Instructional Materials Evaluation Tool
Pearson Integrated High School Mathematics ©2014

The Instructional Materials Evaluation Tool (IMET) is a resource to evaluate a comprehensive textbook or textbook series for alignment to the Common Core State Standards (CCSS). In addition, the IMET can also be used to deepen a shared understanding of the criteria for CCSS-aligned classroom materials.
The IMET should be used for:

- Informing decisions about purchasing a comprehensive textbook or textbook series;
- Evaluating previously purchased materials to identify necessary modifications;
- Building the capacity of educators to better understand what CCSS-aligned textbooks look like; and,
- Informing publishers of the criteria that consumers will use to evaluate RFP responses for a comprehensive textbook or textbook series.

Each set of materials submitted for adoption will be evaluated first against four non-negotiable criteria based on the Common Core State Standards (CCSS). Materials cannot be CCSS-aligned without fully meeting all of the non-negotiable criteria. There are additional criteria as well of indicators of quality to help evaluators determine materials that are more closely aligned. Please note that this tool is designed for evaluation of comprehensive materials only (print and digital) and will not be appropriate for evaluating supplemental materials.

ALIGNMENT TO THE COMMON CORE STATE STANDARDS

Evaluators of materials should understand that at the heart of the Common Core State Standards is a substantial shift in mathematics instruction that demands the following:

1) Focus strongly where the Standards focus
2) Coherence: Think across grades and link to major topics within grade
3) Rigor: In major topics, pursue conceptual understanding, procedural skill and fluency, and application with equal intensity.

Evaluators of materials must be well versed in the Standards related to the particular course, including understanding the Widely Applicable Prerequisites1, how the content fits into the progressions in the Standards, and the expectations of the Standards with respect to conceptual understanding, fluency, and application. It is also recommended that evaluators refer to the Spring 2013 High School Publishers' Criteria for Mathematics while using this tool (achievethecore.org/publisherscriteria).

ORGANIZATION

SECTION I: NON-NEGOTIABLE ALIGNMENT CRITERIA

All submissions must meet all of the non-negotiable criteria at each course level to be aligned to CCSS and before passing on to Section II.

SECTION II: ADDITIONAL ALIGNMENT CRITERIA AND INDICATORS OF QUALITY

The criteria in this section are additional alignment requirements that should be met by materials fully aligned with CCSS. A higher score in this section indicates that instructional materials are higher quality and more closely aligned to the Standards than instructional materials that have a lower score.
Together, the non-negotiable criteria and the additional alignment criteria reflect the 8 criteria from the High School Publishers' Criteria for Mathematics. The indicators of quality are taken from the High School Publishers' Criteria as well. For more information on these elements, see achievethecore.org/publisherscriteria.

SECTION I:

Non-Negotiable 1. FOCUS IN HIGH SCHOOL: In any single course, students and teachers using the materials as designed spend the majority of their time developing knowledge and skills that are widely applicable as prerequisites for postsecondary education.

Focus in High School	True/False	Evidence
1A. In any single course, students spend at least 50% of their time on Widely Applicable Prerequisites.[1]	(T) F	Table 1 shows the lessons from each course that address the Widely Applicable Prerequisites.
1B. Student work in Geometry significantly involves applications/modeling as well as geometry applications that use algebra skills.[2]	(T) F	Throughout the program, students are expected to apply algebra skills to solve geometric measurement problems and exercises. This is particularly evident in Mathematics I, Chapter 9 and Mathematics II, Chapter 9. In both chapters, students not only connect algebra and geometry, but also engage in modeling of geometry concepts.
1C. There are problems at a level of sophistication appropriate to high school (beyond mere review of middle school topics) that involve the application of knowledge and skills from grades 6-8 including[3]: • Applying ratios and proportional relationships. • Applying percentages and unit conversions, e.g., in the context of complicated measurement problems involving quantities with derived or compound units (such as mg/mL, kg/m3, acre-feet, etc.). • Applying basic function concepts, e.g., by interpreting the features of a graph in the context of an applied problem. • Applying concepts and skills of geometric measurement e.g., when analyzing a diagram or schematic. • Applying concepts and skills of basic statistics and probability (see 6–8.SP). • Performing rational number arithmetic fluently.	(T) F	These chapters/lessons require application of middle school concepts and skills at a more sophisticated level: • Mathematics I, Chapter 1: ratio and proportional relationships, percentages and conversions, • Mathematics I, Chapter 2: basic function concepts • Mathematics I, Chapter 7: geometric measurement • Mathematics I, Chapter 6: basic statistics and probability • Mathematics I, Chapter 1: arithmetic operations with rational numbers
To be aligned to the CCSSM, materials for each grade must attend to each element of rigor and must represent the balance reflected in the Standards. All three of the T/F items above must be marked 'true' (T).'		Meet? (Y/N) Yes
Justification/Notes		

