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## *Trigonometry Syllabus*

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Levels:	11,12
Length Option 1:	18 weeks (.5 credits)
Length Option 2:	36 weeks (1 credit)

- Unit 1: Trigonometry Terms and Applications
- Unit 2: Unit Circle and Trigonometry Relationships
- Unit 3: Trigonometry Identities
- Unit 4: Trigonometry Triangle Applications
- Unit 5: Symmetry, Reflections and Transformations
- Unit 6: Graphs of Trigonometric Functions
- Unit 7: Sinusoidal Models
- Unit 8: Inverse Trigonometric Functions
- Unit 9: Trigonometry Identities, Equations and Inequalities
- Unit 10: Polar Coordinates
- Unit 11: Logarithmic Functions

## *Trigonometry Syllabus*

### *Prerequisites*

Algebra I, Algebra II, Geometry

### *Critical Competencies*

1. Trigonometry terms and applications (degrees, radians, displacement, angular velocity, arc length and area of sectors).
2. Unit Circle and Trigonometry relationships (determine exact values of the 6 trig functions).
3. Trigonometry Identities.
4. Trigonometry Triangle Applications.
5. \*Symmetry, reflections and transformations.
6. Graphs of Trigonometric Functions.
7. Sinusoidal Models.
8. Inverse Trigonometric Functions.
9. Trigonometry Identities, Equations and Inequalities.
10. \*Polar Coordinates.
11. \*Logarithmic Functions.

***\*Full-year option only!***

### *Requirements*

1. Students must attend class regularly!
2. Students must maintain a notebook with all class notes and homework assignments. In addition, students must come to class prepared to work (pencil {sharpened}, eraser, paper, calculator, etc.)
3. Students must satisfactorily complete all homework assignments.
4. Students must complete all quizzes, projects, exams and the final exam.
5. Students must work independently and in cooperative groups. Be respectful, polite and encouraging to fellow peers.
6. Participate in class discussions and volunteer for board work.
7. Students must bring a TI-83 graphics calculator to class everyday.
8. Students should conduct themselves in a professional manner and follow the policies and guidelines of the School / District (especially the code of conduct).

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### Evaluation

- A. Successful quarterly grades will require a 70% or better average in each of the components listed below. Students must also complete any mandatory requirements of the course.
- |         |                          |
|---------|--------------------------|
| i. 75%  | Quizzes, Exams, Projects |
| ii. 20% | Homework                 |
| iii. 5% | Class participation      |
- B. The final grade for the semester will be based upon an average of each of the marking periods. No grade, other than “I”, will be awarded without the satisfactory completion of the following objectives:
- All tests must be taken
  - 70% of the homework must be complete
  - All projects must be completed
- C. Every student is responsible for submitting work missed due to absence, etc. within a designated time period. All absences of less than a week will have five days to turn in make-up work. For absences longer than five days or to request consideration for unusual circumstances see your teacher. Students will not be permitted to make up work for any unexcused absences or cuts.

***\*\*A grade of 75% for the course and a passing score on the final exam is required for advancement to higher mathematics courses!\*\****

### *Grading, Quizzes and Exams:*

I grade on a total point system (exams and quizzes are not weighted). I check homework virtually every day. I give students 5 points for each homework assignment (further explanations of my procedures can be found in the teacher notes). By the end of a quarter, homework points tend to be worth 20 to 25 percent of the grade. The remaining 75 to 80 percent is composed of quizzes, exams and graded worksheets. You might wonder what I consider a quiz and what I consider a test. Basically, quizzes are shorter and/or are worth slightly less points than my exams. However, since I grade on a total points system, quizzes and exams contribute to a student’s final grade equally. You will discover that a few units only have quizzes associated with them while other units have multiple exams associated with them. Try not to get caught up in the semantics of my testing process. You can call a quiz a test and/or you can call a test a quiz and nothing changes in my grading system. I also don’t place bonus questions on make-up quizzes or exams. This encourages students to come to class during a scheduled exam or quiz since they all know my make-up quizzes and exams contain no bonus opportunities.

