

## MATHEMATICS

Note: All New Jersey public school students must successfully complete a minimum of three years of mathematics as a graduation requirement: Algebra I, Geometry, either Algebra II or Introduction to Algebra II. Additionally, students may be required to pass a state assessment in mathematics as a graduation requirement. The TI Nspire (non-CAS version) calculator is used in all math classes from Algebra II and above.

### **Possible Math Sequences:**

- Algebra I  $\Rightarrow$  Geometry  $\Rightarrow$  Algebra II  $\Rightarrow$  Pre-Calculus  $\Rightarrow$  Calculus
- Algebra I  $\Rightarrow$  Geometry  $\Rightarrow$  Algebra II  $\Rightarrow$  Trigonometry & Statistics
- Algebra I  $\Rightarrow$  Geometry  $\Rightarrow$  Introduction to Algebra II  $\Rightarrow$  Algebra II
- Geometry  $\Rightarrow$  Algebra II  $\Rightarrow$  Pre-Calculus  $\Rightarrow$  Calculus or AP Calculus AB
- Algebra II  $\Rightarrow$  Pre-Calculus  $\Rightarrow$  Calculus or AP Calculus AB  $\Rightarrow$  AP Calculus BC

### **Mathematics Electives:**

- Algebra Support Lab can only be taken concurrently with Algebra I.
- Computer Science Discoveries and Computer Science Principles can be taken at any time.
- Computer Programming I Honors can be taken at any time after completion of Algebra I.
- AP Computer Science A can be taken at any time after completion of Computer Programming I.
- Discrete Math can be taken at any time after completion of Geometry.
- SAT Prep can be taken at any time after completion of Geometry.
- Probability & Statistics, Trigonometry & Statistics or AP Statistics can be taken any time after completion of Algebra II.

## Algebra I Selection Recommendations

Algebra 1 HON	Algebra 1 ACC	Algebra 1 CP
<ul style="list-style-type: none"> <li>Enjoys mathematics!</li> </ul>	<ul style="list-style-type: none"> <li>85% or higher in 8th grade math</li> </ul>	<ul style="list-style-type: none"> <li>Passing grade in 8th grade math</li> </ul>
<ul style="list-style-type: none"> <li>90% or higher in 8th grade math</li> </ul>	<ul style="list-style-type: none"> <li>Strong foundation in basic mathematical operations of real numbers without the use of a calculator</li> </ul>	<ul style="list-style-type: none"> <li>Basic arithmetic skills <b><u>without</u></b> the use of a calculator (i.e. multiplication tables, addition/subtraction facts)</li> </ul>
<ul style="list-style-type: none"> <li>Excellent foundation in basic mathematical operations of real numbers without the use of a calculator</li> </ul>	<ul style="list-style-type: none"> <li>Proficient in simplifying &amp; evaluating an expression using order of operations, the distributive property, and combining like terms</li> </ul>	<ul style="list-style-type: none"> <li>Ability to stay focused in class and willingness to work hard</li> </ul>
<ul style="list-style-type: none"> <li>Proficient in simplifying &amp; evaluating an expression using order of operations, the distributive property, and combining like terms</li> </ul>	<ul style="list-style-type: none"> <li>Proficient in solving 1&amp;2 step equations</li> </ul>	<ul style="list-style-type: none"> <li>Complete homework on a daily basis</li> </ul>
<ul style="list-style-type: none"> <li>Proficient in solving multi-step equations</li> </ul>	<ul style="list-style-type: none"> <li>Ability to stay focused in class and willingness to work hard</li> </ul>	<ul style="list-style-type: none"> <li>Able to take notes and organize material from class</li> </ul>
<ul style="list-style-type: none"> <li>Excellent focus in class and willingness to work hard</li> </ul>	<ul style="list-style-type: none"> <li>Consistent effort and homework completion on a daily basis</li> </ul>	<ul style="list-style-type: none"> <li>Able to study and complete work outside of class</li> </ul>
<ul style="list-style-type: none"> <li>Excellent effort and homework completion on a daily basis</li> </ul>		<ul style="list-style-type: none"> <li>Near grade level reading ability</li> </ul>

**Algebra I Support Lab:** Support Lab should be taken in conjunction with the other math course your child is scheduled for their freshmen year. It is an elective where students receive additional practice and help from a Mathematics Teacher on a daily basis.

