. Talking is permitted, but must be kept at a reasonable level, and away from those competing.

2h) Competitors must be fully dressed. Competitors may dress in jeans, pants, shorts, slacks, skirts, foot-wear, T-shirts or dress shirts. Hats may be worn. Clothes must not display vulgar language or have inappropriate pictures.

2i) While competing, competitors must not use sound equipment, other electronic equipment (like walkmans, dictaphones or additional lighting).

2j) Disqualification of a competitor for an event may be enforced by the main judge of an event if a competitor fails to show up in time for a round of an event.

2k) Disqualification of a competitor for a competition may be enforced by the WCA delegate for the following reasons:

- 2k1) competitor fails to show up in time for registration for the competition;
- 2k2) competitor is suspect of cheating or defrauding the officials during the competition;
- 2k3) competitor behaves in a way that is unlawful, violent or indecent, or intentionally damages venue facilities or anyone's personal property within the venue;
- 2k4) competitor interferes or becomes a blatant distraction to others during the competition;
- 2k5) competitor refuses to abide by any of the WCA regulations during the competition.

2k6) The WCA Board may temporarily suspend a competitor, if the WCA Board decides that the competitor discredits the community by behaviour described in article 2k2, 2k3, 2k4 or 2k5.

2l) Disqualification occurs immediately or after warning based on the nature of the infraction.

2m) Competitors are not eligible for any refund of any expenses they incurred to be part of the competition as a result of disqualification.

2n) Competitors may dispute a ruling in verbal form to the WCA delegate.

2o) Disputes are only possible during the competition, within 30 minutes after the disputed incident happened, and before the next round of the event has started.

2p) The dispute must be handled by the WCA delegate before the next round of the event has started.

2q) Disputes are only possible within the parameters of the discretion of the organisation team. No disputes are possible regarding the WCA regulations.

2r) The competitor must accept the final ruling of the WCA delegate. Penalty: disqualification of the competitor for the competition.

2s1) For competitors with hearing disabilities, judges may replace the vocal instructions with hand signals.

2s2) For competitors with physical disabilities, judges may give help with starting and stopping the timer.

2t) Before the competition all competitors should make themselves familiar with the WCA regulations.

Article 3: Puzzles

3a) Competitors must bring and use their own puzzles. Competitors may borrow puzzles from other competitors, although both competitors must be ready to compete when they are called for to do so.

3b) Puzzles must be in reasonable working order, so that normal scrambling is possible.

3c) Competitors must use any colour scheme for cube puzzles, as long as the puzzles show one colour per face in solved state. For other puzzles competitors must use any variation that has the same moves, positions and solutions as the original puzzle.

3d) Puzzles must either have coloured stickers, coloured tiles, textures or painted colours.

3d1) Puzzles using textures must have different colours on each face to aid in scrambling and judging.

3e) The colours of puzzles must be solid, the same per colour, and clearly distinct from other colours.

- 3e1) The stickers/tiles/textures/paint may show an image (in one colour), as long as all stickers/tiles/textures/paint of a colour have the image and the same image.

3f) Stickers/tiles/textures/paint must not be thicker than 1.5 mm, or the generally available thickness for non cube puzzles.

3g) Puzzles may be made smoother internally by sanding or using any lubricant.

3h) No modifications are allowed that enhance the basic concept of a puzzle. Some examples of enhancing the basic concept are: new moves are possible, normal moves are impossible, more pieces are visible, colours on the backside of the puzzle are visible, moves are done automatically, more or other solved states.

3i) Any modifications to a puzzle that result in poor performance or results by a competitor are not grounds for additional attempts in an event.

3j) Puzzles must be clean and must not have any markings, elevated pieces, damages, or other differences that distinguish one piece from a similar piece.

3k) Puzzles must be approved by a judge before use in the competition.

3l) Cube puzzles must have at most one logo. For Rubik's Cube or bigger cube puzzles the logo must be placed on one of the centre pieces.

- 3l1) Colourless logos (max. 1 logo per colour) that are engraved are not considered as logos.

3m) All puzzle and puzzle part brands are allowed, as long as the puzzles comply with the other WCA regulations.

Article 4: Scrambling

4a) A scrambler must apply the scramble sequences.

4b) Puzzles must be scrambled using a computer-generated random scramble sequence or scrambled position, that must be kept secret for all but the scramblers.

4c) Standard metric for scrambling and solving is Half Turn Metric (See Article 12).

4d) Cube puzzles must be scrambled with the white (or the lightest colour by default) face on top and green (or the darkest adjacent face by default) on the front.

4e) Competitors must solve the same scramble sequences or scrambled positions per group of competitors.

4f) The number of moves to scramble a puzzle must be:

Puzzle	Scramble length (Half Turn Metric)	Program
2x2x2 Cube	Random position	Scramble program
Rubik's Cube	Random position	Cube Explorer version 4.30 or higher
4x4x4 Cube	40 moves	Scramble program
5x5x5 Cube	60 moves	Scramble program
6x6x6 Cube	80 moves	Scramble program If scrambled position differs from executed scramble WCA delegate decides whether rescramble is necessary.

