Orange Public Schools

Office of Curriculum & Instruction

2020-2021 Mathematics Curriculum Guide

Pre-Calculus

Unit 2: Exponential and Logarithmic Functions, Trigonometry

November 14, 2020 –January 30, 2021

Board Approved: 1.14.2020

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Contents

Algebra 1 Unit 2

Curriculum Map

A STORY OF UNITS (Yearlong Pacing Guide)				
Marking Period	**Unit 1** (9/9/20 – 11/13/20)	**Unit 2** (11/14/20- 1/30/21)	**Unit 3** (1/31/21-4/9/21)	**Unit 4** (4/10/21-6/22/21)
Unit Topic	**Functions, Polynomial and Rational Functions**	**Exponential and Logarithmic Functions, Trigonometry**	**Solving Trigonometric Equations, Inverse of Trigonometric Applications**	**Analytic Geometry and Systems of Equations**
Description	Explore properties and patterns of polynomial, rational, piecewise functions. Elate different types of functions with their graphs.	Understand the logarithmic function is an inverse function of Exponential. Explore trigonometry function and use special triangles of determine geometrically and value of sine, cosine, tangent for an angle	Use unit circle to explain symmetry and periodicity of trigonometric functions. Use inverse functions to solve trigonometric equations	Derive the equations of ellipses and hyperbolas. Use matrices to solve systems of equations

Algebra 1 Unit 2

Unit Overview

Unit 2: Exponential Functions and Logarithmic Functions, Trigonometry

Course Description

Pre-Calculus provides a balance of analytical techniques and theoretical instruction. This course focuses on standards to prepare students for more intense study of mathematics. The study of circles and parabolas is extended to include other conics such as ellipses and hyperbolas. Trigonometric functions are further developed to include inverse, general triangles and identities. Matrices provide an organizational structure in which to represent and solve complex problems. Students expand the concepts of complex numbers and the coordinate plane to represent and operate upon vectors.

Learning Material

Textbook: Precalculus,(Ron Larson, Robert Hostetler)

Essential Questions

- How are exponential and logarithmic relationships related?
- How are exponential and logarithmic relationships used to model, solve, and understand real world situations?
- What techniques can I use to persevere through solving a problem?
- When are multiple solutions or problem solving techniques appropriate?
- How do I determine the most efficient method to solve a problem?
- How can trigonometry help use solve and model real-world problems?
- How do we graph the basic trigonometric functions on a coordinate plane?

Enduring Understandings

- The transfer of knowledge and perseverance are necessary when utilizing problem solving techniques to reach a solution.
- Growth and decay relationships can be modeled through exponential and logarithmic functions.
- The characteristics of trigonometric functions and their representations are useful in solving real-world problems.

NJSLS

F.BF.5. Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.

F.IF.7.E. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.

F.LE.4. For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where a, c, and d are numbers and the base b is 2-10, or e; evaluate the logarithm using technology.

F.TF.3. Use special triangles to determine geometrically the values of sine, cosine, tangent for $\frac{\pi}{3}, \frac{\pi}{4}, and \frac{\pi}{6}$. and use the unit circle to express the values of sine, cosines, and tangent for $x, \pi + x, and\ 2\pi - x$ in terms of their values for x, where x is any real number.

F.TF.4. Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.

F.TF.9. Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.

G.C.4. Construct a tangent line from a point outside a given circle to the circle.

F.IF.7.e Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude

Modifications

Special Education/ 504:	English Language Learners:
-Adhere to all modifications and health concerns stated in	- Use manipulatives to promote conceptual