SECTION I (continued):

Non-Negotiable 2. CONSISTENT, COHERENT CONTENT: Each course's instructional materials are coherent and consistent with the content in the Standards.

CONSISTENT, COHERENT CONTENT	True/False	Evidence
2A. Giving all students extensive work with course-level problems: Review of material from previous grades and courses is clearly identified as such to the teacher, and teachers and students can see what their specific	(T) F	In each course, all students are provided with extensive work with course-level problems.

[1] For more information on the Widely Applicable Prerequisites, see Table 1 on Page 8 of the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

[2] Since the Geometry category itself contains relatively fewer Widely Applicable Prerequisites, this criterion is important to help foster students' college and career readiness.

[3] Information excerpted from Table 1 on Page 8 of the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

responsibility is for the current year.		
2B. Relating course-level concepts explicitly to prior knowledge from earlier grades and courses: The materials are designed so that prior knowledge becomes reorganized and extended to accommodate the new knowledge.	(T) F	The structure of the Integrated High School Mathematics (IHSM14) program highlights the vertical alignment of the content. The Big Ideas of the program are common among the three courses, making the connection among concepts explicit as student work through the chapters.

To be aligned to the CCSSM, materials for each course must be coherent and consistent with the content in the Standards. Both of the T/F items above must be marked 'true' (T).'	Meet? (Y/N) YES
Justification/Notes	

SECTION I (continued):

Non-Negotiable 3. RIGOR AND BALANCE: Each course's instructional materials reflect the balances in the Standards and help students meet the Standards' rigorous expectations, by helping students develop conceptual understanding, procedural skill and fluency, and application.

Aspects of Rigor	True/False	Evidence
3A. *Attention to Conceptual Understanding*: Materials develop conceptual understanding of key mathematical concepts, especially where called for in specific content standards or cluster headings.	(T) F	Table 2 indicates the High School clusters or standards that call explicitly for the initial conceptual development of key concepts and the IHSM14 lessons where that development takes place.
3B. *Attention to Procedural Skill and Fluency*: Materials give attention throughout the year to individual standards that set an expectation of procedural skill and fluency.	(T) F	Table 3 shows the HS standard that call for fluency and the lessons in IHSM14 that provides students with opportunities to develop fluency with these concepts and skills.
3C. *Attention to Applications:* Materials are designed so that teachers and students spend sufficient time working with engaging applications, without losing focus on the major work of each grade	(T) F	Problem-solving exercises are embedded within each lesson and provide a wealth of opportunities for students to work with engaging applications related to major content work.
3D. *Balance:* The three aspects of rigor are not always treated together, and are not always treated separately	(T) F	In IHSM14, conceptual understanding underpins fluency work; fluency is developed in the context of application through practice and problem solving exercises. Within each lesson, students think about and apply concepts in ways that cultivate and deepen their conceptual understanding.

