

BEd Kindergarten and Elementary Education
EDEE-332 Teaching Elementary Mathematics 2
 (3 credits)

Winter 2018
 Location: Room 436 (Math Lab)

<p style="text-align: center;">EDEE 332-001 Mon 8:35 AM – 11:25 AM Thurs 8:35 AM – 11:25 AM</p> <p style="text-align: center;">Marta Kobiela, Ph.D. Assistant Professor Office: 248B Education Phone: 514-398-4527 Ext. 00367 marta.kobiela@mcgill.ca</p> <p style="text-align: center;">Office hours: By appointment. Email is the best way to contact me.</p>	<p style="text-align: center;">EDEE 332-002 Mon 2:35 PM – 5:25 PM Thurs 2:35 PM – 5:25 PM</p> <p style="text-align: center;">Marta Kobiela, Ph.D. Assistant Professor Office: 248B Education Phone: 514-398-4527 Ext. 00367 marta.kobiela@mcgill.ca</p> <p style="text-align: center;">Office hours: By appointment. Email is the best way to contact me.</p>
<p style="text-align: center;">EDEE 332-003 (Bilingual) Tues 8:35 AM – 11:25 AM Fri 8:35 AM – 11:25 AM</p> <p style="text-align: center;">Annie Savard, Ph.D. Associate Professor Office: 309 Education Phone: 514-398-4527 Ext. 094455 annie.savard@mcgill.ca</p> <p style="text-align: center;">Office hours: By appointment. Email is the best way to contact me.</p>	<p style="text-align: center;">EDEE 332-004 Tues 2:35 PM – 5:25 PM Fri 2:35 PM – 5:25 PM</p> <p style="text-align: center;">Dominic Manuel, Ph.D. Candidate Course Lecturer Office: 424 Education dominic.manuel@mcgill.ca</p> <p style="text-align: center;">Office hours: By appointment. Email is the best way to contact me.</p>
<p>For All Sections: Teaching Assistant (TBD)</p> <p><i>The Teaching Assistant (T.A.) role will be to help lead our in-class rehearsals. Each time we have rehearsals, we will split the class. Half will rehearse with the instructor and half with the T.A. All emails should be directed to your instructor and not the T.A. The T.A. will be asked to attend each section at least once and will meet with the instructors to develop a sense of what you will be learning. Because the T.A. is reimbursed for a limited amount of hours, it is not feasible for him/her to attend all the sections each week. The T.A. will not be responsible for any grading.</i></p>	

Syllabus

1. Purposes of the Course

This course is a required course in the Bachelor of Education (kindergarten and elementary) program. It is the second course in a two-course sequence designed to help you learn to teach mathematics. One primary goal of this course is to deepen your knowledge of mathematics necessary for teaching

(specifically in the domains of measurement, geometry, probability and statistics). The course features an investigative approach to mathematics with opportunities to explore the conceptual underpinnings of the focal mathematical ideas typically encountered in elementary education (K-6). Our goals are to support you to deepen your own mathematical understanding in these domains while providing you with insight into how children tend to learn big mathematical ideas over time: what strategies they typically use, what they find challenging, and why.

A second primary goal of this course is to continue to develop your competency in specific teaching practices that are likely to support students to develop deep and enduring understandings of mathematics as well as productive dispositions toward mathematics. In this course, we will specifically focus on learning how to orchestrate three kinds of whole class discussions that advance students' thinking: comparing students' solutions to a complex task, problematizing students' ideas, and supporting students to create and refine mathematical definitions. Through this work, we will continue to work on the principles and practices of high-quality teaching. You will engage in one cycle of enactment and investigation, in which you will practice implementing an instructional activity focused on one of the types of discussions listed above in front of your course instructor and peers, receive feedback, revise your instruction, implement and audio or video-record the same activity with students outside of class time, and analyze your performance. We will also analyze artifacts (video and written cases) of teaching, focusing on the role of mathematical tasks, tools, and the teacher in developing students' mathematical proficiency.

2. Professional Competencies & Principles and Practices of High-Quality Teaching

The course is designed to help you to develop the following **professional competencies** specified by the Ministère de l'Éducation et de l'Enseignement supérieur (numbers 1, 3, 4, 5, 11, & 12).

