Integrated Math 2

J.S. Morton HS District 201
2015 – 2016

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What will students learn in this course?

SEMESTER 1 Key Concepts	Standards – Learning Targets *Students can…*
KC 1: Extending the Number System	A. Use properties of integer exponents and apply those to rational exponents. [N.RN.1] B. Rewrite expressions involving radicals and rational exponents using properties of exponents. [N.RN.2] C. Make decisions about the results of the sum and product of rational and irrational numbers. [N.RN.3] D. Solve an equation involving rational exponents. [A.CED.1]
KC 2: Quadratic Functions – Representations	A. Graph functions and show key features (zeros, intercepts, max/min, end behavior, domain, and range) of the graph. [F.IF.7a, F.IF. 7b] B. Add, subtract, and multiply polynomials and show why the solution is equivalent. [A.APR.1, A.CED.1, A.SSE.1 & 2] C. Factor a quadratic expression and equation to reveal the zeros of the function it defines, and interpret those in context. [A.SSE.3] [F.IF.8a] [A.REI.4b] D. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines, and interpret those in context. [A.SSE.3] [F.IF.8a] [A.REI.4b]
KC 3: Quadratic Functions— Working with Equations	A. Add, subtract, and multiply complex numbers. [N.CN.1, N.CN.2] B. Solve quadratic equations by taking square roots or completing the square resulting in imaginary solutions. [A.REI.4b, A.SSE.2, N.CN.7] C. Solve quadratic equations using the quadratic formula. [A.REI.4b, N.CN.7] D. Solve a system consisting of a line and quadratic equation algebraically and graphically. [A.REI.7]
KC 4: Modeling with Quadratic Functions	A. Interpret key features of quadratic functions based on a table or graph in a real-world situation. [F.IF.4] B. Determine the appropriate domain of a quadratic function that represents a mathematical or real world context. [F.IF.5, N.Q.2] C. Calculate the average rate of change over a specified interval of a quadratic. [F.IF.6] D. Create a quadratic equation to model a real-world situation. [A.CED.2, A.CED.4, F.BF.1]

KC 5: Comparing Functions— Modeling & Transformations	A. Determine the model that would best represent a data set and analyze residual plots from the data to determine if the function is an appropriate fit. [S.ID.6a, 6b] B. Interpret the key features of quadratic and exponential functions, represented graphically. [F.IF.7a,e] C. Use graphs and tables to compare the output values of linear, quadratic, and exponential functions and compare properties of two differently* represented functions. [F.LE.3, F.IF.9] *algebraically, graphically, numerically in tables, or by verbal descriptions. D. Transform graphs based on changes in equations and write equations based on a translation of a parent graph. [F.BF.3]
SEMESTER 1 Final Exam	Test items covering the learning targets (Targets 1A – 5E).

SEMESTER 2 Key Concepts	**Standards – Learning Targets** *Students can….*
KC 6: Similarities and Volume	A. Understand similarity in terms of transformations in the coordinate plane. [G.SRT.1, G.SRT.2, G.SRT.3] B. Determine that two figures are similar using AA, SSS, and SAS similarity by verifying that angle measure is preserved and corresponding sides are proportional and use to make conclusions. [G.SRT.5] C. Apply theorems, postulates, or definitions to find missing values including: [GSRT.4] • A line parallel to one side of a triangle divides the other 2 proportionally • If a line divides two sides of a triangle proportionally, then it is parallel to the third side • Using triangle congruence and triangle similarity to solve problems and prove relationships in geometric figures D. Calculate the base area and volume of prisms, cylinders, pyramids, and cones. [G.GMD.1, G.GMD.3]
KC 7: Right Triangles and Trigonometry	A. Use Pythagorean Theorem to find missing sides of right triangles in application problems. [G.SRT.8] B. Define the trigonometric ratios for acute angles in a right triangle and calculate sine, cosine, and tangent ratios when given two side lengths. [G.SRT.7] C. Use the characteristics of similar figures to justify the trigonometric ratios. [G.SRT.6] D. Use trigonometry to solve for missing sides and angles of right triangles. [G.SRT.6] E. Solve right triangles by finding the measures of all sides and angles. [G.SRT.8]
KC 8: Probability	A. Use a sample space to describe events as subsets of that sample space and determine if two events are independent utilizing probability tests. [S.CP.1],[S.CP.2] B. Use the rules of probability to compute probabilities of compound events in a uniform probability model. [S.CP.2], [S.CP.4], [S.CP.6] C. Construct and interpret a two-way frequency table. [S.CP.4], [S.ID.5] D. Demonstrate understanding by calculating conditional probability and independence using everyday examples of events based on the context of the problem. [S.CP.3],[S.CP.5]

	E. Compute probabilities of independent, dependent and compound events and use these to interpret data. [S.CP.6],[S.CP.7]
KC 9: Circles	A. Prove that circles are similar. [G.C.1] B. Identify and describe relationships among central angles, inscribed angles, radii, and chords. [G.C.2] C. Apply the formula for arc length and area of a sector of a circle and calculate using the radius and the measure of the central angle. [G.C.5] D. Given the equation of the circle, use the method of completing the square to determine the coordinates of the center of the circle and/or the radius of the circle. [A.SSE.3], [G.GPE.1]
Semester 2 Final Exam	Test items covering the learning targets (Targets 6A – 9D).