To be aligned to the CCSSM, materials for each course must attend to each element of rigor and must represent the balance reflected in the Standards. All four of the T/F items above must be marked 'true' (T).'	Meet? (Y/N) YES

Justification/Notes

The five-step lesson design of *Pearson Integrated High School Mathematics ©2014* reflects the balance that the CCSSM calls for. Each lesson begins with a *Solve It!,* where students use their mathematical content knowledge and practice habits of mind to solve a rich problem. The Guided Problem Solving phase provides the opportunities for conceptual development, while the Lesson Check assesses both procedural fluency with *Do you know HOW?* exercises and conceptual understanding with *Do you UNDERSTAND*? exercises. This marriage of both procedural fluency and conceptual understanding, found in every Lesson Check, ensures that students are developing both conceptual understanding and procedural fluency. The Practice and Problem Solving exercises include rich application exercises.

SECTION I (continued):

Non-Negotiable 4. PRACTICE-CONTENT CONNECTIONS: Materials meaningfully connect the Standards for Mathematical Content and the Standards for Mathematical Practice.

Practice-Content Connections	True/False	Evidence
4A. The materials connect the Standards for Mathematical Practice and the Standards for Mathematical Content.	(T) F	The IHSM14 program has been built to incorporate the Standards for Mathematical Practice in the overall instructional design. Students have multiple opportunities to engage in the use of the Standards for Mathematical Practice. For example, in the *Solve It!*, students not only make sense of the problem presented and persevere in finding a solution; they also construct arguments and critique the reasoning of their classmates. Students also propose models that can be used to solve the problem presented. Throughout the program, students are expected to use precise and accurate language and identify appropriate units.
4B. The developer provides a description or analysis, aimed at evaluators, which shows how materials meaningfully connect the Standards for Mathematical Practice to the Standards for Mathematical Content within each applicable grade.	(T) F	The Overview and Implementation Guide offers an overview of the Standards for Mathematical Practice in the program (pp. 7–21).

To be aligned to the CCSSM, materials must connect the practice standards and content standards and the developer must provide a narrative that describes how the two sets of standards are meaningfully connected within the set of materials for each grade. Both of the T/F items above must be marked 'true' (T).	Meet? (Y/N) YES
Justification/Notes	
Materials must meet all four non-negotiable criteria listed above to be aligned to the CCSS and to continue to the evaluation in Section II.	# Met 4

SECTION II ADDITIONAL ALIGNMENT CRITERIA AND INDICATORS OF QUALITY

Materials must meet all four non-negotiable criteria listed above to be aligned to the CCSS and to continue to the evaluation in Section II.

Section II includes additional criteria for alignment to the Standards as well as indicators of quality. Indicators of quality are scored differently from the other criteria: a higher score in Section II indicates that materials are more closely aligned. Instructional materials evaluated against the criteria in Section II will be rated on the following scale:

- 2 – (meets criteria): A score of 2 means that the materials meet the full intention of the criterion in all grades.
- 1 – (partially meets criteria): A score of 1 means that the materials meet the full intention of the criterion for some grades or meets the criterion in many aspects but not the full intent of the criterion.
- 0 – (does not meet criteria): A score of 0 means that the materials do not meet many aspects of the criterion.

For Section II parts A, B, and C, districts should determine the minimum number of points required for approval. Before evaluation, please review sections A – C, decide the minimum score according to the needs of your district, and write in the number for each section.

II(A) Alignment Criteria for Standards for Mathematical Content	Score	Justification/Notes
1. Materials are consistent with the content in the Standards. Materials base courses on the content specified in the Standards.	(2) 1 0	The IHSM14 program was built to align fully to the High School Standards. The PARCC Model Content Framework was an important source document for the scope and sequence of each course.
2. Materials foster coherence through connections in a single course, where appropriate and where required by the Standards.		
2A. Materials include learning objectives that are visibly shaped by CCSSM cluster and domain headings.	(2) 1 0	The learning objectives throughout the program and the instruction that aligns to those objectives are shaped by CCSSM cluster headings. As an example, Table 3 shows the Learning Objectives from Mathematics I, Chapter 4. The language of the objectives has been clearly shaped by the CCSSM clusters.
2B. Materials include problems and activities that serve to connect two or more clusters in a domain, or two or more domains in a category, or two or more categories, in cases where these connections are natural and important.	(2) 1 0	The Pacing Guide for each course, found in the Teacher's Edition front matter, highlights the interconnectedness between the domains and clusters throughout the program. As an example, Table 4 shows all of the standards addressed in the lessons in Mathematics II, Chapter 12, *Quadratic Functions and Equations.*
2C. Materials preserve the focus, coherence, and rigor of the Standards even when targeting specific objectives.	(2) 1 0	Each lesson maintains the same lesson structure, helping to preserve the focus, coherence and rigor of the standards. Further, the organization and sequencing of topics are intentionally structured to promote focus, coherence, and rigor.
MUST HAVE ----- POINTS IN SECTION II(A) FOR APPROVAL		Score 8