➤ **Professional Competency 1**

To act as a professional inheritor, critic, and interpreter of knowledge or culture when teaching students. *Through all of our coursework, you will develop an understanding of key mathematical ideas and benchmarks of students' understandings (specific to measurement, geometry, statistics, and probability); you will develop a critical approach to the discipline of mathematics (i.e., you will develop a stance on what counts as "understanding" mathematics); and you will deliberate on the teacher's role in supporting students' understandings of mathematics. This will be assessed through all of the formal evaluations (see Evaluation).*

➤ **Professional Competency 3**

To develop teaching/learning situations that are appropriate to the students concerned and the subject content with a view to developing the competencies targeted in the programs of study. *This will be assessed through the Cognitive Demand Task Assignment (see Evaluation).*

➤ **Professional Competency 4**

To pilot teaching/learning situations that are appropriate to the students concerned and to the subject content with a view to developing the competencies targeted in the program of study. *Through the Cycle of Enactment and Investigation (see Evaluation), you will focus on specific practices of high-quality teaching.*

➤ **Professional Competency 5**

To evaluate student progress in learning the subject content and mastering the related competencies. *Through our coursework, the Take Home Exam, the Flexible Interview Focused on Measurement, and the Cycle of Enactment and Investigation (see Evaluation), you will learn to assess students' mathematical understandings in terms of their sophistication. In addition, you will learn to use the Frameworks for the Evaluation of Learning in the QEP (focusing in particular on Competency 2).*

➤ **Professional Competency 11**

To engage in professional development individually and with others. *Throughout all the activities in the course, you will be expected to reflect on and assess your development as a mathematics teacher and identify areas and specific steps for improvement. You also will be expected to discuss your pedagogical choices with your instructor and colleagues, and work collaboratively with your peers and instructor to improve your practice.*

➤ **Professional Competency 12**

To demonstrate ethical and responsible professional behaviour in the performance of his or her duties. *Throughout all the activities in the course, including the Evaluation activities (e.g., Flexible Interview, Cycle of Enactment and Investigation) you are expected to act responsibly and professionally.*

In developing these competencies, we will take as a guide the following **principles** of high-quality teaching. We will be working on developing your proficiency in the following **practices** of high-quality teaching throughout this course.

Principles of High-Quality Teaching¹	Cross-Disciplinary Practices of High-Quality Teaching
<ul style="list-style-type: none"> • Children are sensemakers. • Ambitious instruction requires clear instructional goals. • Teachers must know their students as individuals and as learners. • Teachers must design instruction and a learning environment that supports <i>all</i> children to do rigorous academic work in school and to have equitable access to learning. • Teachers must be responsive to the requirements of the school environment. At the same time, teachers should consider why schools function as they do and how schools might improve. 	<ul style="list-style-type: none"> • Teaching toward an instructional goal • Eliciting and responding to student thinking <ul style="list-style-type: none"> ○ Pressing on student thinking ○ Revoicing student thinking • Orienting students to each other's ideas • Positioning students competently • Establishing and maintaining expectations for student participation • Representing student thinking and key ideas • Using a public record of student thinking

¹ We have borrowed (and in some cases, adapted) these principles and practices from the Learning Teaching in, from, and for Practice Project (<http://www.teachingworks.org>).

Principes d'enseignement de haute qualité	Pratiques enseignantes transdisciplinaires de haute qualité
<ul style="list-style-type: none"> • Les enfants sont des constructeurs de sens. • Un enseignement ambitieux nécessite des intentions d'apprentissage claires. • Les enseignants.es doivent connaître leurs élèves à la fois comme des individus et des apprenants. • Les enseignants.es doivent concevoir des situations d'apprentissage pour tous les élèves afin que ceux-ci puissent faire un travail académique rigoureux à l'école et avoir un accès équitable à l'apprentissage. • Les enseignants.es doivent être réceptifs.ves aux besoins du milieu. 	<ul style="list-style-type: none"> • Enseigner en fonction des intentions d'apprentissage. • Solliciter le raisonnement des élèves et y répondre : <ul style="list-style-type: none"> ○ Creuser l'idée de l'élève. ○ Redire l'idée de l'élève. • Orienter les idées des élèves envers les idées des autres élèves et selon les intentions d'apprentissage. • Positionner les élèves de façon compétente. • Établir et maintenir des attentes pour la participation des élèves. • Représenter les concepts et les stratégies/raisonnements mathématiques des élèves. • Utiliser un registre des idées des élèves.