each IEP. -Give students a MENU options, allowing students to pick assignments from different levels based on difficulty. -Accommodate Instructional Strategies: reading aloud text, graphic organizers, one-on-one instruction, class website (Google Classroom), handouts, definition list with visuals, extended time -Allow students to demonstrate understanding of a problem by drawing the picture of the answer and then explaining the reasoning orally and/or writing , such as Read-Draw-Write -Provide breaks between tasks, use positive reinforcement, use proximity -Assure students have experiences that are on the Concrete- Pictorial- Abstract spectrum by using manipulatives -Common Core Approach to Differentiate Instruction: Students with Disabilities (pg 17-18) -Strategies for Students with 504 Plans	understanding and enhance vocabulary usage - Provide graphic representations, gestures, drawings, equations, realia, and pictures during all segments of instruction - During ALEKS lessons, click on “Español” to hear specific words in Spanish - Utilize graphic organizers which are concrete, pictorial ways of constructing knowledge and organizing information - Use sentence frames and questioning strategies so that students will explain their thinking/ process of how to solve word problems - Utilize program translations (if available) for L1/ L2 students - Reword questions in simpler language - Make use of the ELL Mathematical Language Routines (click here for additional information) -Scaffolding instruction for ELL Learners -Common Core Approach to Differentiate Instruction: Students with Disabilities (pg 16-17)
Gifted and Talented:	**Students at Risk for Failure:**
- Elevated contextual complexity - Inquiry based or open ended assignments and projects - More time to study concepts with greater depth - Promote the synthesis of concepts and making real world connections - Provide students with enrichment practice that are imbedded in the curriculum such as: ● Application / Conceptual Development ● Are you ready for more? - Common Core Approach to Differentiate Instruction: Students with Disabilities (pg. 20) - Provide opportunities for math competitions - Alternative instruction pathways available	- Assure students have experiences that are on the Concrete- Pictorial- Abstract spectrum - Modify Instructional Strategies, reading aloud text, graphic organizers, one-on-one instruction, class website (Google Classroom), inclusion of more visuals and manipulatives, Field Trips, Google Expeditions, Peer Support, one on one instruction - Assure constant parental/ guardian contact throughout the year with successes/ challenges - Provide academic contracts to students and guardians - Create an interactive notebook with samples, key vocabulary words, student goals/ objectives. - Always plan to address students at risk in your learning tasks, instructions, and directions. Try to anticipate where

	the needs will be and then address them prior to lessons. -Common Core Approach to Differentiate Instruction: Students with Disabilities (pg 19)

21st Century Life and Career Skills:

21st Century Life and Career Skills:

Career Ready Practices describe the career-ready skills that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

https://www.state.nj.us/education/cccs/2014/career/9.pdf

- **CRP1**. Act as a responsible and contributing citizen and employee.
- **CRP2**. Apply appropriate academic and technical skills.
- **CRP3**. Attend to personal health and financial well-being.
- **CRP4**. Communicate clearly and effectively and with reason.
- **CRP5**. Consider the environmental, social and economic impacts of decisions.
- **CRP6**. Demonstrate creativity and innovation.
- **CRP7**. Employ valid and reliable research strategies.
- **CRP8**. Utilize critical thinking to make sense of problems and persevere in solving them.
- **CRP9**. Model integrity, ethical leadership and effective management.
- **CRP10**. Plan education and career paths aligned to personal goals.
- **CRP11**. Use technology to enhance productivity.
- **CRP12**. Work productively in teams while using cultural global competence.

Students are given an opportunity to communicate with peers effectively, clearly, and with the use of technical language. They are encouraged to reason through experiences that promote critical thinking and emphasize the importance of perseverance. Students are exposed to various mediums of technology, such as digital learning, calculators, and educational websites.

Technology Standards

Technology Standards:

All students will be prepared to meet the challenge of a dynamic global society in which they participate, contribute, achieve, and flourish through universal access to people, information, and ideas.

https://www.state.nj.us/education/cccs/2014/tech/

8.1 Educational Technology:

All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

A. **Technology Operations and Concepts:** Students demonstrate a sound understanding of technology concepts, systems and operations.
B. **Creativity and Innovation:** Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
C. **Communication and Collaboration:** Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
D. **Digital Citizenship:** Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
E. **Research and Information Fluency:** Students apply digital tools to gather, evaluate, and use of information.
F. **Critical thinking, problem solving, and decision making:** Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming:

All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

A. **The Nature of Technology: Creativity and Innovation-** Technology systems impact every aspect of the world in which we live.
B. **Technology and Society:** Knowledge and understanding of human, cultural, and societal values are fundamental when designing technological systems and products in the global society.
C. **Design:** The design process is a systematic approach to solving problems.
D. **Abilities in a Technological World:** The designed world in a product of a design process that provides the means to convert resources into products and systems.
E. **Computational Thinking: Programming-** Computational thinking builds and enhances problem solving, allowing students to move beyond using knowledge to creating knowledge.

