

# SCO INTERNATIONAL OLYMPIAD

**GRADE 6**

**MENTAL ABILITY OLYMPIAD**

Official Syllabus and Learning Outcomes

**Designed from Grade 6 reasoning pathways and aligned with SCO's platform flow for guided preparation, practice, reporting, and future-ready academic growth.**

- age-fit logical reasoning guidance for Grade 6 / middle-school learners globally
- chapter-wise pathways across series, coding-decoding, puzzles, calendar, ranking, cubes, verbal reasoning, and arithmetic reasoning
- clean academic layout with compact question labels, answer key, and learning explanations for PDF-ready publishing

<b>Series</b>	<b>Coding</b>	<b>Alphabet</b>	<b>Puzzles</b>	<b>Ranking</b>
<b>Reasoning</b>	<b>Blood Relations</b>	<b>Cubes &amp; Dices</b>	<b>Verbal</b>	<b>SCO Skills</b>

## SCO International Mental Ability Olympiad- Class 6 Official Syllabus

This syllabus is designed for Grade 6 learners and focuses on age-appropriate reasoning, logic, pattern recognition, spatial thinking, and practical problem-solving. It prepares students for school-level and international-style mental ability challenges through structured practice and explanation-based learning.

### Exam Pattern

Paper Component	Coverage	Purpose
General Mental Ability	Series, coding, alphabet, mathematical operations, ranking, verbal reasoning	Build accuracy and concept recognition
Case Study	Short real-life puzzles, schedules, rankings, family trees, tables	Test application of reasoning in context
Reason/Assertion	Statement logic and explanation evaluation	Develop critical thinking and justification skills
Achievers Section	Multi-step and higher-order reasoning	Challenge high-performing learners

### Chapter-Wise Syllabus and Learning Outcomes

Chapter	Chapter Name	Core Learning Coverage	Expected Learning Outcomes
1	Series Completion	Recognize arithmetic, geometric, alternating, prime-based, square/cube, and mixed number-letter series.	Find missing terms, explain the rule, and avoid guessing when two rules seem possible.
2	Coding and Decoding	Use shift, mirror alphabet, symbol substitution, reverse coding, and combined coding rules.	Encode/decode simple words and short codes with a clear step-by-step method.
3	Alphabet Test	Apply alphabet positions, dictionary order, letter gaps, vowel/consonant logic, and word arrangement.	Solve alphabet reasoning questions with accuracy and written justification.
4	Mathematical Operations	Interpret custom operations, BODMAS/order of operations, equation balancing, and basic unknown-value problems.	Translate symbolic rules into calculations and check answers logically.
5	Puzzle Test	Solve arrangement, scheduling, seating, grouping, and condition-based puzzles.	Create simple tables/grids to organize clues and eliminate impossible cases.
6	Calendar Test	Use odd days, leap year/common year, month-day counting, and weekday shifts.	Find dates and weekdays using modular arithmetic and careful counting.
7	Number - Ranking - Time Sequence	Work with ranking from top/bottom, time order, race order, sequence timing, and comparative position.	Apply formulas such as bottom rank = total - top rank + 1.

Chapter	Chapter Name	Core Learning Coverage	Expected Learning Outcomes
8	Arithmetical Reasoning	Solve age, money, average, speed, simple ratio, pattern, and daily-life reasoning problems.	Build equations from word problems and verify reasonableness of answers.
9	Blood Relations	Analyze family-tree statements, coded relations, maternal/paternal relations, and multi-generation clues.	Draw family links and identify exact relationships without assumptions.
10	Cubes and Dices Test	Understand painted cubes, dice positions, visible faces, opposite faces, and folded/unfolded cube thinking.	Use formulas for painted cube counts and spatial visualization.
11	Verbal Reasoning	Evaluate analogies, classification, logical conclusions, cause-effect, and statement reasoning.	Separate facts from assumptions and identify valid conclusions.