7x7x7 Cube	100 moves	Scramble program If scrambled position differs from executed scramble WCA delegate decides whether rescramble is necessary.
Clock	Random position with random pin positions at the end	Scramble program
Megaminx	70 moves	Scramble program
Square-1	40 moves	Scramble program
Pyraminx	Random position	Scramble program
Other puzzles	Available on request.	

All scramble programs kindly provided by Jaap Scherphuis (all puzzles), Syoji Takamatsu (Pyraminx), Lucas Garron (Pyraminx), Michael Gottlieb (Pyraminx, Square-1), Tom van der Zanden (2x2x2), Conrad Rider (2x2x2), Clément Gallet and Stefan Pochmann (Megaminx) and Herbert Kociemba (Rubik's Cube).

All scramble programs (except Cube Explorer) in a zipped file.

Article 5: Puzzle Defects

5a) Puzzle defects are defects of puzzles, like: pieces popping, wires breaking, screws/caps/stickers falling off.

5b) If a puzzle defect occurs, the competitor may choose to continue the solve (before or after repairing the defect) or choose to stop the solve.

- 5b1) If a competitor chooses to repair the puzzle, then he must only repair the defective pieces, and must not use pieces of other puzzles. Penalty: disqualification of the solve.
- 5b2) During the repairing of the puzzle, the competitor must not intentionally make the position easier to solve than before the defect. Penalty: disqualification of the solve.
- 5b3) If after repairing the puzzle, but still during the solve, the competitor notices that the puzzle is unsolvable, he may disassemble and assemble max. 4 pieces to make the puzzle solvable again.
- 5b4) For blindfolded events a puzzle defect may only be repaired during the solving, and must be done blindfolded. Penalty: disqualification of the solve.
- 5b5) If, after the solve, non functional parts of the puzzle are still defect (like a centre cap of a cube) or not fully rotated (like a 5x5x5 centre piece twisted in its spot), but the puzzle is otherwise unambiguously solved, the puzzle is considered solved. (discretion of the main judge)

5c) If a competitor has a puzzle defect, this does not give him the right to an extra attempt.

Article 6: Awards/prizes/honours

6a) Awards, prizes or honours may be given to competitors according to the announcement of the competition.

6b) Competitors should attend the winner's ceremony to be eligible for awards/prizes/honours.

- 6b1) The winner's ceremony should be held in the competition venue, within one hour after the end of the last event.

6c) Winners of awards, prizes or honours should be prepared to talk to journalists or any media covering the competition.

6d) Organisation teams of competitions should have (at least) certificates for all category winners, signed by the leader of the organisation team and by the WCA delegate.

Article 7: Environment

7a) Competitions may be held on any location, inside or outside.

7b) Audience should be at least 1.50 meter away from the competitors.

7c) Lighting of the competition area needs special attention, with preferably white light, so that competitors can easily distinguish the colours of puzzles.

7d) The temperature of the competition area should preferably be 21 to 25 degrees Celsius.

7e) The competition area must be smoke-free, and should have a reasonable noise level.

7f) The timer must be placed directly (no objects underneath it) on a table, desk or console that suits solving while standing. For Solving With Feet the timer must be placed directly on the floor.

7g) Competitors must solve while sitting or standing.

7h) The competition area must have a competitors area.

- 7h1) Competitors (or a group of competitors) who have been called to compete - and only those competitors - must stay in the competitors area until they finished all solves of the round.
- 7h2) For blindfolded solving the competitors in the competitors area should not be able to see the puzzles of the competitors on stage.
- 7h3) Competitors in the competitors area must not communicate to each other about the scrambled positions of the puzzles for the round in progress.

Article 8: Competitions

8a) Guidelines for a competition to become official according to the WCA:

- 8a1) The WCA Board must approve the competition.
- 8a2) The WCA regulations must be followed.
- 8a3) There must be a WCA delegate (appointed by WCA Board) attending the competition.
- 8a4) The competition must be clearly announced, and should be announced at least a month before the competition starts.
- 8a5) The competition should have at least 12 competitors.
- 8a6) The competition must be accessible for the public.

- 8a7) The authentic Speedstacks Stackmat timer (at least Generation 2) must be used for time measurement.

8b) An open competition is open to anyone.

8c) A closed competition may be open (courtesy of WCA Board) to:

- persons with a specific nationality

No other distinctions are allowed to declare a competition closed.

8d) Competitions may have time limits per round of an event, to make sure that the time schedule can be followed.

8f) If the WCA regulations are not followed correctly during a competition, then the WCA Board may declare the competition, specific events or specific solves unofficial.