3. Course Preparation, Participation, and Attendance

Course Preparation. This class is designed to be a *learning community*, in which each of you will be supported to develop understandings and practices central to high-quality mathematics teaching. As such, it requires effort on the part of all involved. Your participation is important not only for your own learning but also for the learning of others. One aspect of participating in a learning community is **preparing ahead of time**. You are expected to complete the readings and class assignments prior to each class. We will provide you with **guiding reading questions** prior to each week's readings. Although we will not collect written responses to the questions, we expect that you will have thought carefully through your responses (and questions you may have), and thus, will be in a position to contribute to class discussions. In addition, we will periodically assign mathematical problems for you to complete ahead of class and/or students' thinking to analyze. We expect that you will bring written documentation of your attempts at solving the problem and/or analysis of students' solutions. We will discuss your work in class.

Participation. A second aspect of participating in a learning community entails your **engagement** in our class activities and discussions. Class sessions will consist of three main types of activities: doing mathematics together, teaching rehearsals, and discussions of readings/video/activities. Your full participation in all activities is essential for our class to learn more deeply together. **If you find you are struggling with a particular concept or would like additional challenge, we expect that you will let us know so that we can set up a time to work together.** Over the course of the semester, each of you will be expected to make your mathematics work and your teaching public. It is important that we, as a group, create an environment in which it is comfortable to share our mathematics and teaching. We will work together to learn how to effectively communicate with and support one another by listening generously and patiently and speaking sensitively and honestly. One important aspect of both doing mathematics and teaching mathematics is communicating your mathematical thinking through writing

and representations (e.g., drawings, diagrams). Because of this, we strongly encourage you to have a **notebook** in which you can record your thinking and practice representing during class.

Attendance. Attendance is important. Students are expected to arrive on time, remain for the full class period and actively participate. Attendance requirements are in keeping with the Ministry of Education's Core Professional Competencies #11 and #12 (to engage in professional development individually and with others and to demonstrate ethical and responsible professional behaviour in the performance of his or her duties). **If for some reason you cannot attend a class session, you are expected to contact your instructor as soon as possible (preferably before, if you know ahead of time you will miss a session).** Your instructor will confer with you on whether and how you can make up the work you have missed.

Late Assignments. We reserve the right to penalize late work unless you have discussed it with us at least 48 hours ahead of time. If a previous arrangement has not been made, your grade may be lowered by 10% for each day it is late (including weekend days).

Note on the Classroom Etiquette. In keeping with the professional culture of teaching and learning, the Faculty of Education community believes that our teaching and learning spaces should model such professional environments. As a community, we are committed to creating authentic opportunities where understanding of teaching and learning is co-constructed between instructors and students. In order for us to create these learning environments, we are expected to demonstrate awareness of, respect for and commitment to the behaviours and actions of professionals. As members of the Faculty of Education community, we are expected to be accountable to ourselves and others and to be engaged, collegial and accessible. By doing so, we are more fully able to share together in the types of critical dialogue, creative thinking and reflective practice expected of professionals.

We urge you not to use your laptop (or other mobile devices) during class activities when it is not necessary for the activity. Given the course's focus on doing mathematics, discussion, rehearsals of teaching, and reflection, the use of laptops in class tends to be more of a distraction than a useful pedagogical tool. If you must use your laptop for note taking please let your instructor know.

4. Sections

There are several sections of this course. Please note that you are **not** permitted to attend any section other than the one in which you are registered.

5. Required Readings

Small, M. (2017). **Making Math Meaningful.** Third Edition. Nelson Education.

***This is the same text you used in EDEE 230. Three (3) copies are on reserve in the Education Library.*

The following are posted on myCourses:

Framework for the Evaluation of Learning, Mathematics, Elementary School. (2010).
Gouvernement du Québec, Ministère de l'Éducation.

Jackson, K., Shahan, E., Gibbons, L., & Cobb, P. (2012). Launching complex tasks. *Mathematics Teaching in the Middle School*, 18(1), 24-29.

Québec Education Program **Progression of learning** in Elementary School: Mathematics.

(2009). Gouvernement du Québec, Ministère de l'Éducation. You can download it at:

http://www.mels.gouv.qc.ca/progression/index_en.asp

Under "Subject-specific Programs," click on "Mathematics." Then you can click on the mathematics domain in which you are interested (e.g., Arithmetic).