SECTION II ADDITIONAL ALIGNMENT CRITERIA AND INDICATORS OF QUALITY

II(B) Alignment Criteria for Standards for Mathematical Practice	Score	Justification/Notes
3. Focus and Coherence via Practice Standards: Materials promote focus and coherence by connecting practice standards with content that is emphasized in the Standards.	(2) 1 0	The lesson structure of IHSM14 promotes the connection between the Math Practices and the content emphasized in the Standards. The *Solve It!* offers students daily opportunities to engage in many of the practices and

II(B) Alignment Criteria for Standards for Mathematical Practice	Score	Justification/Notes
		habits of mind that the Math Practices promote: problem-solving, reasoning abstractly, modeling problem situations with mathematics, developing arguments to support one's reasoning, communicating with precision.
4. Careful Attention to Each Practice Standard: Materials attend to the full meaning of each practice standard.	(2) 1 0	In developing the instructional design of *IHSM14*, the authorship team looked to implement a metacognitive strand in the program that would model for students the thinking and habits of mind of mathematicians. This reasoning strand embraces the habits of mind that the Standards for Mathematical Practices calls for. See, for example, the *Think, Plan* boxes found throughout every lesson.
5. Emphasis on Mathematical Reasoning: Materials support the Standards' emphasis on mathematical reasoning by:		
5A. Materials prompt students to construct viable arguments and critique the arguments of others concerning key grade-level mathematics that is detailed in the content standards (cf. MP.3).	(2) 1 0	Throughout the program, students are asked to explain their solutions and the thinking that led them to these solutions. Students present solution strategies, defend them, and draw comparisons to other strategies by utilizing interactive presentation tools. *Solve It!* activities always ask students to justify their conclusions or explain their reasoning. *Error Analysis* and *Reasoning* exercises ask students to argue for or against a statement.
5B. Materials engage students in problem solving as a form of argument.	(2) 1 0	As noted above, the *Solve It!* activities engage students in mathematical argumentation as they solve the problem presented.
5C. Materials explicitly attend to the specialized language of mathematics.	(2) 1 0	Key math terms are set in bold face in the printed Student Editions and then collected in the Visual Glossary found as an appendix in each course. In addition, the digital glossary found on PearsonSuccessNet.com gives students ready access to pronunciation and Spanish translations as well as definitions with supporting visuals. Additionally, lessons include *Take Note* boxes that summarize key concepts and terms.
MUST HAVE ----- POINTS IN SECTION II(B) FOR APPROVAL		Score 10

SECTION II ADDITIONAL ALIGNMENT CRITERIA AND INDICATORS OF QUALITY

II(C) Indicators of Quality	Score	Justification/Notes
6. Materials support the uses of technology as called for in the Standards.	(2) 1 0	In addition to a very robust digital courseware, the program infuses technology throughout the program. Both the digital math tools and the dynamic activities offer students experiences with interactive technology tools. Within the program, students regularly encounter Technology Labs, activities that students complete using different technology tools.
7. The underlying design of the materials distinguishes between problems and exercises. In essence the difference is that in solving	(2) 1 0	The lesson structure clearly distinguishes between problems and exercises. The Guided Problem Solving phase consists of problems that provide the