# **Programming Electives**

## **Computer Science Discoveries(non-leveled) - Semesterized**

This is “an introductory computer science course that empowers students to create authentic artifacts and engage with computer science as a medium for creativity, communication, problem solving, and fun.” It will be a course for those students with no experience in computer programming or computer sciences. This would be the first course for students to take in the line of Computer Science courses to help them prepare for CS Principles. The content includes Problem Solving and Computing, Animations and Games, and The Design Process and focuses on the logical thinking process.

## **Computer Science Principles(non-leveled) – Semesterized**

This is an “entry-level course that introduces high school students to the foundations of modern computing. The course covers a broad range of foundational topic such as programming, algorithms, big data, digital privacy and security, and the societal impacts of computing.” It will be a course for students with no experience in computer programming or computer sciences. The content includes Introduction to Programming Concepts and Building Apps and the focuses on computer languages.

## **Computer Programming 1 HON**

- Prerequisite: Completion of Algebra 1
- Designed to be an introductory programming course.
- The concepts taught will include input/output operations, arithmetic operations, accumulating and displaying totals, comparing, array processing, searching and sorting, string processing, file processing, and report generation.
- Emphasis will be on problem-solving techniques and logic.
- Credits for this course do not satisfy math requirements for graduation.

## **\*AP Computer Science A HON**

- Prerequisite: Computer Programming 1.
- Credits for this course do not satisfy math requirements for graduation.
- \*Offered as RCBC CAP Course.
- Designed as a second year programming course to teach problem-solving heuristics, algorithm development using top-down design, and good programming style and techniques through an object-oriented approach to be extended to future programming languages that may be studied.
- Students will enhance their knowledge of input/output operations, arithmetic operations, accumulating and displaying totals, comparing, array processing, searching and sorting, string processing, file processing, and report generation.
- Emphasis on problem-solving techniques and logic.

## Geometry Selection Recommendations

<b>Geometry HON</b>	<b>Geometry ACC</b>	<b>Geometry CP</b>
<ul style="list-style-type: none"> <li>• Enjoys mathematics!</li> </ul>		
<ul style="list-style-type: none"> <li>• <b>Completed Algebra 1</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Completed Algebra 1</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Completed Algebra 1</b></li> </ul>
<ul style="list-style-type: none"> <li>• 90% or higher in Algebra 1</li> </ul>	<ul style="list-style-type: none"> <li>• 80% or higher in Algebra 1</li> </ul>	
<ul style="list-style-type: none"> <li>• Ability to think abstractly</li> </ul>	<ul style="list-style-type: none"> <li>• Ability to think abstractly</li> </ul>	<ul style="list-style-type: none"> <li>• Proficient in solving 1&amp;2 step equations</li> </ul>
<ul style="list-style-type: none"> <li>• Ability to reason sequentially beyond numeric operations</li> </ul>	<ul style="list-style-type: none"> <li>• Ability to reason sequentially beyond numeric operations</li> </ul>	<ul style="list-style-type: none"> <li>• Ability to stay focused in class and willingness to work hard</li> </ul>
<ul style="list-style-type: none"> <li>• Excellent perceptual skills</li> </ul>	<ul style="list-style-type: none"> <li>• Excellent perceptual skills</li> </ul>	<ul style="list-style-type: none"> <li>• Complete homework on a daily basis</li> </ul>
<ul style="list-style-type: none"> <li>• Willingness to work hard</li> </ul>	<ul style="list-style-type: none"> <li>• Willingness to work hard</li> </ul>	<ul style="list-style-type: none"> <li>• Able to take notes and organize material from class</li> </ul>
<ul style="list-style-type: none"> <li>• Excellent focus in class and good note taking skills and willingness to work hard</li> </ul>	<ul style="list-style-type: none"> <li>• Excellent focus in class and good note taking skills and willingness to work hard</li> </ul>	<ul style="list-style-type: none"> <li>• Able to study and complete work outside of class</li> </ul>
<ul style="list-style-type: none"> <li>• Excellent effort and homework completion on a daily basis</li> </ul>	<ul style="list-style-type: none"> <li>• Excellent effort and homework completion on a daily basis</li> </ul>	<ul style="list-style-type: none"> <li>• Near grade level reading ability</li> </ul>