Interdisciplinary Connections:

English Language Arts:

ELA.Literacy.RI-9-10.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).
NJSLS ELA-LITERACY.SL.9-10.4	Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.
NJSLS .ELA-LITERACY.W.9-10.2.A	Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

Pacing Guide

Overview		
Lesson (Textbook)	Topic	Suggesting Pacing
3.1	Exponential Functions and Their Graphs	2 days
3.2	Logarithmic functions and Their Graphs	2 days
3.3	Properties of Logarithms	2 days
3.4	Exponential and Logarithmic Equations	2 days
3.5	Exponential and Logarithmic Models	2 days

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4.1	Radian and Degree Measure	2 days
4.2	Trigonometric functions: the Unit Circle	2 days
4.3	Right Triangle Trigonometry	2 days
4.4	Trigonometric Functions of Any Angle	2 days
4.5	Graphs of Sine and Cosine Functions	2 days
4.6	Graphs of Other Trigonometric Functions	2 days
4.7	Inverse Trigonometric Functions	2 days
4.8	Applications and Models	2 days

Summary:

26 days on new content (9 lessons/topics)
2 review day
1 quiz days
2 test day
2 Days Benchmark Assessment

33 days in Unit 1

Calendar

Please complete the pacing calendar based on the suggested pacing

Algebra 1 Unit 2

November 2020						
Sun	Mon	Tue	Wed	Thu	Fri	Sat

Algebra 1 Unit 2

December 2020						
Sun	Mon	Tue	Wed	Thu	Fri	Sat

Algebra 1 Unit 2

January 2021						
Sun	Mon	Tue	Wed	Thu	Fri	Sat

Assessment Framework

Assessment	Estimated Time	Format	Graded

Algebra 1 Unit 2

Quizzes (3 to 4)	1/2 period per quiz	Individual	No
Chapter tests (2 tests)	1 period per test	Individual	Yes
Authentic assessment	TBD	Individual	Yes
Mp1 Benchmark Assessment (Part A and B)	2 periods	Individual	Yes
Assessment check points (exit tickets)	5-10 minutes	Individual	Varies

MP 2 Benchmark Assessment Window: 1/19/2021 – 1/29/2021

Algebra 1 Unit 2

Chapter Analysis

Chapter 3: Exponential and Logarithmic Functions

Objectives:

1. Using properties of logarithms and exponential expressions, SWBAT solve exponential and logarithmic equations
2. Using exponential and logarithmic functions, SWBAT describe and model real-world scenarios mathematically
3. Using properties of logarithms, SWBAT simplify and evaluate logarithmic expressions
4. Using their domain and parent functions, SWBAT graph transformations of logarithmic and exponential functions

Skills/Knowledge/Understandings:
Understandings:

1. Evaluate exponential functions
2. Graph exponential and logarithmic functions
3. Define the number *e*
4. Define the domain and range of exponential and logarithmic functions
5. Change exponential expressions to logarithmic expressions and vice-versa
6. Expand logarithmic expressions
7. Condense logarithmic expressions into a single expression
8. Use properties of logarithms and exponents
9. Solve problems using any base
10. Solve real world problems involving interest, growth, and decay

NJSLS:

F.BF.5. Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.

F.IF.7.E. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.

F.LE.4. For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where a, c, and d are numbers and the base b is 2-10, or e; evaluate the logarithm using technology.