II(C) Indicators of Quality		Score			Justification/Notes
	problems, students learn new mathematics, whereas in working exercises, students apply what they have already learned to build mastery. Each problem or exercise has a purpose.				instructional focus for the lesson. The Practice and Problem Solving exercises are designed to provide students with opportunities to apply concepts and skills presented in the Guided Problem Solving phase.
8.	Design of assignments is not haphazard: exercises are given in intentional sequences.	(2)	1	0	The sequencing of lessons and topics is based on the careful planning and expert advice of the IHSM14 authors. The exercises for these lessons are also structured intentionally to provide individual students with ability-appropriate practice.
9.	There is variety in the pacing and grain size of content coverage.	(2)	1	0	The number of days devoted to each cluster varies depending on the grain size and content coverage of the cluster.
10.	There is variety in what students produce. For example, students are asked to produce answers and solutions, but also, in a grade-appropriate way, arguments and explanations, diagrams, mathematical models, etc.	(2)	1	0	Throughout the program, students encounter different kinds of activities and exercises that require different outputs. Students are regularly expected to develop mathematical models to describe problems situations.
11.	Lessons are thoughtfully structured and support the teacher in leading the class through the learning paths at hand, with active participation by all students in their own learning and in the learning of their classmates.	(2)	1	0	The lesson structure was designed to maximize student engagement in either a print or digital environment. It encourages student participation throughout the instructional process. The *Solve It!* activity was specifically designed to encourage students' active participation in the learning process. In addition, students encounter opportunities for hands-on activities in many of the Lab activities.
12.	There are separate teacher materials that support and reward teacher study including, but not limited to: discussion of the mathematics of the units and the mathematical point of each lesson as it relates to the organizing concepts of the unit, discussion on student ways of thinking and anticipating a variety of students responses, guidance on lesson flow, guidance on questions that prompt students thinking, and discussion of desired mathematical behaviors being elicited among students.	(2)	1	0	Each chapter includes two pages of Math Background that explains the mathematics of the chapter. At the lesson level, the Preparing to Teach and Math Background features situates the mathematics content within a progression of learning.
13.	Manipulatives are faithful representations of the mathematical objects they represent.	(2)	1	0	The program has a suite of 5 digital math tools that students can use to solve problems. These include a graphing utility, number line tool, algebra tiles, 2D Geometry Constructor and 3D Geometry Constructor.
14.	Manipulatives are connected to written methods.	(2)	1	0	When appropriate, the digital math tools include the option for showing the equation or expression that matches the pictorial representation.
15.	Materials are carefully reviewed by qualified individuals, whose names are listed, in an effort to ensure freedom from mathematical errors and grade-level appropriateness.	(2)	1	0	Among the *Integrated High School Mathematics* authorship team are well-respected members of the mathematics education community and active participants in the NCTM and NCSM community:

II(C) Indicators of Quality	Score	Justification/Notes
		Randall Charles, a well-known and well-respected author of many mathematics programs and professional development books, is the lead author on the program. The reviewers, listed in the front matter of each course, include well-respected mathematicians and mathematics curriculum developers and district supervisors.
16. The visual design isn't distracting or chaotic, but supports students in engaging thoughtfully with the subject.	(2) 1 0	The visual design helps students to focus on the mathematics of the lesson. The design is engaging and interactive while free from distracting colors or images. The use of avatars in specific locations throughout the courses also helps to engage students.
17. Support for English Language Learners and other special populations is thoughtful and helps those students meet the same standards as all other students. The language in which problems are posed is carefully considered.	(2) 1 0	One of the foundational design principles of the program is visual learning, which has led to a highly visual design of the program. This visual focus is particularly helpful to English Language Learners as they look to understand the language of the problem. Additional support for ELLs includes ELL Support, Additional Vocabulary Support and Reteaching activities for each lesson.
MUST HAVE ----- POINTS IN SECTION II(C) FOR APPROVAL		Score 24