## Chapter-Wise Preparation Guidance

### Chapter 1: Series Completion

Core focus: Recognize arithmetic, geometric, alternating, prime-based, square/cube, and mixed number-letter series.

Learning outcome: Find missing terms, explain the rule, and avoid guessing when two rules seem possible.

Practice strategy: Practice identifying one rule first, then test whether it works for every term. Include number, alphabet, and mixed symbol series.

### Chapter 2: Coding and Decoding

Core focus: Use shift, mirror alphabet, symbol substitution, reverse coding, and combined coding rules.

Learning outcome: Encode/decode simple words and short codes with a clear step-by-step method.

Practice strategy: Write the alphabet positions 1-26 and mirror pairs before solving. For multi-step codes, apply steps in order.

### Chapter 3: Alphabet Test

Core focus: Apply alphabet positions, dictionary order, letter gaps, vowel/consonant logic, and word arrangement.

Learning outcome: Solve alphabet reasoning questions with accuracy and written justification.

Practice strategy: Use dictionary order, position values, and vowel/consonant checks. Avoid visual guessing when words are similar.

### Chapter 4: Mathematical Operations

Core focus: Interpret custom operations, BODMAS/order of operations, equation balancing, and basic unknown-value problems.

Learning outcome: Translate symbolic rules into calculations and check answers logically.

Practice strategy: Substitute values carefully into the given custom operation and follow the order of operations.

### Chapter 5: Puzzle Test

Core focus: Solve arrangement, scheduling, seating, grouping, and condition-based puzzles.

Learning outcome: Create simple tables/grids to organize clues and eliminate impossible cases.

Practice strategy: Use grids for arrangements and mark each clue as fixed, conditional, or eliminated.

## Chapter 6: Calendar Test

Core focus: Use odd days, leap year/common year, month-day counting, and weekday shifts.

Learning outcome: Find dates and weekdays using modular arithmetic and careful counting.

Practice strategy: Count days carefully and use remainders on division by 7 to shift weekdays.

## Chapter 7: Number - Ranking - Time Sequence

Core focus: Work with ranking from top/bottom, time order, race order, sequence timing, and comparative position.

Learning outcome: Apply formulas such as  $\text{bottom rank} = \text{total} - \text{top rank} + 1$ .

Practice strategy: Use rank formulas and timelines; check whether the question asks from top, bottom, before, after, left, or right.

## Chapter 8: Arithmetical Reasoning

Core focus: Solve age, money, average, speed, simple ratio, pattern, and daily-life reasoning problems.

Learning outcome: Build equations from word problems and verify reasonableness of answers.

Practice strategy: Convert stories into equations and re-read units such as minutes, rupees, people, or objects.

## Chapter 9: Blood Relations

Core focus: Analyze family-tree statements, coded relations, maternal/paternal relations, and multi-generation clues.

Learning outcome: Draw family links and identify exact relationships without assumptions.

Practice strategy: Draw a small family tree and mark gender only when the question clearly gives it.

## Chapter 10: Cubes and Dices Test

Core focus: Understand painted cubes, dice positions, visible faces, opposite faces, and folded/unfolded cube thinking.

Learning outcome: Use formulas for painted cube counts and spatial visualization.

Practice strategy: Remember painted cube formulas and draw visible faces when comparing dice positions.

## Chapter 11: Verbal Reasoning

Core focus: Evaluate analogies, classification, logical conclusions, cause-effect, and statement reasoning.

Learning outcome: Separate facts from assumptions and identify valid conclusions.

Practice strategy: Check whether a conclusion must be true, may be true, or cannot be determined from the given statements.

## Skills Developed Through This Syllabus

- Pattern recognition and rule formation
- Logical reasoning and evidence-based conclusions
- Spatial visualization through cubes, dice, folding, and mirror images
- Calendar and time-sequence reasoning
- Family-tree interpretation and coded relation analysis
- Daily-life mathematical reasoning through age, money, ranking, and scheduling problems