Assessments:

Formative:	Summative:	Authentic:
Daily exit slips, always including at least one question that requires students to summarize and write, in their own words, what they learned that day.	Teacher-created Chapter 3 assessment (sample can be found on textbook page 275). Multiple choice, short response, and extended response/open ended questions will all be included. Calculators allowed.	*How much will college really cost you? Have students research the cost of a College or University that they're considering attending, and also some basic information about student loans. They will then choose a plan and, using actual numbers and their newfound knowledge, be able to find out*

		just how much their continued studies will cost. This will be presented as a poster.

Literacy Connections:
Authentic Assessment "True College Cost" posters will be orally and visually presented to the class, requiring the students to succinctly summarize their work and practice their public speaking skills.

Every exit slip will require students to synthesize their daily learning and write, in their own words, what they learned.

Interdisciplinary Connections:
Science—Newton's Law of Cooling

Logistics—Spread of a rumor/virus

Social Science—Population models

Financing—Compound vs. simple interest

Technology Integration:
TI-84 for plotting exponential and logarithmic functions.

TI-84 for evaluating (using tables) and solving logarithmic and exponential functions.

Smart Board for visually showing the 5 main types of models involving exponential and logarithmic functions.

Key Vocabulary:

Logarithm, Exponential, Base, Natural logarithm, Natural base ,Continuous interest, Exponential growth/decay

Useful Sites:
Logarithmic Properties-- http://www.purplemath.com/modules/logrules.htm

Main Exponential and Logarithmic Models-- http://people.richland.edu/james/lecture/m116/logs/models.html

Exponential Growth/Decay Problems--
http://dl.uncw.edu/digilib/mathematics/algebra/mat111hb/eandl/elmodels/elmodels.html

History of the Natural Base 'e'--
http://www.math.uconn.edu/~glaz/my_articles/theenigmaticnumbere.convergence10.pdf

Lesson Reviews--http://www.khanacademy.org

Text Crosswalk:

Larson and Hostetler, Brooks/Cole, 7th edition. 2007.

Unit 3 covers pages 217-280.

Page 257 introduces the 5 most common types of mathematical models involving exponential and logarithmic functions.

An extensive set of review problems is found on pages 271-274

Page 275 offers a sample Unit Assessment.

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Pages 276-277 offers a sample Units 1-3 summative assessment.

Page 278 offers proofs of the properties of logarithms.

Pages 279-280 offer challenging problems that require extra critical thinking from students dealing with Unit 3.

Algebra 1 Unit 2

Chapter 4: Trigonometry

Objectives:

1. Using the Unit Circle, SWBAT quickly evaluate $\sin\theta$ and $\cos\theta$ for the common angles
2. Using Pythagorean and other Trigonometric identities, SWBAT, given one ratio, solve for all six trigonometric ratios
3. Using right triangle Trigonometry, SWBAT solve triangles, including finding all missing side lengths and angle measures
4. Using right triangles and a non-right angle θ, SWBAT define (and evaluate) the six trigonometric ratios of θ
5. Using points derived from the Unit Circe, SWBAT graph the 6 trigonometric functions
6. Using their knowledge of the meaning of coefficients in trigonometric functions, SWBAT plot transformed trigonometric graphs

Skills/Knowledge/Understandings:

Understandings:

1) Define the six trigonometric ratios of an angle
2) Evaluate trigonometric ratios using triangles and/or calculators
3) Solve triangles (including unknown sides and/or angles) using trigonometric ratios
4) Convert from radians to degrees and vice-versa
5) Define trigonometric functions in terms of the unit circle
6) Prove and work with basic Pythagorean identities
7) Identify co-terminal and reference angles using degrees and radians
8) Graph the basic trigonometric functions
9) Graph the sine, cosine, cosecant, and secant functions
10) Graph transformations of these basic functions

NJSLS:

. **F.TF.3.** Use special triangles to determine geometrically the values of sine, cosine, tangent for $\frac{\pi}{3}, \frac{\pi}{4}, and \frac{\pi}{6}$. and use the unit circle to express the values of sine, cosines, and tangent for $x, \pi + x, and\ 2\pi - x$ in terms of their values for x, where x is any real number.