How will we know students have learned it?

	A Advanced/Exemplary	**B** Proficient	**C** Basic	**D** Needs Improvement	**E** Not Passing	**I** Incomplete
Grade Scale	4.0 – 5.0	3.0 – 3.9	2.0 – 2.9	1.0 – 1.9 Retake Suggested	0.0 – 0.9 Retake Required	Must turn in or redo/retake

	Semester 1		**Semester 2**	
Key Concept Weights	Extending the Number System	16.00%		
	Quadratic Functions –Representations	16.00%	Similarities & Volume	20.00%
	Quadratic Functions—Working with Equations	16.00%	Right Triangles & Trigonometry	20.00%
	Modeling with Quadratic Functions	16.00%	Probability	20.00%
	Comparing Functions—Modeling & Transformations	16.00%	Circles	20.00%
	Semester 1 Exam	20.00%	Semester 2 Exam	20.00%
	TOTAL	**100%**	**TOTAL**	**100%**

Within each key concept, assignments will be graded according to the following weights:

Assignment Categories	Common unit assessments (Comprehensive key concept exams; 1 per unit) (CA)	60%
	Interim Classroom assessments (Quizzes, projects; 2-3 per key concept) (IA)	30%
	Formative Assignments (Homework, In-class assignments, etc.; varies) (FA)	10%

Formative assignments are 10% in each key concept because students should not be unduly penalized for mistakes during the learning process. The grade is primarily based on mastery of standards, and mastery is demonstrated on assessments.

Course Requirements	*What must every student pass to earn credit for the course?* Students must pass every unit with at least a 1.0.
	What must every student complete to earn credit for the course? Students must complete every common unit summative assessment (five assessments for Semester 1 and five assessments for Semester 2).
	What other requirements must every student meet? Students must meet requirements as specified by their Integrated Math 2 instructor.

Students who do not meet these requirements will receive an *I* (incomplete) for the semester. If requirements are not met within three weeks after the semester, the student will earn a grade of *E*.

What will we do when students aren't learning?

Extra Help

Students who are not passing the course are expected to seek extra help. Further, any student who wants to improve his or her performance and grade is encouraged to ask for support, as well.

- *BLAST*: After school (see counselor for specific times and locations)
- *See your individual Math 2 Instructor*.

Re-do/Re-Take

Students are eligible and **expected** to re-do essays, projects, quizzes, labs and tests that do not meet or exceed standards. Daily assignments may be eligible for re-do only at the teacher's discretion. Students will be provided one opportunity for re-do on a given item, with any additional attempts at the teacher's discretion.

If not already required by the teacher, students must request a re-do within one week after receiving the graded assignment. The teacher will communicate any requirements that must be met prior to the re-do (i.e. after-school tutoring, extra practice assignments, etc.), as well as the deadline.

The maximum grade earned shall be full credit, given the original item is submitted on time with full effort. The teacher has the discretion to return any item, ungraded, that is incomplete or does not demonstrate full effort. That item will be subject to the teacher's late work policy, with the final grade reflecting any loss of credit due to late or incomplete submission.

Other than common assessments, teachers may provide an alternative assignment to demonstrate mastery.

What will we do when students have already learned it?

Students who master the standards before the end of the unit will be offered enrichment assignments or projects to extend their learning. Students who decline are expected to complete required unit assignments and assessments.

Other opportunities include: Mathletes, Math Tutoring through NHS, teacher assistance.

Procedures

- Students are expected to inquire about missed learning/assignments immediately upon return from an absence.
- Students will make up or re-take tests at the testing center, available from 8:00-8:45 on Late Start Days.
- Daily participation is expected.
- All course materials, including the link to the online text book, are available on the class web page.
- Students must be in their seats before the bell rings to begin class.
- Parents are strongly encouraged to use Skyward Family Access to be informed on students' progress. For assistance setting up a password, please contact your school and request to talk to your Parent Liaison.

    - East Campus: Parent Liaison is Jessica Ibarra-- jibbarra@jsmorton.org 708-780-4000
    - West Campus: Parent Liaison is Yadira Camacho-- ycamacho@jsmorton.org 708-780-0400
    - MAS: Parent Liaison is Linda Montejano-- lmontejano@jsmorton.org 708-222-3069

Integrated Math 2 Assessment & Grading Rubric Plan

3 Levels of Assessment		
Basic Questions	3 per target	1 point each
Proficient Questions	2 per target	3 points each
Advanced Questions	Combination of targets	10 point section
		All points are cumulative