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### Approximate Sequence of Topics

Unit-1 Lesson #	Half-Year Course	Duration:	Full-Year Course	Duration:
Lesson 1	Yes	.5 periods	Yes	.5 periods
Lesson 2	Yes	1.5 periods	Yes	1.5 periods
Lesson 3	Yes	1 period	Yes	1 period
Lesson 4	Yes	1 period	Yes	1 period
Lesson 5	Yes	1 period	Yes	1 period
Lesson 6	Enrichment	(pass out lab)	Yes	2 periods
Lesson 7	No		Yes	1 period
Lesson 8	Yes	1 period	Yes	1 period
Lesson 9	Yes	.75 periods	Yes	1 period
Lesson 10	Yes	.75 periods	Yes	2 periods
Lesson 11	Yes	1.5 periods	Yes	2 periods
Lesson 12	Yes	1 period	Yes	1 period
<b>Totals:</b>		<b>10</b>		<b>15</b>

Unit-2 Lesson #	Half-Year Course	Duration:	Full-Year Course	Duration:
Lesson 1	No		Yes	2 periods
Lesson 2	Yes	1 period	Yes	1 period
Lesson 3	Yes	1 period	Yes	2 periods
Lesson 4	Yes	1 period	Yes	1 period
Lesson 5	Yes (Calculator only)	1 period	Yes	1 period
Lesson 6	No		Yes	3 periods
Lesson 7	Yes	1 period	Yes	1 period
Lesson 8	Yes	1 period	Yes	2 periods
Lesson 9	Yes	1 period	Yes	1 period
Lesson 10	Yes	1.5 periods	Yes	1 period
Lesson 11	Yes	.5 periods	Yes	2 periods
Lesson 12	Yes	1 period	Yes	1 period
Lesson 13	Yes	1 period	Yes	1 period
Lesson 14	Yes	1 period	Yes	1 period
Lesson 15	Yes	1 period	Yes	1 period
Lesson 16	Yes	1 period	Yes	1 period
Lesson 17	Yes	1 period	Yes	2 periods

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Lesson 18	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 19	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
<b>Totals:</b>		<b>17</b>		<b>26</b>

<b>Unit-3 Lesson #</b>	<b>Half-Year Course</b>	<b>Duration:</b>	<b>Full-Year Course</b>	<b>Duration:</b>
Lesson 1	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>2 periods</i>
Lesson 2	<i>Yes</i>	<i>2 periods</i>	<i>Yes</i>	<i>2 periods</i>
Lesson 3	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>2 periods</i>
Lesson 4	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>2 periods</i>
Lesson 5	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 6	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 7	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>2 periods</i>
Lesson 8	<i>No</i>		<i>Yes</i>	<i>1 period</i>
Lesson 9	<i>No</i>		<i>Yes</i>	<i>1 period</i>
<b>Totals:</b>		<b>8</b>		<b>14</b>

<b>Unit-4 Lesson #</b>	<b>Half-Year Course</b>	<b>Duration:</b>	<b>Full-Year Course</b>	<b>Duration:</b>
Lesson 1	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 2	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 3	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 4	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 5	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 6	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 7	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 8	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 9	<i>Yes (Do Lab)</i>	<i>2 periods</i>	<i>Yes (Do Lab)</i>	<i>3 periods</i>
Lesson 10	<i>Yes</i>	<i>.5 periods</i>	<i>Yes</i>	<i>1 period</i>
Lesson 11	<i>Yes</i>	<i>1.5 periods</i>	<i>Yes</i>	<i>2 periods</i>
Lesson 12	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 13	<i>Enrichment</i>		<i>Yes</i>	<i>3 periods</i>
Lesson 14	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 15	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 16	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 17	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>2 periods</i>
Lesson 18	<i>Enrichment</i>		<i>Yes</i>	<i>3 periods</i>
Lesson 19	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 20	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>

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Lesson 21	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>2 periods</i>
Lesson 22	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
<b>Totals:</b>		<b>21</b>		<b>31</b>

<b>Unit-5 Lesson #</b>	<b>Half-Year Course</b>	<b>Duration:</b>	<b>Full-Year Course</b>	<b>Duration:</b>
Lesson 1	<i>No</i>		<i>Yes</i>	<i>1 period</i>
Lesson 2	<i>No</i>		<i>Yes</i>	<i>1 period</i>
Lesson 3	<i>No</i>		<i>Yes</i>	<i>1 periods</i>
Lesson 4	<i>No</i>		<i>Yes</i>	<i>1 periods</i>
Lesson 5	<i>No</i>		<i>Yes</i>	<i>1 period</i>
Lesson 6	<i>No</i>		<i>Yes</i>	<i>2 periods</i>
Lesson 7	<i>No</i>		<i>Yes</i>	<i>1 period</i>
Lesson 8	<i>No</i>		<i>Yes</i>	<i>1 period</i>
<b>Totals:</b>		<b>0</b>		<b>9</b>