**Doubling up with Algebra 2 --- this is a difficult task and should only be done if students ENJOY math! If a student is choosing to double up it is recommended they take the HON level of Algebra 2 and the ACC level of Geometry.**

# Algebra 2 Selection Recommendations

<b>Algebra 2 HON</b>	<b>Algebra 2 ACC</b>
<ul style="list-style-type: none"> <li>• <b>Enjoys mathematics!</b></li> </ul>	
<ul style="list-style-type: none"> <li>• 80% or higher in Algebra 1 HON</li> <li>• 95% or higher in Algebra 1 ACC</li> </ul>	<ul style="list-style-type: none"> <li>• <b>80% or higher in Algebra 1</b></li> </ul>
<ul style="list-style-type: none"> <li>• Can do basic math and fraction computations fluently and without a calculator.</li> </ul>	<ul style="list-style-type: none"> <li>• Proficient in basic Algebra 1 computations without a calculator(simplifying expressions, solving equations)</li> <li>•</li> </ul>
<ul style="list-style-type: none"> <li>• Attends class and complete homework on a daily basis.</li> </ul>	<ul style="list-style-type: none"> <li>• Ability to stay focused in class and willingness to work hard</li> </ul>
<ul style="list-style-type: none"> <li>• Has exemplary note taking and organizational skills.</li> </ul>	<ul style="list-style-type: none"> <li>• Consistent effort and homework completion on a daily basis</li> </ul>
<ul style="list-style-type: none"> <li>• Shows a willingness to actively participate and ask questions during class.</li> </ul>	<ul style="list-style-type: none"> <li>• Shows a willingness to actively participate and ask questions during class</li> </ul>
<ul style="list-style-type: none"> <li>• Has good study skills and is willing to get extra help when needed.</li> </ul>	<ul style="list-style-type: none"> <li>• Has good study skills and is willing to get extra help when needed</li> </ul>
<ul style="list-style-type: none"> <li>• Has great factoring skills.</li> </ul>	<ul style="list-style-type: none"> <li>• Shows an interest in how mathematical functions relate to their graphs and how they can have real world applications</li> </ul>
<ul style="list-style-type: none"> <li>• Has the ability to quickly recall previously learned material.</li> </ul>	

# Frequently Asked Questions

**Q: Can I take Algebra 1 and Geometry in the same year?**

A: No, only the curricula of Algebra II and Geometry allow the exceptional math student to take these courses in the same year.

**Q: Should I take Algebra I CP or Algebra I ACC?**

A: Algebra 1 ACC if you are earning an 85% or higher in 8<sup>th</sup> grade mathematics. If still unsure, follow your middle school teacher's recommendation.

**Q: Are the levels of each course listed on my transcript?**

A: Yes.

**Q: How many honors courses should my child take?**

A: Honors classes are more rigorous and demanding than ACC. You know your child's work ethic and schedule. Do not have your child take more honors courses than your child can handle, especially their freshmen year.

**Q: Do I need Calculus for college?**

A: No. A program through Pre-calculus with strong grades (A or B) is better than a program through calculus with average (C) grades. Please check with the college program you plan on enrolling to see what the entrance requirement is.

**Q: How many years of math do I need to graduate?**

A: Three, but most four year colleges would like to see 4 math courses.

**Q: What if my child is recommended for Algebra 1 Support Lab?**

A: Support Lab should be taken in conjunction with the Algebra 1 your child is scheduled for their freshmen year.

**\*If you have any additional questions, please email:**

**Jeanie Isopi, Mathematics Coordinator:  
jisopi@lrhdsd.org**