Smith, M. S., Hughes, E. K., Engle, R. A., & Stein, M. K. (2009). Orchestrating discussions. *Mathematics Teaching in the Middle School*, 14(9), 548-556.

Stein, M. K. (Ed.). (2000). *Implementing standards-based mathematics instruction: A casebook for professional development.* Teachers College Press. [Ch. 1 – Analyzing Mathematics Instructional Tasks, p. 1-9].

6. Recommended Readings

Chapin, S. H. & Johnson, A. (2006). ***Math Matters: Understanding the Math You Teach.*** Sausalito, CA: Math Solutions Publications.

*This book offers in-depth discussion of key mathematical ideas. It is available **online** (as an e-book) in the McGill University Library. Three (3) copies are on reserve in the Education Library. It is also available in the McGill Bookstore for purchase.*

Great Source Publications. (2003). ***Math on Call: A Mathematics Handbook.***

This book serves as a quick reference guide for mathematics. It is available in the McGill Bookstore for purchase.

Keiser, J. M. (2000). The role of definition. *Mathematics Teaching in the Middle School*, 5(8), 506-511.

Lampert, M. (2001). *Teaching problems and the problems of teaching.* New Haven, CT: Yale University Press. [Ch. 4, Teaching to Establish a Classroom Culture (pp.51 – 100).]

Québec Education Program Approved version. Preschool Education, Elementary Education. (2001).

Gouvernement du Québec, Ministère de l'Éducation. You can download it at:

http://www.mels.gouv.qc.ca/DGFJ/dp/programme_de_formation/primaire/educprg2001h.htm

Scales of Competency Levels. Elementary Education. (2009) Gouvernement du Québec, Ministère de l'Éducation. You can download it at:

<http://www.mels.gouv.qc.ca/sections/publications/index.asp?page=fiche&id=878>

Common Core practices in Mathematics : <http://www.corestandards.org/Math/Practice/>

Additional supplementary links and readings are provided on myCourses.

7. Evaluation

The evaluation of your professional competencies will be based on the following assessment situations: a Cognitive Demand of Tasks assignment, a Flexible Interview of Child Focused on Measurement, a Take Home Exam on Measurement, Statistics, & Probability, and a Cycle of Enactment and Investigation/ E-Portfolio focused on Orchestrating a Whole-Class Discussion. Each of these assessment situations is designed to develop and assess certain professional competencies specified by the Ministère de l'Éducation et de l'Enseignement supérieur (numbers 1, 3, 4, 5, & 11).

1) Cognitive Demand of Tasks (15%)

Due Week 4 – Day 1. Specific dates vary depending on your section. See the Schedule of Course Activities for more information.

The goal of this assignment is to help you develop your ability to adapt mathematics tasks to increase the cognitive demand for students and thus increase their opportunities to engage in rich and varied mathematical thinking. In groups of 2-3, you will locate a low cognitive demand mathematics task, revise it to be of high cognitive demand, and write a brief reflection on your revised task. In designing your task, you will become exposed to professional resources, namely professional journals for teaching mathematics. As part of the assignment, you will share your revised task on a site for our elementary mathematics professional learning community. Detailed information for this assignment will be provided to you in class. This assignment aims at developing and evaluating your performance with respect to Professional Competency 3.

2) Flexible Interview of Child Focused on Measurement (15%)

Individual Portion due Week 6 – Day 1; In Class Portion to be completed during the last day of class - dates vary depending on your section. See the Schedule of Course Activities for more information.

The goals of this assignment are for you to continue to develop: a) your skills in eliciting what students are thinking and how they are making sense of features of units; and b) your “mathematical knowledge for teaching,” or in other words, your ability to analyze students’ thinking to determine the nature of their current understandings. There are two parts to this assignment. The first part will be conducted individually. You will interview a child using a measurement protocol that is provided and create a pamphlet to showcase the child’s responses. The second part will be conducted with a group during the last day of class. With your group, you will analyze the students’ responses and prepare a response to a set of prompts. This assignment aims at developing and evaluating your performance with respect to Professional Competency 5. Detailed information for this assignment will be provided to you in class.

3) Take Home Exam on Measurement, Statistics & Probability (35%)

Due Week 6 – Day 2. Dates vary depending on your section. See the Schedule of Course Activities for more information.