F.TF.4. Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.

F.TF.9. Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.

G.C.4. Construct a tangent line from a point outside a given circle to the circle.

F.IF.7.e Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude

Assessments:

Formative:	Summative:	Authentic:
Daily exit slips, always including at least one question that requires students to summarize and write, in their own words, what they learned that day.	Teacher-created Chapter 4 assessment (sample can be found on textbook page 369). Multiple choice, short response, graphing, and extended response/open ended questions will all be included. Calculators	Students will create a poster with two real-world right-triangle trigonometry problems. Each problem must contain monuments and/or objects seen in the physical world, and must write a story

	only allowed for half the exam--students need to the trigonometric ratios of special angles by memory, and need to be able to sketch trigonometric graphs without technological assistance or verification.	connecting them to a basic right-triangle trigonometry problem. The posters will also need accompanying illustrations and the solutions completely worked out.

Literacy Connections:
Posters created will require students to create and write two independent story problems. These problems need to be a paragraph in length, and, besides introducing a mathematical problem, will tell some sort of short story as well.

Every exit slip will require students to synthesize their daily learning and write, in their own words, what they learned.

Interdisciplinary Connections:
Science—Describing temperature on given intervals.

Physics—Modeling pendulum and spring motion.

Technology Integration:
TI-84 for plotting (and verifying) trigonometric graphs.

TI-84 for solving trigonometric equations and ratios.

Smart Board for showing the Unit Circle until students have it memorized.

Key Vocabulary:

Trigonometric Ratio, Trigonometric Function, Sine, Cosine, Tangent, Cosecant, Secant, Cotangent, Unit Circle

, Coterminal angles

Useful Sites:
Right Triangle Trigonometry-- http://www.mathsisfun.com/algebra/sohcahtoa.html

Background of the Unit Circle-- http://www.mathsisfun.com/geometry/unit-circle.html

Filled out Unit Circle-- http://www.embeddedmath.com/downloads/files/unitcircle/unitcircle-letter.pdf

What is a Radian?-- https://www.khanacademy.org/math/trigonometry/basic-trigonometry/radians_tutorial/v/introduction-to-radians

Simple Harmonic Motion and other Trigonometric Applications--
http://www2.seminolestate.edu/srickman/Trig/Handouts/Trigonometry_7-Graphs-sin&cos-Appl.pdf

Lesson Reviews--http://www.khanacademy.org

Text Crosswalk:

Larson and Hostetler, Brooks/Cole, 7th edition. 2007.

Unit 4 covers pages 281-372.

Page 295 introduces the Unit Circle.

A checklist summary of Unit 4 objectives is found on page 364.

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An extensive set of review problems is found on pages 365-368.

Page 369 offers a sample Unit Assessment.

Page 370 offers a proof of the Pythagorean Theorem.

Pages 371-372 offer challenging problems that require extra critical thinking from students dealing with Unit 4.

5 practices for Orchestrating Productive Mathematical Discussion

5 Practices for Orchestrating Productive Mathematics Discussions	
Practice	Description/ Questions

Algebra 1 Unit 2

1. Anticipating	What strategies are students likely to use to approach or solve a challenging high-level mathematical task? How do you respond to the work that students are likely to produce? Which strategies from student work will be most useful in addressing the mathematical goals?
2. Monitoring	Paying attention to what and how students are thinking during the lesson. Students working in pairs or groups Listening to and making note of what students are discussing and the strategies they are using Asking students questions that will help them stay on track or help them think more deeply about the task. (Promote productive struggle)
3. Selecting	This is the process of deciding the *what* and the *who* to focus on during the discussion.
4. Sequencing	What order will the solutions be shared with the class?
5. Connecting	Asking the questions that will make the mathematics explicit and understandable. Focus must be on mathematical meaning and relationships; making links between mathematical ideas and representations.

Algebra 1 Unit 2

Ideal Math Block

The following outline is the department approved ideal math block for grades 9-12.