Article 9: Events

9a) The puzzles for which competitions are governed by the WCA are:

- all puzzles labelled as Rubik puzzles;
- all other puzzles that are played by twisting the sides, so called 'Twisty puzzles'.

9b) Official speed solving events and formats of WCA are:

Event	Possible formats	Preferred format for finals
Rubik's Cube	'Best of x', 'Average of 5'	'Average of 5'
2x2x2 Cube	'Best of x', 'Average of 5'	'Average of 5'
4x4x4 Cube	'Best of x', 'Average of 5'	'Average of 5'
5x5x5 Cube	'Best of x', 'Average of 5'	'Average of 5'
6x6x6 Cube	'Best of x', 'Mean of 3'	'Mean of 3'
7x7x7 Cube	'Best of x', 'Mean of 3'	'Mean of 3'
Clock	'Best of x', 'Average of 5'	'Average of 5'
Magic	'Best of x', 'Average of 5'	'Average of 5'
Master Magic	'Best of x', 'Average of 5'	'Average of 5'
Megaminx	'Best of x', 'Average of 5'	'Average of 5'
Pyraminx	'Best of x', 'Average of 5'	'Average of 5'
Square-1	'Best of x', 'Average of 5'	'Average of 5'

9c) Official special events and formats of WCA are limited to Rubik's Cube:

Event	Possible formats	Preferred format for finals
Rubik's Cube: One-handed	'Best of x', 'Average of 5'	'Average of 5'
Rubik's Cube: With Feet	'Best of x', 'Mean of 3'	'Best of x'
Rubik's Cube: Fewest moves	'Best of x'	'Best of x'

9d) Official blindfolded events and formats of WCA are limited to Rubik's, 4x4x4 and 5x5x5 Cube:

Event	Possible formats	Preferred format for finals
Rubik's Cube: Blindfolded	'Best of x'	'Best of x'
4x4x4 Cube: Blindfolded	'Best of x'	'Best of x'
5x5x5 Cube: Blindfolded	'Best of x'	'Best of x'
Rubik's Cube: Multiple Blindfolded	'Best of x'	'Best of x'

9e) New official events may be added each calendar year, and existing official events may be removed.

- 9e1) The decision to add or remove an event is made by the WCA Board, based on feedback by the community.

9e4) Other events may be held during a competition, but will be unofficial and therefore not part of the official results of the competition.

9f) The results of a round are measured as follows:

- 9f1) All timed results under 10 minutes, and corresponding averages/means are measured in hundredths of a second, with averages/means rounded to the nearest hundredth of a second (x.004 becomes x.00, x.005 becomes x.01).
- 9f2) All timed results over 10 minutes, and corresponding averages/means are measured in seconds, with averages/means rounded to the nearest second (x.4 becomes x, x.5 becomes x+1).
- 9f3) All counted results and averages/means are measured in natural numbers, with averages/means rounded to the nearest tenth (x.04 becomes x.0, x.05 becomes x.1).
- 9f4) DNF (Did Not Finish) is the result if the solve was disqualified or unfinished.
- 9f5) DNS (Did Not Start) is the result if a competitor skipped an attempt in a round.
- 9f6) In 'Best of x' rounds competitors get x (<= 3) attempts, with the best attempt counting. There may be a combined time limit, example: 30 minutes for 'Best of 1' or 'Best of 2'.
- 9f7) In 'Best of x' rounds a DNF or DNS is the worst result of a competitor, if all results are DNF and/or DNS the best result of the competitor is DNF.
- 9f8) In 'Average of 5' rounds competitors get 5 attempts. Of these 5 attempts, the best and worst attempt are removed, with the mean of the remaining 3 attempts counting.
- 9f9) In 'Average of 5' rounds one DNF or DNS is counted as the worst result, with more than one DNF and/or DNS the average is DNF.
- 9f10) In 'Mean of 3' rounds competitors get 3 attempts, with the mean of the 3 attempts counting.
- 9f11) In 'Mean of 3' rounds if the competitor has at least one DNF or DNS the mean is DNF.
- 9f12) In 'Best of x' rounds the order in the results is based on the best result per competitor, with lower meaning better.
- 9f13) In 'Mean of' and 'Average of' rounds the order in the results is based on the best average/mean per competitor, with lower meaning better.
- 9f14) If in 'Mean of' and 'Average of' rounds competitors have the same average/mean result, then the order in the results for these competitors is based on the best result per competitor, with lower meaning better.

- 9f15) Competitors with the same result in a round finish at the same position.
- 9f16) For the Rubik's Cube: Multiple Blindfolded event the order in the results is based on number of puzzles solved minus the number of puzzles not solved (higher is better). If the result is lower than 0, the solve is disqualified.
  If competitors have the same result, then the order is based on total time (lower is better).

9g) A Combined round is two or three rounds combined during one time frame, where results of earlier rounds are taken into account for next rounds.