In groups of 2-3, you will complete a Take Home Exam focused on your own mathematical understanding specific to: a) measurement; b) statistics; and c) probability. The goal of the Exam is to assess your mathematical understanding of ideas central to teaching, specific to measurement, statistics, or probability. This assignment aims at developing and evaluating your performance with respect to Professional Competency 1 and 5. More information about the Exam will be provided to you in class.

4) Cycle of Enactment and Investigation - Mathematics Teaching E-Portfolio (35%)

Due March 16 (for all sections)

Orchestrating whole-class discussions in mathematics is central to supporting students to develop procedural and conceptual understandings of mathematics, to develop their ability to communicate about their ideas, and to engage in mathematical argumentation. In this course, we will focus on three types of discussions: a) comparing multiple solutions to a complex task to advance students thinking, b) problematizing students' ideas, and c) constructing mathematical definitions. You will participate in one cycle of enactment and investigation specific to content (measurement, geometry, or statistics). This assignment will provide you with structured opportunities to plan, rehearse orchestrating a whole-class discussion in class, enact a discussion with students outside of class, analyze your teaching, and improve upon your teaching practice. For your final product, you will be asked to create a "Showcase Math Lesson" in your **E-Portfolio** where you present your reflections of your teaching from the enactment as well as additional components of your math teaching. This assignment aims at developing and evaluating your practice with respect to Professional Competencies 4, 11, and 12. Detailed information for this assignment will be provided to you in class.

Marks will be earned for individual assignments as follows:

1) Cognitive Demand of Tasks	15
2) Flexible Interview of Child Focused on Measurement	15
3) Take Home Exam: Measurement, Statistics & Probability	35
4) Cycle of Enactment and Investigation - Mathematics Teaching E-Portfolio	35
TOTAL	100

In order to receive a final grade for the course, all assignments must be submitted. Otherwise, you will receive a final grade of J.

Note importante:

Les étudiantes et étudiants inscrits au programme d'immersion à la langue française (PIF) **doivent s'inscrire dans la section bilingue du cours** (Section 003). De plus, **tous les travaux remis doivent être rédigés en français**, à l'exception de ceux qui sont réalisés et remis durant les heures de cours comme les tests ou l'examen final, le cas échéant. Il est à noter que la ou le professeur se réserve le **droit de pénaliser jusqu'à 10 % de la note du travail** si la qualité du français écrit n'est pas respectée.

8. Additional Requirements

Resources: You should become familiar with the library resources that are relevant to elementary school mathematics teaching. The journals *Teaching Children Mathematics* and *Mathematics Teaching in the Middle School* will be of particular interest. Also, check the books in the QA135.5 section of the Library. The Reference Shelves of the Math Lab house several elementary school mathematics

textbook series. *Nelson Mathematics, Math Makes Sense, Challenging Mathematics, Interactions, and Quest 2000* are available for examination. Other resources are to be found in the Curriculum Lab.

All material posted, whether it be in the “Discussion” section, the “Newsfeed” or elsewhere on myCourses, forms part of the substance of this course.

9. Rights and Responsibilities

You are reminded that your conduct and the conduct of the instructor are governed by the Handbook on Student Rights and Responsibilities. The full text of the Handbook is available at: <http://www.mcgill.ca/secretariat/policies/students/handbook-student-rights-and-responsibilitiesle-recueil-des-droits-et-obligations-d>.

Academic Integrity:

Academic Integrity statement [approved by Senate on 29 January 2003]:

McGill University values academic integrity. Therefore all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see www.mcgill.ca/students/srr/honest/ for more information).

L'université McGill attache une haute importance à l'honnêteté académique. Il incombe par conséquent à tous les étudiants de comprendre ce que l'on entend par tricherie, plagiat et autres infractions académiques, ainsi que les conséquences que peuvent avoir de telles actions, selon le Code de conduite de l'étudiant et des procédures disciplinaires (pour de plus amples renseignements, veuillez consulter le site www.mcgill.ca/students/srr/honest/).

Language:

In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded.

Conformément à la Charte des droits de l'étudiant de l'Université McGill, chaque étudiant a le droit de soumettre en français ou en anglais tout travail écrit devant être noté (sauf dans le cas des cours dont l'un des objets est la maîtrise d'une langue).