FINAL EVALUATION

SECTION	PASS/FAIL	Final Justification/Notes
Section 1		
Section II(A)		
Section II(B)		
Section II(C)		
FINAL DECISION FOR THIS MATERIAL		PURCHASE? Y/N

Table 1. Content From CCSSM Widely Applicable as Prerequisites for a Range of College Majors, Postsecondary Programs and Careers

High School Clusters and Standard	*Pearson Integrated High School Mathematics ©2014*	
Number and Quantity		
N-RN.A & N-RN.B	Mathematics II:	8-1, 8-2, 8-3, 8-4, Activity Lab for 8-4
N-Q.A	Mathematics I: Mathematics II: Mathematics III:	1-4, 1-5, 1-6, 2-4, 3-5, 4-4, 6-1, 6-2, 6-3, 6-4, 9-1 1-1, 3-1, 3-2, 4-1 1-1, 4-3, 4-4, 4-9, 5-3, 5-7, 6-6, 7-1, 7-5, 8-5, 11-1
Algebra		
A-SSE.A & A-SSE.B	Mathematics I: Mathematics II: Mathematics III:	1-1, 1-9, 2-5, 2-7, 3-3, 3-4, 5-1, 5-2, 5-4, 5-6, 5-8 7-5, 11-5, 11-6, 11-7, 11-8, 12-1, 12-2, 12-5, 12-6, 12-7, 12-9, 14-1 3-3, 3-4, 3-5, 4-1, 4-2, 4-3, 4-6, 4-7, 4-8, 5-1, 5-2, 5-3, 5-7, 6-1, 6-2, 6-3, 6-4, 7-2, 7-4, 9-6
A-APR.A, A-APR.B, A-APR.C, A-APR.D	Mathematics II: Mathematics III:	11-1, 11-2, 11-3, 11-4 3-4, 4-2, 4-3, 4-4, 4-5, 4-6, 4-7, 4-8, 5-1, 5-2, 5-3
A-CED.A	Mathematics I: Mathematics II: Mathematics III:	1-2, 1-3, 1-4, 1-6, 1-7, 1-8, 1-9, 2-2, 2-3, 2-5, 3-2, 3-3, 3-4, 3-5, 3-6, 4-1, 4-2, 4-3, 4-4, 4-5, 4-6, 5-2, 5-4, 5-5 12-1, 12-2, 12-4, 12-5, 12-6, 12-7 2-1, 2-2, 2-3, 2-7, 3-1, 3-2, 3-4, 3-5, 3-6, 3-7, 4-3, 4-9, 5-4, 5-5, 5-6, 6-5, 6-8, 7-1, 7-2, 7-5
A-REI.A, A-REI.B, A-REI.C A-REI.D	Mathematics I: Mathematics II: Mathematics III:	1-2, 1-3, 1-4, 1-6, 1-7, 1-8, 2-4, 4-1, 4-2, 4-3, 4-4, 4-5, 4-6, 5-2, 5-5, 12-4, 12-5, 12-6, 12-7, 12-8 12-4, 12-5, 12-6, 12-7, 12-8, 12-10 3-7, 5-7, 6-5
Functions		
F-IF.A, F-IF.B, F-IF.C	Mathematics I: Mathematics II: Mathematics III:	2-1, 2-2, 2-3, 2-4, 2-6, 2-7, 3-1, 3-3, 3-4, 3-5, 3-6, 3-7, 5-2, 5-3, 5-4, 5-6, 5-9 12-1, 12-2, 12-3, 12-4, 12-5, 12-6, 12-9, 14-3 2-3, 2-5, 3-1, 3-2, 3-3, 3-4, 4-1, 4-3, 4-9, 4-10, 5-4, 5-5, 5-6, 6-8, 7-1, 7-2, 7-3, 7-5, 8-1, 8-4, 8-5, 8-6, 8-8
F-BF.A.1	Mathematics I: Mathematics II: Mathematics III:	2-5, 2-7, 3-3, 3-4, 3-5, 5-4, 5-6, 5-7 12-2, 12-3, 12-9 3-1, 3-2, 4-3, 5-5, 5-6, 6-6, 7-2, 7-3, 9-1, 9-2, 9-3, 9-4
F-LE.A.1	Mathematics I:	3-1, 3-3, 3-4, 3-5, 3-6, 5-3, 5-4
Geometry		
G-CO.A.1	Mathematics I: Mathematics II:	7-2, 7-3, 7-4, 7-5 1-1, 2-1
G-CO.C.9 & G-CO.C.10	Mathematics II:	1-7, 2-2, 2-3, 2-4, 2-5, 3-5, 3-6, 3-7, 4-1, 4-2, 4-3, 4-4, 4-5, 4-6, 4-7, 5-1, 5-6, 5-7, 5-8
G-SRT.B	Mathematics II:	3-2, 3-3, 3-4, 3-5, 3-6, 3-7, 4-1, 4-2, 4-4, 5-1, 5-2, 5-4, 5-5, 5-6, 6-2, 6-3, 6-4, 6-5, 7-1
G-SRT.C	Mathematics II:	7-1, 7-2, 7-3, 7-4
Statistics and Probability		
S-ID.A.2	Mathematics I:	6-2, 6-3