- 9g1) A Combined round can be used to save time in the time schedule.
- 9g2) Whether a competitor proceeds to next phase of a Combined round, must be decided on position (best x competitors) or on result (all competitors with a best result under x).

9h) WCA must provide WCA world rankings for single and preferred average/mean formats where applicable.

9i) Results of official WCA competitions must be listed on the WCA world rankings, if the full WCA regulations were applied.

- 9i1) Regional records are recognised for best national/continental/world results.
- 9i3) If the regulations for an event are changed, then the old regional records stand until they are broken under the new regulations.

9j) Events must be held only once during a competition.

9k) If an event is held, then all competitors may participate in that event.

9l) All competitors must compete in each round during the same time frame.

9m) Events must have at most four rounds.

- 9m1) Events with 99 or fewer competitors must have at most three rounds.
- 9m2) Events with 15 or fewer competitors must have at most two rounds.
- 9m3) Events with 7 or fewer competitors must have at most one round.

9o) A Combined round and a Qualification round count as one round when counting the number of rounds per event.

9p) In case of more than one round for an event the best ranked competitors of a round proceed to the next round.

- 9p1) For each round of an event, at least 25% of the competitors must not proceed to the next round.
- 9p2) Either the best x competitors proceed to the next round, or all competitors who beat a specific result (announced before the round).

9q) Events and rounds should have at least 2 competitors.

9r) A qualification round is a round of an event held before the first round of the event.
The goal of a qualification round is to let unranked or low ranked competitors qualify for the first round of an event with many registered competitors.

- 9r1) When announcing the competition the organisation team must announce:
  - how many competitors will compete in the first round of the event
  - the maximum number of competitors in the qualification round of the event, and how many of the competitors will proceed to the first round
  - which average/mean time or single solve time for the WCA ranking of the event is required to directly qualify for the first round (or other round) of the event
  - the date taken for deciding the average/mean time or single solve time on the WCA ranking of each competitor
- 9r2) All competitors of an event who are not directly qualified for the first round of the event, must compete in the qualification round of the event.
- 9r3) There may be changes to increase the maximum number of competitors in qualification round or first round, or to add a qualification round for newly registered competitors. These changes should be made at least one month before the competition.

9s) If during a round a competitor does not solve within the time limit, then his solve may (courtesy of main judge) be stopped and disqualified by the judge.
The main judge decides whether the competitor may continue the round, for example if the time was exceeded because of a puzzle defect.

Article 10: Solved state

10b) Only the resting state of a puzzle is considered, when the timer has stopped.

10c) Puzzles may be in any orientation at the end of the solve.

10d) All pieces of a puzzle must be fully attached to the puzzle, and in their required positions. Exceptions: see Article 5 Puzzle defects.

10e) A puzzle is solved when all face colours are reconstructed and all the parts are aligned within certain limits.

- 10e1) For each two adjacent parts (for example two parallel adjacent slices of a cube) of the puzzle that are misaligned more than the limit described in Article 10f, these two parts are considered to need one move to be solved (Half Turn Metric).
- 10e2) If no move is needed to bring the puzzle to solved state, the puzzle is considered solved without a penalty.
- 10e3) If one move is needed, the puzzle is considered solved with a penalty of 2 seconds.
- 10e4) If more than one move is needed, the solve is ruled DNF.

10f) Limits of misalignment for puzzles:

- cube shaped puzzles: =< 45 degrees
- Megaminx: =< 36 degrees
- Pyraminx: =< 60 degrees
- Square-1: =< 45 degrees (U/D) or 90 degrees (/)

Examples:

Solved = no penalty
Misalignment <= 45°

Solved, with penalty
Only 2 adjacent parts misaligned > 45°

Not solved
2 misalignments > 45°

Solved, with penalty
1 misalignment > 45°

Solved = no penalty
All misalignments <= 45°

Solved = no penalty
Misalignment <= 45°

Not solved
2 misalignments > 45°

Solved = no penalty
All misalignments <= 45°

Solved, with penalty
1 misalignment > 45°

10g) For Magic (and similar puzzles) the puzzle must be flat on the surface. The minimum angle that tiles must have compared to the connecting tiles is 135°.

- 10g1) If one or two pairs of connecting tiles have a smaller angle with each other, and the puzzle is otherwise solved, then the puzzle is considered solved, with a penalty of 2 seconds. In all other cases the result is DNF.

10h) Other puzzles are solved according to the solved state as defined in the generally accepted goal of the puzzle, with the regulations of the cube solved state applied when applicable.

Article 11: Incidents

11a) Incidents are:

- 11a1) Incorrect execution of event procedures, by officials or competitors.
- 11a2) Interference or distractions or facility distractions (such as power failure, emergency alarm).
- 11a3) Equipment malfunctioning.

11b) In case of an incident during an event the main judge of the event must decide about the outcome.

11d) If the WCA regulations are not fully clear or if the incident is not covered by the WCA regulations, then the main judge must make his decision based on fair sportsmanship, after consulting the WCA delegate.

