[7+8] Kangaroo Syllabus Winter 2026

Course Summary

This course is meant for students looking to prepare for Math Competitions at the Grade 7 and 8 level with a focus on competition style questions at this skill level.

Focus Areas at this Level

Concepts, skills, and learning tools students see in this course include, but are not limited to:

- Spatial awareness, geometric and directionality
- Elimination of answers via logic, process of elimination, fallacies, estimation
- Arithmetic tips and tricks to help maximize time efficiency in a competition setting

Expected Outcomes

Students will be **expected to adequately perform in or explain** the following areas after course completion:

- Discuss and identify properties of arithmetic such as the commutative property and distributive property
- Be able to convert, simplify and evaluate expressions involving exponents, and roots
- Number theory including real numbers, rationals, decimals, fractions, percents
- Counting principles including the addition principle, multiplication rules, enumeration
- Solving for variable values in equations and inequalities
- Expressing problems as, simplifying, and solving: Ratios, Proportions and Rates
- Analyzing data from a graph, and calculating statistics from a data set
- Types of angles including polygon relationships, parallel line relationships
- Solving perimeters and areas of polygons
- Properties of right triangles like the Pythagorean theorem, and quadrilaterals

Pre Requisites

Students registering for this course should be **comfortable with the following Math**:

- Identifying numbers up to 1 billion
- Able to perform arithmetic operations with all rational numbers, including addition, subtraction, multiplication, & division of fractions, decimals, including both positive and negative numbers
- Drawing and labeling a Cartesian plane
- Translating word problems into mathematical expressions
- Using variables in expressions and equations

Students should also be **willing and able to**:

- Communicate in English at a beginner's level
- Be respectful of other students in their classes
- Practice writing things down on paper
- Share their thoughts with the instructors to help them discover solutions to their problems
- Take constructive criticism when it comes to their learning habits

Course Materials (Required)

- All classes will be taught online, via **Zoom**. Your student will need a device with a microphone and camera.
- Parents are expected to have read and understood the Parent Handbook
    - Parents should review the expectations in class with their student(s)
    - Parents of this age group will need to help their students learn the technology used on the student's end

Students should also have access to:

- Pencils
- Eraser
- Paper
- Colored pencils or markers
- Reliable internet connection and digital device capable of using Zoom effectively

Homework Expectations

The **Competition Team** will assign **homework weekly**. Students are expected to attempt all quizzes **before class** on Canvas. If you are having trouble accessing content, please email andy@engagingmathcircles.com.

Homework Delivery

Homework is delivered in a two main ways:

- **Practice Quiz (Weeks 1 - 8)**
    - Canvas, weekly set of questions to allow students to practice new concepts learned in class and previewing concepts to be introduced in the upcoming class
    - Approximately 5-15 questions
- **Practice Test (Week 9)**
    - Canvas, full length test to provide real test-taking experience for students
    - 30 problems
- Both auto-graded upon submission
    - The final score may be updated based on input from the instructor

Course Itinerary

Lesson	Class Dates Week of:	Focus Skills	Practice (Homework)
1 **2D Geometry**	January 10 or 11	• Angles • Triangles, quadrilaterals & other polygons • Circles • Area & perimeter • Symmetry • Translation, reflection, rotation	**Canvas Quiz 1**
2 **3D Geometry**	January 17 or 18	• Volume • Surface area • 3-D movement (e.g. folding,	**Canvas Quiz 2**

		rotation) • 2-D representation of 3-D objects (nets, projections)	
3 **Arithmetic & Operations**	January 24 or 25	• Order of operations • Squares and exponents • Radicals • Decimals, fractions, & percents	**Canvas Quiz 3**
4 **Algebraic Thinking**	January 31 or February 1	• Translating words into equations • Finding missing values • Working backwards • Modeling equations	**Canvas Quiz 4**
5 **Logic**	February 7 or 8	• “Worst case scenario” problems • Truth tables • Puzzles • Using case work to reason	**Canvas Quiz 5**
6 **Factors, Multiples, Divisibility**	February 14 or 15	• GCF • LCM • Divisibility rules • Remainders • Prime numbers & prime factorization	**Canvas Quiz 6**
7 **Changing Numbers**	February 21 or 22	• Rates • Ratios • Proportions • Percents	**Canvas Quiz 7**
8 **3D Geometry**	February 28 or March 1	• Volume • Surface area • 3-D movement (e.g. folding, rotation) • 2-D representation of 3-D objects (nets, projections)	**Canvas Quiz 8**
9 **Put It Together**	March 7 or 8	• A little bit of everything • Problem solving strategies • Test taking strategies	**Full Practice Test**
10 **Mock Test**	March 14 or 15	**LIVE In-Class Mock Test**	**No Homework! Good luck!**

Math Kangaroo test date is:

Thursday March 19, 2026

EMC Proctored Online Test:

Saturday March 21st, 2026 @ 1pm PST

EMC Academic Calendar

On yellow dates on the calendar below, no classes are held. Some days of the week (Sat, Sun, Mon) have less classes per year. These courses will have slightly condensed in-class schedules, and your instructor will let you know which homework assignments to do each week.

EMC SCHOOL

2025-2026 School Calendar

August 2025

M	Tu	W	Th	F	Sa	Su
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

September 2025

M	Tu	W	Th	F	Sa	Su
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

October 2025

M	Tu	W	Th	F	Sa	Su
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

November 2025

M	Tu	W	Th	F	Sa	Su
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

December 2025

M	Tu	W	Th	F	Sa	Su
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

January 2026

M	Tu	W	Th	F	Sa	Su
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

February 2026

M	Tu	W	Th	F	Sa	Su
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	

March 2026

M	Tu	W	Th	F	Sa	Su
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

April 2026

M	Tu	W	Th	F	Sa	Su
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

May 2026

M	Tu	W	Th	F	Sa	Su
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

June 2026

M	Tu	W	Th	F	Sa	Su
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

First and Last Day of School
School Holidays & Vacations

Aug 18	First Day of Classes
Aug 30 - Sep 1	Labor Day Weekend - No Classes
Oct 31	Halloween - No Classes
Nov 25 - 30	Thanksgiving Week - No Classes
Dec 22 - Jan 4	Winter Break - No Classes
Apr 13 - 19	Spring Break - No Classes
May 23 - 25	Memorial Day - No Classes
Jun 14	Last Day of School