1) Do Now (7-10 min)
    a. Serves as review from last class' or of prerequisite material
    b. Provides multiple entry points so that it is accessible by all students and quickly scaffolds up

2) Starter/Launch (5-10 min)
    a. Designed to introduce the lesson
    b. Uses concrete or pictorial examples
    c. Attempts to bridge the gap between grade level deficits and rigorous, on grade level content
    d. Provides multiple entry points so that it is accessible by all students and quickly scaffolds up

3) Mini-Lesson (15-20 min)
    a. Design varies based on content
    b. May include an investigative approach, direct instruction approach, whole class discussion led approach, etc.
    c. Includes CFU's
    d. Anticipates misconceptions and addresses common mistakes

4) Class Activity (25-30 min)
    a. Design varies based on content
    b. May include partner work, group work/project, experiments, investigations, game based activities, etc.

5) Independent Practice (7-10 min)
    a. Provides students an opportunity to work/think independently

6) Closure (5-10 min)
    a. Connects lesson/activities to big ideas
    b. Allows students to reflect and summarize what they have learned
    c. May occur after the activity or independent practice depending on the content and objective

7) DOL (5 min)
    a. Exit ticket

Ideal math block with Intervention Station

Whole Group Instruction	50 min	INSTRUCTION (Grades 9 – 12) Daily Routine: Mathematical Content or Language Routine Anchor Task: Anticipate, Monitor, Select, Sequence, Connect Collaborative Work* Guided Practice Independent Work (Demonstration of Student Thinking)	TOOLS Manipulatives RESOURCES Agile Mind	
Rotation Stations (Student Notebooks & Chromebooks Needed)	1-2X 35 min	STATION 1: Focus on current Grade Level Content STUDENT EXPLORATION* Independent or groups of 2-3 Emphasis on MP's 3, 6 (Reasoning and Precision) And MP's 1 & 4 (Problem Solving and Application) TOOLS/RESOURCES Agile Mind Math Journals	STATION 2: Focus on Student Needs TECH STATION Independent TOOLS/ RESOURCES Khan Academy Approved Digital Provider Fluency Practice	TEACHER STATION: Focus on Grade Level Content; heavily scaffolded to connect deficiencies TARGETED INSTRUCTION 4 – 5 Students TOOLS/ RESOURCES Agile Homework Manipulatives
	5 min	INSTRUCTION Exit Ticket (Demonstration of Student Thinking) TOOLS/RESOURCES Notebooks or Exit Ticket Slips		

Algebra 1 Unit 2

ECR

Math Department ECR Protocol

ECR Protocol

(Extended Constructed Response)

Issuing

- Moving forward ECR'S will be disseminated by the first of each month and collected by the end of each month
- Method of Issuing: email and post on the website

Dissemination

- Teachers can elect to print copies for each student or use the Smartboard to project the ECR. (Note: Student work will be included in Student Portfolios)
- Students should be given up to 30 minutes depending on the complexity of the ECR
- Assure appropriate testing environment
- ECR should be completed independently

Scoring

- Conversion tables are available in the *Assessment & Data in Mathematics Bulletin* for genesis inputting purposes
- ECR's will count as Authentic Assessments
- Naming Protocol "Course Month ECR" (ex: Grade 6 October ECR)

Collection

- ECR's will be collected & kept in student portfolios
- Student work will be reviewed during CPT's

October ECR Link

https://www.dropbox.com/sh/1u8442j0c5enzah/AACUyak5wtNm5OO8z0InTCUJa?dl=0

November ECR Link

https://www.dropbox.com/sh/pwz2fqtga59m911/AAAUhMDJyiXPLBuXg3tPyczta?dl=0

ECR Conversion Chart

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Points	Genesis Conversion	Points	Genesis Conversion	Points	Genesis Conversion
0	55	0	55	0	55
1	59	1	69	1	69
2	69	2	79	2	89
3	79	3	89	3	100
4	89	4	100		
5	100				