Online Classes Club Season 3 Information

Dylan Yu

President of the Online Classes Club

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onlineclassesclub@gmail.com

Summary

This document contains general information about the Online Classes Club. Our goal is to teach classes to students who would like to learn more about various academic topics.

Contents

§ 1 General Information

§ 1.1 Purpose of Online Classes

The Online Classes Club was created in response to the pandemic of COVID-19. Because many clubs are unable to meet and therefore many students are unable to learn, online classes are for those that want to continue learning more regardless of what is going on the world.

§ 1.2 FAQ

The following are some answers to frequently asked questions:

1. **What is this club for?** The club serves to educate students on academic topics. Our club is a way to get students who have otherwise not liked a particular subject to become more interested in it as well as help teach particularly hard subjects that are either difficult to understand without special emphasis or necessary for contest preparation. As of now, our club only offers math and science classes, but in the future we hope to expand to other classes, such as reading and writing.

2. **Who is our audience?** We hope to target elementary and middle schoolers (specifically, 2nd-7th graders) who want to learn more about academic topics. For those that want to learn more about competitive math and science, we also offer classes on those topics.

3. **What are the specific classes offered?** We offer classes on competition math and science, as well as various core courses that younger students are interested in learning about. The class names are *Math Level 1*, *Math Level 2*, *Science Level 1*, *Physics*, *Introduction to Algebra I*, and *Introduction to Geometry*. You can find more on specific classes in the next section.

4. **Where can I sign up?** You can sign up here!: https://tinyurl.com/online-classes-club.

§ 2 To the Students

The following is some information for the parents/students. If you would like to sign up for our classes, or would like to recommend us to other students, here is the link: https://tinyurl.com/online-classes-club.

§ 2.1 Who Are These Classes For?

Math Level 1 is for those starting Elementary TMSCA or Mathleague and want to either a) make their school's math club next year or b) reach higher levels of their school's math club/team. **Math Level 2** is for more experienced members to learn more advanced techniques. It is aimed at those who are at the Middle

School TMSCA / AMC 8 / Mathcounts level. **Science Level 1** is for those with a curiosity about science, and also for those who want to improve in Elementary TMSCA Science. **Physics** is for those who want to learn some advanced physics material, suited for those interested in taking AP Physics 1. Physics was previously Science Level 2, but since only physics is covered, the name was changed. **Introduction to Algebra I** goes through a full course in algebra to give students a solid understanding of the subject. **Introduction to Geometry** introduces geometry to students in a similar way. Note that these two introduction classes are aimed at middle schoolers who will take Algebra and Geometry classes in the future, or any elementary schoolers who have a deep desire to learn the subjects. In the end, **I recommend you try the classes at least once, and from there you can go to whichever classes you like**.

§ 2.2 Structure of the Class

The classes are **one hour** each, and occur **weekly**. The teachers will write a **handout** before class, and use that to teach during class. The handout will be sent out after class. We (the teachers) will likely have a few problems left by the end of it (depending on teacher, of course). If there are some left, do them! A big difference from last season is that we will now list our curricula clearly, to give students a sense of what we are teaching. The curricula are subject to change.

§ 2.3 Notetaking

This isn't *too* important, especially since we will provide you with a) recordings and b) handouts, but it is scientifically proven writing things down helps you remember them better (this is known as **muscle memory**).

§ 2.4 Asking Questions

Asking questions during class is great and you should do it. The email you should contact is: onlineclassesclub@gmail.com. We will try to answer as soon as possible!

§ 3 Class Information

§ 3.1 Schedule

The following classes will be taught at these dates and times:

Class Dates & Times		
Math Level 1	Sunday	7:00 p.m.-8:00 p.m.
Math Level 2	Saturday	4:00 p.m.-5:00 p.m.
Science Level 1	Thursday	4:00 p.m.-5:00 p.m.
Physics	Sunday	2:00 p.m.-3:00 p.m.
Introduction to Algebra I	Monday	5:00 p.m-6:00 p.m.
Introduction to Geometry	Friday	7:00 p.m.-8:00 p.m.

§ 3.2 Classroom Links

Here are the links to the classes:

1. **Math Level 1**: https://meetingsamer3.webex.com/meet/ilearner99
2. **Math Level 2**: https://meet.google.com/kay-bcud-wbj
3. **Science Level 1**: https://meetingsamer3.webex.com/meet/siddarthdas5
4. **Physics**: https://meetingsamer3.webex.com/meet/tommyfang2004
5. **Introduction to Algebra I**: https://meetingsamer20.webex.com/meetingsamer20/j.php?MTID=m21b75916a9447587567352311a373c28
6. **Introduction to Geometry**: https://meetingsamer17.webex.com/meetingsamer17/j.php?MTID=m4f6f348038b3b6d7994a328ccc44d0a9

Our classes will start **08/31/20**.

§ 4 Curriculum

§ 4.1 Math Level 1 Curriculum

The following is the schedule of topics Math Level 1 will follow:

Week #	Topic	Week #	Topic
1	Factoring & Distributing	5	Casework
2	Rate Problems	6	Complementary Counting
3	Angles	7	Divisibility
4	Similarity & Congruence	8	GCD & LCM

§ 4.2 Math Level 2 Curriculum

The following is the schedule of topics Math Level 2 will follow:

Week #	Topic	Week #	Topic
1	Polynomials	5	Overcounting
2	Sequences & Series	6	Conditional Probability
3	Triangles	7	Modular Arithmetic
4	Circles	8	Primes & Factors

In **Sequences & Series**, we will be covering recursive and telescoping sequences.

§ 4.3 Science Level 1 Curriculum

The following is the schedule of topics Science Level 1 will follow:

Week #	Topic	Week #	Topic
1	Gas Laws	5	Phosphorus and Nitrogen Cycles
2	Cell Cycle	6	Important Groups of the Periodic Table
3	Body Systems	7	Planets and HR Diagrams
4	Water and Carbon Cycles	8	Lunar Cycle and Layers of the Sun

§ 4.4 Physics Curriculum

The following is the schedule of topics Physics will follow:

Week #	Topic	Week #	Topic
1	Force	5	Torque
2	Free Body Diagrams	6	Rotational Motion
3	Momentum	7	Uniform Circular Motion
4	Work and Energy	8	Gravitational Forces

§ 4.5 Introduction to Algebra I Curriculum

The following is the schedule of topics Introduction to Algebra I will follow:

Week #	Topic	Week #	Topic
1	Logarithms and Exponential Functions	5	Special Functions Part 1
2	Interest with Word Problems	6	Special Functions Part 2
3	Complex Numbers	7	Sequences & Series
4	SFFT and the Binomial Theorem	8	Final Review

SFFT stands for Simon's Favorite Factoring Trick. **Special Functions Part 1** will cover absolute value and floor & ceiling and **Special Functions Part 2** will cover rational and piece-wise functions.

§ 4.6 Introduction to Geometry Curriculum

The following is the schedule of topics Introduction to Geometry will follow:

Week #	Topic	Week #	Topic
1	Circles	5	Triangles
2	3D Geometry	6	Trigonometry
3	Transformations	7	Cyclic Quadrilaterals
4	Analytical Geometry	8	Review