<b>Unit-6 Lesson #</b>	<b>Half-Year Course</b>	<b>Duration:</b>	<b>Full-Year Course</b>	<b>Duration:</b>
Lesson 1	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 2	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 3	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 4	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 5	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>2 periods</i>
Lesson 6	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 7	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 8	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 9	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>2 periods</i>
Lesson 10	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 11	<i>Yes (Take Home)</i>		<i>Yes</i>	<i>1 period</i>
<b>Totals:</b>		<b>10</b>		<b>13</b>

<b>Unit-7 Lesson #</b>	<b>Half-Year Course</b>	<b>Duration:</b>	<b>Full-Year Course</b>	<b>Duration:</b>
Lesson 1	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 2	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 3	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 4	<i>Yes</i>	<i>.5 periods</i>	<i>Yes</i>	<i>2 periods</i>
Lesson 5	<i>Yes</i>	<i>.5 periods</i>	<i>Yes</i>	<i>1 period</i>
Lesson 6	<i>Enrichment</i>		<i>Yes</i>	<i>2 periods</i>
Lesson 7	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>2 periods</i>

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Lesson 8	<i>Yes (Take Home)</i>		<i>Yes</i>	<i>1 period</i>
<b>Totals:</b>		<b>5</b>		<b>11</b>

<b>Unit-8 Lesson #</b>	<b>Half-Year Course</b>	<b>Duration:</b>	<b>Full-Year Course</b>	<b>Duration:</b>
Lesson 1	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>2 periods</i>
Lesson 2	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 3	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 4	<i>Yes</i>	<i>.5 periods</i>	<i>Yes</i>	<i>1 period</i>
Lesson 5	<i>Yes</i>	<i>.5 periods</i>	<i>Yes</i>	<i>2 periods</i>
Lesson 6	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
<b>Totals:</b>		<b>5</b>		<b>8</b>

<b>Unit-9 Lesson #</b>	<b>Half-Year Course</b>	<b>Duration:</b>	<b>Full-Year Course</b>	<b>Duration:</b>
Lesson 1	<i>Yes</i>	<i>.5 periods</i>	<i>Yes</i>	<i>2 periods</i>
Lesson 2	<i>Yes</i>	<i>.5 periods</i>	<i>Yes</i>	<i>1 period</i>
Lesson 3	<i>Yes</i>	<i>.5 periods</i>	<i>Yes</i>	<i>1 period</i>
Lesson 4	<i>Yes</i>	<i>.5 periods</i>	<i>Yes</i>	<i>1 period</i>
Lesson 5	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 6	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 7	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 8	<i>No</i>		<i>Yes</i>	<i>2 periods</i>
Lesson 9	<i>No (only test once)</i>		<i>Yes</i>	<i>1 period</i>
Lesson 10	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 11	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
Lesson 12	<i>No</i>		<i>Yes</i>	<i>1 period</i>
Lesson 13	<i>Yes</i>	<i>1 period</i>	<i>Yes</i>	<i>1 period</i>
<b>Totals:</b>		<b>8</b>		<b>15</b>

<b>Unit-10 Lesson #</b>	<b>Half-Year Course</b>	<b>Duration:</b>	<b>Full-Year Course</b>	<b>Duration:</b>
Lesson 1	<i>No</i>		<i>Yes</i>	<i>1 period</i>
Lesson 2	<i>No</i>		<i>Yes</i>	<i>1 period</i>
Lesson 3	<i>No</i>		<i>Yes</i>	<i>1 period</i>
Lesson 4	<i>No</i>		<i>Yes</i>	<i>1 period</i>
Lesson 5	<i>No</i>		<i>Yes</i>	<i>1 period</i>
Lesson 6	<i>No</i>		<i>Yes</i>	<i>1 period</i>