11e) In case of an incident the main judge may award a competitor another attempt, that replaces the attempt for which the incident happened.

11f) The main judge and WCA delegate must not support their decisions with video or photograph analysis.

Article 12: Notation

12a) Notation for Rubik's Cube and similar puzzles:
Face Moves:

- 12a1) Clockwise, 90 degrees: F (front face), B (back face), R (right face), L (left face), U (upper face), D (bottom face).
- 12a2) Counter clockwise, 90 degrees: F', B', R', L', U', D' (see 12a1).
- 12a3) Clockwise, 180 degrees: F2, B2, R2, L2, U2, D2 (see 12a1).
- 12a4) Counter clockwise, 180 degrees: F2', B2', R2', L2', U2', D2' (see 12a1).

Double Outer Slice Moves (outer slice plus adjacent inner slice):

- 12a5) Clockwise, 90 degrees: Fw, Bw, Rw, Lw, Uw, Dw. (see 12a1).
- 12a6) Counter clockwise, 90 degrees: Fw', Bw', Rw', Lw', Uw', Dw' (see 12a5).
- 12a7) Clockwise, 180 degrees: Fw2, Bw2, Rw2, Lw2, Uw2, Dw2 (see 12a5).
- 12a8) Counter clockwise, 180 degrees: Fw2', Bw2', Rw2', Lw2', Uw2', Dw2' (see 12a5).

Inner Slice Moves (adjacent slice of outer slice only):

- 12a9) Clockwise, 90 degrees: f, b, r, l, u, d. (see 12a1).
- 12a10) Counter clockwise, 90 degrees: f', b', r', l', u', d' (see 12a9).
- 12a11) Clockwise, 180 degrees: f2, b2, r2, l2, u2, d2 (see 12a9).
- 12a12) Counter clockwise, 180 degrees: f2', b2', r2', l2', u2', d2' (see 12a9).

Middle Slice Moves (middle slice of puzzles with odd number of slices, middle two slices of puzzles with even number of slices):

- 12a13) Clockwise, 90 degrees: M (same direction as L), S (same direction as F), E (same direction as D). (see 12a1).
- 12a14) Counter clockwise, 90 degrees: M', S', E' (see 12a13).
- 12a15) Clockwise, 180 degrees: M2, S2, E2 (see 12a13).
- 12a16) Counter clockwise, 180 degrees: M2', S2', E2' (see 12a13).

Half Turn Metric (HTM) is defined as:

- 12a17) Each move of the categories Face Moves and Double Outer Slice Moves is counted as 1 move.
- 12a18) Each move of the categories Inner Slice Moves and Middle Slice Moves is counted as 2 moves.
- 12a19) Each rotation is counted as 0 moves.

12b) Rotations for all cube shaped puzzles:

- 12b1) Clockwise, 90 degrees: [f] or z, [b] or z', [r] or x, [l] or x', [u] or y, [d] or y'. (see 12a1).
- 12b2) Counter clockwise, 90 degrees: [f'] or z', [b'] or z, [r'] or x', [l'] or x, [u'] or y', [d'] or y (see 12b1).
- 12b3) Clockwise, 180 degrees: [f2] or z2, [b2] or z2, [r2] or x2, [l2] or x2, [u2] or y2, [d2] or y2 (see 12b1).
- 12b4) Counter clockwise, 180 degrees: [f2'] or z2', [b2'] or z2', [r2'] or x2', [l2'] or x2', [u2'] or y2', [d2'] or y2' (see 12b1).

12c) Notation for Square-1 :
(hold smallest slice in middle layer on left side of front face)

- 12c1) (x,y) means: turn upper layer x times 30 degrees clockwise, turn bottom layer y times 30 degrees clockwise, turn right half of the puzzle 180 degrees.

12d) Notation for Megaminx (scrambling notation only):

- 12d1a) Clockwise, 72 degrees: U (upper face).
- 12d1b) Counter clockwise, 72 degrees: U' (upper face).
- 12d2) Other moves are applied while keeping 3 pieces fixed at top left of the puzzle:
- 12d2a) Clockwise 72 degrees move of whole puzzle except for the slice of top left three pieces: R+ (vertical slices), D+ (horizontal slices).
- 12d2b) Counter clockwise 72 degrees move of whole puzzle except for the slice of top left three pieces: R- (vertical slices), D- (horizontal slices).
- 12d2c) Clockwise 144 degrees move of whole puzzle except for the slice of top left three pieces: R++ (vertical slices), D++ (horizontal slices).
- 12d2d) Counter clockwise 144 degrees move of whole puzzle except for the slice of top left three pieces: R-- (vertical slices), D-- (horizontal slices).