Equal-Interval Grading Scale		
5.0	Once student has earned a 4.0, they receive a 0.1 on the interval for each point earned on the Advanced level question. If less than a 4.0, each point earned gets added to their point total (i.e. 24 points + 2 points = 26 points)	
4.0	Numerical equivalent of earning all the points from the proficient and basic level questions for each target i.e. All Basic and Proficient level questions are correct)	
3.5	Halfway point of the range between a 3.0 and 4.0. (i.e. 5 targets = 40, 4 targets = 32) *Point totals are dependent on the number of key concept targets.	
3.0	Numerical equivalent of earning all the points from the proficient level questions and one point from the basic level questions for each target.	
2.5	Halfway point of the range between 2.0 and 3.0. (i.e. 5 targets = 28 points)	
2.0	Numerical equivalent of earning all the points from the basic level questions and at least one point from each proficient level question for each target.	
1.0	Retake suggested	Numerical equivalent of missing the minimum number of points necessary to demonstrate competency for ***ONE*** target. (Enter earned grade, leave comment of "Recommended Retake")
0.0	Must retake!	Numerical equivalent of missing the minimum number of points necessary to demonstrate competency for ***MORE THAN ONE*** target. (Enter earned grade, leave comment of "Mandatory Retake")

- Students' point total places them on the interval scale.

Cut Score Table

	Number of Targets	
Grade	**4**	**5**
5.0	46 points	55 points
4.0	36 points	45 points
3.5	32 – 35 points	40 – 44 points
3.0	28 – 31 points	35 – 39 points
2.5	20 – 27 points	28 – 34 points
2.0	16 – 21 points	20 – 27 points
1.0	12 – 15 points	16– 19 points
0.0	0 – 11 points	0 – 15 points

Point Total Breakdown	
Key concept with 4 Learning Targets	**Key concept with 5 Learning Targets**
12 Basic Points 24 Proficient Points 10 Advanced Points 46 Total Points (4.0 would be 36 points)	15 Basic Points 30 Proficient Points 10 Advanced Points 55 Total Points (4.0 would be 45 points)

Integrated Math 2 Proficiency Scale

5.0	The student who earns a 5.0 in this key concept has shown high level performance. The student's work is not only clear, precise, and well-reasoned, but insightful as well. Essential terms and key concepts are mastered at *all* levels: Basic, Proficient, and Advanced. The 5.0 student consistently raises questions and issues, analyzes questions and problems clearly and precisely, clarifies key concepts competently, identifies relevant competing points of view, and reasons carefully from clearly stated premises in a subject. Problem-solving within real-world applications displays a unique level of reasoning. They construct inferences and applications that go beyond what was taught. **The student has mastered Basic and Proficient level understanding for all Learning Targets. The student displays complete understanding of Advanced tasks.**
4.0	The student who earns a 4.0 in this key concept has comprehensive thinking and performance. The student's work is, the vast majority of the time, clear, precise, and well-reasoned, and has some depth of insight. Essential terms and key concepts are learned at a level which implies mastery of all Basic- and Proficient-level standards. The 4.0 student regularly raises questions and issues, analyzes questions and problems clearly and precisely, clarifies key concepts competently, often identifies relevant competing points of view, and reasons carefully from clearly stated premises in a subject. Problem-solving within real-world applications displays thorough reasoning. **The student has mastered Basic and Proficient level understanding for all Learning Targets.**
3.0	The student who earns a 3.0 in this key concept has sound thinking and performance. The student's work is, the majority of the time, clear, precise, and well-reasoned, but does not have depth of insight. Essential terms and key concepts are learned at a level which implies comprehension of Basic-level concepts and standards. The 3.0 student often raises questions and issues, analyzes questions and problems clearly and precisely, clarifies key concepts competently, sometimes identifies relevant competing points of view, and demonstrates the beginnings of a commitment to reason carefully from clearly stated premises in a subject. Problem-solving within real-world applications displays sound reasoning. **The student can demonstrate Basic Level understanding for all Targets *and* Proficient-Level understanding in most Learning Targets in the Key Concept.**
2.0	The student who earns a 2.0 in this key concept has mixed thinking and performance. The student's work is inconsistently clear, precise, and well-reasoned. The work does not display depth of insight or even consistent competence. Essential terms and key concepts are learned at a Basic level. Problem-solving within real-world applications displays inconsistent reasoning. **The student can demonstrate Basic Level understanding for all Learning Targets in the Key Concept.**
1.0	The student who earns a 1.0 on this key concept has poor thinking and performance. The majority of the time, the student tries to get through the course by means of rote recall, attempting to acquire knowledge by memorization rather than through comprehension and understanding. The student has not developed critical thinking skills and understandings as requisite to understanding course content. A 1.0 on the key concept represents thinking that is typically unclear, imprecise, and poorly reasoned. The student has not yet achieved competence on the Basic level. Essential terms and key concepts are often incorrectly used and reflect a superficial or mistaken comprehension of basic concepts and standards. **The student can demonstrate Basic Level understanding in all but 1 Learning Target in the Key Concept.**
0.0	The student who earns a 0.0 on this key concept has tried to get through the course by means of rote recall. The student has not developed critical thinking skills and concepts as required to understanding course content. A 0.0 on the key concept represents thinking that is regularly unclear, imprecise, and poorly reasoned. The student has not yet achieved competence in his/her academic work. Essential terms and key concepts are consistently incorrect and reflect a mistaken comprehension of Basic-level concepts and standards. **The student cannot demonstrate Basic Level understanding in 1 or more Learning Targets in the Key Concept.**