High School Clusters and Standard	*Pearson Integrated High School Mathematics ©2014*
S-ID.C.7	Mathematics I: 6-4
S-IC.A.1	Mathematics III: 1-3

Table 2 Conceptual Development Standards

High School Clusters and Standard		*Pearson IHSM c2014*
A-APR.A.1	Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.	Mathematics II: 11-1, 11-2, 11-3, 11-4 Mathematics III: 4-2
A-APR.B	Understand the relationship between zeros and factors of polynomials	Mathematics III: 3-4, 4-3, 4-5, 4-6, 4-7
A-REI.A	Understand solving equations as a process of reasoning and explain the reasoning	Mathematics I: 1-2, 1-3, 1-4 Mathematics II: 12-4, 12-5, 12-6, 12-7 Mathematics III: 5-7
A-REI.D.10	Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which	Mathematics I: 2-4, 5-2
F-IF.A.1	Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If *f* is a function and *x* is an element of its domain, then *f*(*x*) denotes the output of *f*. corresponding to the input x. The graph	Mathematics I: 2-6, 5-2
F-TF.A.1	Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.	Mathematics III: 8-3
G-CO-B	Understand congruence in terms of rigid motions	Mathematics II: 3-8
G-SRT.A	Understand similarity in terms of similarity transformations	Mathematics II: 6-6, 6-7
G-SRT.C.6	Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.	Mathematics II: Technology Lab for 7-3
G-C.A	Understand and apply theorems about circles	Mathematics II: 8-
S-IC.A.1	Understand statistics as a process for making inferences about population parameters based on a random sample from that population	Mathematics III: 1-3
S-CP.A.2	Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.	Mathematics II: 13-1, 13-3
S-CP.A.3	Understand the conditional probability of A given B as P(A and B)/P(B), and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the	Mathematics II: 13-6