12e) Notation for Pyraminx:

- 12e1) Moves are applied with the bottom face completely horizontal and the front face facing to the person who holds the Pyraminx.
- 12e2) Clockwise, 120 degrees: U (upper 2 layers), L (left 2 layers), R (right 2 layers), B (back 2 layers)
  u (upper vertex), l (left vertex), r (right vertex), b (back vertex).
- 12e3) Counter clockwise, 120 degrees: U' (upper 2 layers), L' (left 2 layers), R' (right 2 layers), B' (back 2 layers)
  u' (upper vertex), l' (left vertex), r' (right vertex), b' (back vertex).

12f) Additional notation for 6x6x6 Cube and 7x7x7 Cube:
Double Slice Moves (two outer slices):

- 12f1) Clockwise, 90 degrees: 2F, 2B, 2R, 2L, 2U, 2D. (see 12a1).
- 12f2) Counter clockwise, 90 degrees: 2F', 2B', 2R', 2L', 2U', 2D' (see 12a5).
- 12f3) Clockwise, 180 degrees: 2F2, 2B2, 2R2, 2L2, 2U2, 2D2 (see 12a5).
- 12f4) Counter clockwise, 180 degrees: 2F2', 2B2', 2R2', 2L2', 2U2', 2D2' (see 12a5).

Triple Slice Moves (three outer slices):

- 12f5) Clockwise, 90 degrees: 3F, 3B, 3R, 3L, 3U, 3D. (see 12a1).
- 12f6) Counter clockwise, 90 degrees: 3F', 3B', 3R', 3L', 3U', 3D' (see 12a5).
- 12f7) Clockwise, 180 degrees: 3F2, 3B2, 3R2, 3L2, 3U2, 3D2 (see 12a5).
- 12f8) Counter clockwise, 180 degrees: 3F2', 3B2', 3R2', 3L2', 3U2', 3D2' (see 12a5).

Article A: Speed Solving

A1) Attempts for events categorised under Speed Solving must abide to the following procedure.

- A1a) The time limit is 10 minutes, or less/higher if announced before the event.
- A1b) A stopwatch is used for time measurement, in addition to a Stackmat, if the time limit is higher than 10 minutes. If the puzzle solving time is under 10 minutes, the Stackmat time is the result, otherwise the stopwatch time is the result.

A2) **Scrambling**

- A2a) The competitor hands over the puzzle to the scrambler and waits in the competitors area until he is called to compete.
- A2b) A scrambler scrambles the puzzle according to the regulations in Article 4.
- A2c) The competitor must not see the puzzle between the time when the puzzle is scrambled and the start of the inspection phase.
- A2d) When taking the puzzle from the scrambler, the judge does a quick general inspection of thorough scrambling of the puzzle. In case of doubt the judge contacts the scrambler for a detailed check.
- A2e) The judge places the puzzle onto the Stackmat and covers it completely with an object.

A3) Inspection

- A3a) Before starting the solve the competitor may inspect the puzzle.
- A3a1) The competitor has a maximum of 15 seconds for inspecting the puzzle and starting the solve.
- A3b) The judge resets the timer and stopwatch.
- A3b1) When the judge and the competitor mutually agree within one minute that the competitor is ready to begin the inspection, the judge says 'READY?'.
- A3b2) When the competitor confirms, the judge uncovers the puzzle after 1 second. At the same time the judge starts the stopwatch.
- A3c) During the inspection the competitor is allowed to pick up the puzzle.
- A3c1) The competitor must not apply moves. Penalty: disqualification of the solve.
- A3c2) If the pieces of the puzzle are not fully aligned, then the competitor may fix it, only to align the faces (for cubes the alignment must not exceed 45 degrees).
- A3c3) The competitor may reset the timer before he starts the solve.
- A3d) At the end of the inspection, the competitor must place the puzzle back onto the Stackmat, in the orientation and position he wishes.
- A3d1) The puzzle must rest on the mat, not on the timer part of the Stackmat.
- A3d2) When the inspection time reaches 8 seconds, the judge calls '8 seconds'.
- A3d3) When the inspection time reaches 12 seconds, the judge calls 'GO'.

A4) Starting the solve

- A4b) The competitor must place his hands flat on the elevated sensor area of the Stackmat, with his fingers touching the sensors and with palms down. Penalty: 2 seconds.
- A4b1) The competitor must not have any physical contact with the puzzle before he starts the solve. Penalty: 2 seconds.
- A4d) The competitor starts the solve by confirming that the timer light is green, then removing his hands from the timer, thus starting the timer.
- A4d1) The competitor must start the solve within 15 seconds after the start of the inspection. Penalty: 2 seconds.
- A4d2) The competitor must start the solve within 17 seconds after the start of the inspection. Penalty: disqualification of the solve.
- A4e) Time penalties for Starting the Solve are not cumulative. There is a maximum of 1 time penalty for Starting the Solve.

A5) During the solve

- A5a) While inspecting or solving the puzzle, the competitor must not have any communication with anyone other than the judge. Penalty: disqualification of the solve.
- A5b) While inspecting or solving the puzzle, the competitor must not have any assistance from anyone or any object (other than the surface). Penalty: disqualification of the solve.