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Lesson 7	<i>No</i>		<i>Yes</i>	<i>1 period</i>
Lesson 8	<i>No</i>		<i>Yes</i>	<i>1 period</i>
Lesson 9	<i>No</i>		<i>Yes</i>	<i>1 period</i>
Lesson 10	<i>No</i>		<i>Yes</i>	<i>2 periods</i>
Lesson 11	<i>No</i>		<i>Yes</i>	<i>1 period</i>
<b>Totals:</b>		<b>0</b>		<b>12</b>

<b>Unit-11 Lesson #</b>	<b>Half-Year Course</b>	<b>Duration:</b>	<b>Full-Year Course</b>	<b>Duration:</b>
Lesson 1	<i>No</i>		<i>Yes</i>	<i>2 periods</i>
Lesson 2	<i>No</i>		<i>Yes</i>	<i>1 period</i>
Lesson 3	<i>No</i>		<i>Yes</i>	<i>2 periods</i>
Lesson 4	<i>No</i>		<i>Yes</i>	<i>1 period</i>
Lesson 5	<i>No</i>		<i>Yes</i>	<i>2 periods</i>
Lesson 6	<i>No</i>		<i>Yes</i>	<i>1 period</i>
Lesson 7	<i>No</i>		<i>Yes</i>	<i>1 period</i>
Lesson 8	<i>No</i>		<i>Yes</i>	<i>2 periods</i>
Lesson 9	<i>No</i>		<i>Yes</i>	<i>2 periods</i>
Lesson 10	<i>No</i>		<i>Yes</i>	<i>1 period</i>
Lesson 11	<i>No</i>		<i>Yes</i>	<i>4 periods</i>
Lesson 12	<i>Yes (Final Exam)</i>	<i>Extended Period</i>	<i>Yes (Final Exam)</i>	<i>2 periods</i>
<b>Totals:</b>		<b>1</b>		<b>21</b>
<b>Course Totals:</b>		<b>85</b>		<b>175</b>

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## Resources

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### *Recommended Text Books/Resources*

*“Advanced Mathematics – A Precalculus Approach” (Ryan, Doubet, Fabricant and Rockhill) by Prentice Hall (1993)*

*“Precalculus – Graphing and Data Analysis” by Prentice Hall (Michael Sullivan and Michael Sullivan III) (1998)*

### *Recommended Reading/Resources*

*“Mathematics Teacher” by NCTM (monthly journal)*

*“Flatland” by Edwin Abbott Abbott (1838-1926)*

*“Sensible Mathematics – A Guide for School Leaders” by Steven Leinwand (2000)*

*“Algebra to Go – A Mathematics Handbook” by Great Source (2000)*

*“Principals and Standards for School Mathematics” by NCTM (2000)*

*“One Equals Zero and Other Mathematical Surprises” by Key Curriculum Press (1998)*

*“Algebra Magic Tricks – Algecadabra Volume 1” by Ronald Edwards (1992)*

*“Algebra Magic Tricks – Algecadabra Volume 2” by Ronald Edwards (1994)*

*“The Heart of Mathematics – An Invitation to Effective Thinking” by Edward B. Burger & Michael Starbird (2000)*

*“The Da Vinci Code” by Dan Brown (2003)*

*“The Curious Incident of the Dog in the Night-Time” by Mark Haddon (2003)*

### *Materials used to create this courseware*

#### *Computers:*

*A 2002 Sony Laptop with Windows XP*

*A 1997 Compaq Work Station with Windows XP*

*A Macintosh Performa 5300 CD*

#### *Essential Accessories:*

*A Sony Memory Stick Reader/Writer Mouse*

*TI-83 (Plus) or TI-84 (Plus Silver Edition) Graphics Calculator*

*TI-83 Graph Link (originally used with a Macintosh due to incompatibility with Windows XP)*

#### *Software:*

*Microsoft Word, Microsoft Excel & Power Point*

*Geometry Sketchpad (for enrichment activities)*

*FATHOM (for enrichment activities)*

*MathType (version 5)*

*TI-83or TI-84 Graph Link software (on the Macintosh)*

*TI-Connect (Windows XP with USB port and TI-84 Plus Silver Edition Calculator)*

*Paint Shop Pro (version 6 & version 8)*

*Netscape, Internet Explorer & \*Mozilla Firefox Browsers (\*preferred browser)*

*WordPad/Notepad (for writing web pages)*

*FTPsoftware*