Table 3 Fluency Standards

High School Clusters and Standard		*Pearson IHSM* c2014
A/G	Solving characteristic problems involving the analytic geometry of lines, such as writing down the equation of a line given a point and a slope.	Mathematics I: 3-3, 3-4, 3-5, 3-6, 3-7
A-APR.A.1	Fluency in adding, subtracting, and multiplying polynomials	Mathematics II: 11-1, 11-2, 11-3, 11-4 Mathematics III: 4-2
A-SSE.A.1b	Fluency in transforming expressions and chunking (seeing parts of an expression as a single object)	Mathematics I: 1-9, 2-7, 5-8 Mathematics II: 7-5, 11-5, 11-6, 11-7, 11-8, 12-6, 12-7 Mathematics III: 4-4, 5-1, 5-5, 5-6, 7-1, 7-2, 7-3
G-SRT.B.5	Fluency with the triangle congruence and similarity criteria	Mathematics II: 3-2, 3-3, 3-4, 3-5, 3-6, 3-7, 4-1, 4-2, 4-4, 5-1, 5-2, 5-4, 5-5 5-6, 6-2, 6-3, 6-4
G-GPE.B.4, G-GPE.B.5, G-GPE.B.7	Fluency with the use of coordinates	Mathematics I: 9-1, 9-2 Mathematics II: 11-1, 11-4, 12-11, 12-12
G-CO.D.12	Fluency with the use of construction tools, physical and computational	Mathematics II: 5-2, 5-3, 5-4, 5-5, 5-7, 5-8 Mathematics III: 2-3
A-APR.D.6	Fluency with dividing polynomials with remainder by inspection in simple cases.	Mathematics III: 4-5, 5-1
A-SSE.A.2	See structure in expressions and use this structure to rewrite expressions	Mathematics II: 11-5, 11-6, 11-7, 11-8 Mathematics III: 3-3, 3-5, 4-2, 4-3, 4-6, 4-7, 4-8, 5-1, 5-2, 5-4, 5-6, 5-7, 6-1, 6-2, 6-3, 6-4, 7-4
F-IF.A.3	Fluency in translating between recursive definitions and closed forms	Mathematics I: 2-7, 5-6

Table 4 – Learning Objectives

Lesson	Lesson Objective	Clusters	Standard
4-1: Solving Systems by Graphing	To solve systems of equations by graphing To analyze special systems	A-REI.C Solve systems of equations.	A-REI.C.6
4-2 Solving Systems using Substitution	To solve systems of equations using substitution	A-REI.C Solve systems of equations.	A-REI.C.6
4-3 Solving Systems using Elimination	To solve systems by adding or subtracting to eliminate a variable	A-REI.C Solve systems of equations.	A-REI.C.5
4-4 Application of Linear Systems	To choose the best method for solving a system of linear equations	A-CED.A Create equations that describe numbers or relationships	A-CED.A.3
4-5 Linear Inequalities	To graph linear inequalities in two variables To use linear inequalities when modeling real-world situations	A-REI.D Represent and solve equations and inequalities graphically.	A-REI.4.12
4-6 Systems of Linear Inequalities	To solve systems of linear inequalities by graphing To model real-world situations using systems of linear inequalities	A-REI.D Represent and solve equations and inequalities graphically.	A-REI.4.12

Table 5 – Connections Among Domains and Clusters

Mathematics II, Chapter 12 Quadratics		Standards Addressed
12-1	Quadratic Graphs and Their Properties	A-CED.A.2, F-IF.B.4, F-IF.B.5, F-IF.C.7a, F-BF.B.3
12-2	Quadratic Functions	F-IF.C.7a, F-IF.C.9, F-BF.A.1, F-BF.B.3
12-3	Modeling with Quadratic Functions	N-Q.A.2, F-IF.B.4, F-IF.B.5, S-ID.B.6a
12-4	Solving Quadratic Equations	A-CED.A.1, A-REI.B.4.b, F-IF.C.7a
12-5	Factoring to Solve Quadratic Equations	A-SSE.B.3.a, A-CED.A.1, A-REI.B.4b, F-IF.C.8a
12-6	Completing the Square	A-SSE.B.3.b, A-REI.B.4a, A-REI.B.4b, F-IF.C.8a
12-7	The Quadratic Formula and the Discriminant	A-CED.A.1, A-REI.B.4a, A-REI.B.4b
12-8	Complex Numbers	N-CN.A.1, N-CN.A.2, N-CN.A.3, N-CN.C.7, A-REI.B.4b
12-9	Linear, Quadratic, and Exponential Models	F-IF.B.4, F-BF.A.1b, F-LE.A.1a, F-LE.A.2, F-LE.A.3, S-ID.B.6a
12-10	Systems of Linear and Quadratic Equations	A-CED.A.3, A-REI.C.7, A-REI.D.11
12-11	A New Look at Parabolas	G-GPE.A.2, G-GPE.B.4
12-12	Circles in the Coordinate Plane	G-GPE.A.1, G-GPE.B.4