A6) Ending the solve

- A6a) The competitor ends the solve by releasing the puzzle and then stopping the timer.
- A6b) It is the competitor's responsibility that the timer is stopped correctly.
- A6b1) If the timer stops earlier than the end of the solve, and the timer shows 0.01 - 0.05 then the solve is replaced by additional solve, unless the competitor intentionally forced the early timer stop (courtesy of the main judge).
- A6b2) If the timer stops earlier than the end of the solve, and the timer shows 0.06 or higher then the solve is disqualified, unless the competitor can show evidence that the timer was malfunctioning.
- A6c) The timer must be stopped using both hands, with both hands flat and palms down. Penalty: 2 seconds.
- A6d) The competitor must fully release the puzzle before stopping the timer. Penalty: 2 seconds.
- A6e) The competitor must not touch or move the puzzle until the judge has inspected the puzzle. Penalty: disqualification of the solve.
- A6f) The competitor must not reset the timer until the judge has written down the result on the competition sheet. Penalty: disqualification of the solve (courtesy of judge).
- A6g) The judge must inspect the puzzle without making moves or aligning faces and must determine whether the puzzle has been completely solved.
- A6h) In case of a dispute no moves or alignments must be applied to the puzzle until the dispute has been settled, involving the main judge if needed. Penalty: disqualification of the solve (courtesy of judge).
- A6i) Time penalties for Ending the Solve are not cumulative. There is a maximum of 1 time penalty for Ending the Solve.

A7) Administration

- A7a) If the judge decides the solve was correct, the judge calls 'OK'.
- A7b) The judge writes down the result of the solve on a competition sheet, and signs the sheet with name or signature.
- A7b1) In case of a penalty, the judge writes down the result taken from the timer, and next to it the penalty. (Format example: 17.65 + 2 = 19.65).
- A7c) The competitor is responsible for checking the result on the sheet, immediately after the judge has written it down.
- A7d) If the judge gives a penalty, then judge calls 'PENALTY'. The competitor must sign the score sheet.
- A7e) If the result is DNF, then judge calls 'NO FINISH'. The competitor must sign the score sheet.
- A7f) At the end of a competitor's round the judge delivers the competition sheet to the score taker.

Article B: Blindfolded Solving

B1) Standard procedure is followed as described in Article A (Speed Solving).
Additional/special regulations for Blindfolded Solving are described below.

- B1a) There is no inspection phase.
- B1b1) Competitors must bring their own blindfold.
- B1b2) Blindfolds should be checked by the WCA delegate before use in the competition.
- B1c) Competitor must not touch the inner parts of a puzzle. Penalty: disqualification of the solve.
- B1d) Solving phase must be done on a puzzle with tiles, stickers or paint, without different textures or markings.

B2) **Starting the solve**

- B2a) The judge resets the timer and stopwatch.
- B2b) The competitor must place his hands flat on the elevated sensor area of the Stackmat, with his fingers touching the sensors and with palms down. Penalty: 2 seconds.
- B2c) The competitor must not have any physical contact with the puzzle before he starts the solve. Penalty: 2 seconds.
- B2d) The competitor starts the solve by removing his hands from the timer, thus starting the timer.
- B2d1) The competitor must remove the cover from the puzzle, after starting the timer.
- B2e) When using a stopwatch in addition to a Stackmat, the judge starts the stopwatch as soon as the competitor starts the solve.

B3) **Memorisation**

- B3a) During the memorisation and solving the competitor is allowed to pick up the puzzle.
- B3b) The competitor must not make notes. Penalty: disqualification of the solve.

B4) **During the solve**

- B4a) After memorisation the competitor dons the blindfold.
- B4b) The competitor must not apply moves to the puzzle before he has fully donned the blindfold.
- B4c) During the full solve the judge must keep a sheet of paper or a similar object (not limiting physical movement of the competitor) between the competitor's face and the puzzle, unless the puzzle is in a position where peeking at the puzzle is not possible.
- B4d) The competitor must not look at the puzzle state at any time during the solve. Penalty: disqualification of the solve.
- B4e) The competitor may remove and don the blindfold until he applies the first move to the puzzle.

B5) **Ending the solve**

- B5a) When using the Stackmat, the competitor ends the solve by releasing the puzzle and then stopping the timer.
- B5b) When using a stopwatch, the competitor ends the solve by placing the puzzle back onto the surface and notifying the judge that the solve has ended. At that moment the judge stops the timer.
- B5c) The competitor may remove the blindfold before stopping the timer, but after removing the blindfold no moves must be applied to the puzzle anymore. Penalty: disqualification of the solve.

Article C: One-handed Solving

C1) Standard procedure is followed as described in Article A (Speed Solving).
Additional/special regulations for One-handed Solving are described below.

- C1a) During the solve the competitor must only use one hand. Penalty: disqualification of the solve.
- C1b) During the solve no other body part or any object other than the surface must touch the puzzle. Penalty: disqualification of the solve.
- C1b2) If a puzzle defect occurs, and the competitor decides to repair it, then repairing must be done with one hand, use of the surface is optional. Penalty: disqualification of the solve.
- C1c) During the solve, once a competitor touches the puzzle with one hand, he must not touch the puzzle with the other hand. Penalty: disqualification of the solve.

Article D: Solving With Feet

D1) Standard procedure is followed as described in Article A (Speed Solving).
Additional/special regulations for Solving With Feet are described below.

- D1a) The competitor must solve while sitting in a chair, sitting on the surface or standing.
- D1b) During the inspection and solve the competitor must only use his feet (with or without socks) and the surface. Penalty: disqualification of the solve.
- D1c) No other body parts or other available objects must touch the puzzle. Penalty: disqualification of the solve.

D3) **Starting the solve**

- D3a) Competitor must place his feet onto the timer sensors.
- D3b) Competitor must remove his feet from the timer sensors to start the solve.

D4) **Ending the solve**

- D4a) Competitor must stop the timer by placing his feet onto the timer sensors.

Article E: Fewest Moves Solving

E1) Regulations are as described in Article A (Speed Solving).
Additional/special regulations for Fewest Moves Solving are described below.

- E1a) The maximum length of a solution is 80 (moves and rotations).

E2) Procedure for Fewest Moves Solving:

- E2a) The judge hands a scramble sequence to all competitors with a print of the scramble position. The judge starts the stopwatch and says 'Go'.

- E2b) The competitor has 60 minutes total time for solving the scramble in as few moves as possible.
  - E2b1) A judge should announce the remaining time after 30 minutes, 50 minutes, 55 minutes and 59 minutes, and 'Stop' at 60 minutes.
  - E2c) At the end of the 60 minutes the competitor must have his solution written down clearly for the judge, notation according to Article 12. Penalty: disqualification of the solve.
  - E2d) The metric to measure the length of the solution, is Half Turn Metric.
  - E2e) The solution of the competitor must not be in any way related to the scrambling algorithm. Penalty: disqualification of the solve.
  - E2f) The competitor must be able to give a clear explanation of the solution.

E3) The competitor may use the following objects: paper and pen (both supplied by judge), 3 cubes (self supplied), unlimited coloured stickers (self supplied).

- E3a) Penalty for using other objects: disqualification of the solve.

Article F: Clock Solving

F1) Standard procedure is followed as described in Article A (Speed Solving).
Additional/special regulations for Clock Solving are described below.

F2) **Scrambling**

- F2a) After the scrambling the judge places the puzzle onto the Stackmat in a standing position.

F3) **Inspection**

- F3a) After the inspection the competitor places the puzzle onto the Stackmat in a standing position.

Article G: Magic (and similar puzzles) Solving

G1) Standard procedure is followed as described in Article A (Speed Solving).
Additional/special regulations for Magic Solving are described below.

- G1a) The competitor may do practice solves on the competition timer. When the judge and competitor mutually agree, the official solves will begin. At that point, all solves will be treated as official solves.

G2) **Scrambling**

- G2a) The puzzle is not scrambled.
- G2b) The puzzle is not covered by judge.

G3) **Inspection**

- G3a) There is no inspection phase.

G4) **Starting the solve**

- G4a) The puzzles must be completely flat on the surface, with either of the two sides on top.

Article H: Multiple Blindfolded Solving

H1) Standard procedure is followed as described in Article B (Blindfolded Solving).
Additional/special regulations for Multiple Blindfolded Solving are described below.

- H1a) Competitor must tell before the start of the event how many puzzles (>1) he wants to solve blindfolded for each attempt.
- H1a1) A competitor must not change the number of puzzles after the start of the event.
- H1a2) The selected number of puzzles per competitor must be kept secret until the start of the event.
- H1b) Total time allowed for memorising and solving is 10 minutes per cube, measured with a stopwatch.
- H1b1) When the total time is reached, the attempt is stopped and the number of solved and not solved puzzles is counted.
- H1c) Maximum total time for all cubes is 60 minutes.

Article Z: Optional Regulations

The purpose of optional regulations is to give extra possibilities to manage competitions. The organisation team of a competition may decide to apply one or more of the following optional regulations.
The application of optional regulations for a competition, must be approved by WCA Board.

Z1) Organisation team may collect all puzzles for scrambling "during registration".
Z2) Organisation team may limit the number of events per competitor.
Z3) Organisation team may select competitors who directly qualify for certain rounds of certain events, based on the results of certain competitions.
Z4) Organisation team may limit the number of competitors per event (first come first go, or based on qualification times or based on position on WCA world ranking).
Z5) Organisation team may restrict competitors to not compete in certain combinations of events.