Safe Space:

Safe Space Statement [approved by the Department of Integrated Studies Diversity and Equity Committee on 21 January 2014]:

We are committed to nurturing a space where students, teaching assistants, lecturers, and professors can all engage in the exchange of ideas and dialogue, without fear of being made to feel unwelcome or unsafe on account of biological sex, sexual orientation, gender identity or expression, race/ethnicity, religion, linguistic and cultural background, age, physical or mental ability, or any other aspect integral to one's personhood. We therefore recognize our responsibility, both individual and collective, to strive to establish and maintain an environment wherein all interactions are based on empathy and mutual respect for the person, acknowledging differences of perspectives, free from judgment, censure, and/or stigma.

Academic Support Services:

Office for Students with Disabilities (<http://www.mcgill.ca/osd/>):

If you need support for difficulties or impairments hindering your academic performance, please contact your instructor to arrange a time to discuss your situation. It would be helpful if you contact the Office for Students with Disabilities at 514-398-6009 before you do this.

McGill Writing Centre (<http://www.mcgill.ca/mwc/>):

The McGill Writing Centre offers support for written communication through credit courses in academic and professional writing and a tutorial service open to all McGill students and postdocs.

International Student Services (<http://www.mcgill.ca/internationalstudents/>):

The mission of the International Student Services (ISS) is to support the growth, progress, and success of international students at McGill, and aims to ease their transition to a new school, a new home and a new country.

First Peoples' House (<http://www.mcgill.ca/fph/>):

The mission of the First Peoples' House is to provide First Nations, Inuit and Métis students attending McGill with a "home away from home", where they can find support and encouragement to succeed in their studies and remain connected to their culture.

Student Services (<http://www.mcgill.ca/student-services/>):

The mission of the McGill Student Services is to promote and support student success and well-being. They offer services to facilitate the transition or re-entry to university life, progress through one's studies, and to help overcome obstacles that may impede students' successful and enjoyable student experience.

*****In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.*****

Tentative Schedule of Course Activities

*** Please note that the course outline and schedule are subject to change as it will be adapted to meet students' needs. ***

Week of	Class #	Topic and Activities	Assignments Due *Due at the <i>beginning</i> of class, unless otherwise directed	Required Reading *Prepare <i>before</i> class <i>All readings are required (unless otherwise indicated). Optional Readings are strongly suggested but not required</i>
Week 1 Jan 8-12	1	<ul style="list-style-type: none"> Doing and teaching mathematics; building on the past Introduction to Measurement 		<ul style="list-style-type: none"> Course Outline (<i>on myCourses</i>) Cycle of Enactment & Investigation/E-Portfolio Assignment Description & Rubric (<i>on myCourses</i>) <p><i>** Print out copies of documents if you would like to write on them.</i></p>
	2	<ul style="list-style-type: none"> Tasks in the Math Classroom Measurement in the Early Grades: Attributes and Direct Comparison; Features of Units 	<ul style="list-style-type: none"> Complete the 2 problems assigned in the first class Sign up for Rehearsal Groups in class 	<ul style="list-style-type: none"> Stein et al. (2009) (<i>on myCourses</i>)
Week 2 Jan 15-19	3	<ul style="list-style-type: none"> Measurement: Linear Measure Whole Class Discussions: Comparing Solutions to Advance Understanding Planning to Orchestrate a Discussion: Measurement 		<ul style="list-style-type: none"> Smith et al. (2009) (<i>on myCourses</i>) Small Ch. 19 (465-486) (<i>Optional</i>) PL (Mathematics, Example of Strategies), pp. 23-24
	4	<ul style="list-style-type: none"> Launching Complex Tasks Planning a Launch: Measurement Assessment: Eliciting student thinking, "flexible interviewing" 		<ul style="list-style-type: none"> Jackson et al. (2012) (<i>on myCourses</i>) Flexible Interview Protocol (<i>on myCourses</i>)** <p><i>** Print out copies of documents if you would like to write on them.</i></p>
Week 3 Jan 22-26	5	<ul style="list-style-type: none"> Overview of Flexible Interview Assignment Statistics: Data Overview of Take Home Exam 	<ul style="list-style-type: none"> Protocols Due – Groups M1, M2, M3, M4 (<i>submit on myCourses</i>) 	<ul style="list-style-type: none"> PL (Mathematics, Measurement), pp. 17-19 Flexible Interview Assignment Description & Rubric (<i>on myCourses</i>)** <p><i>** Print out copies of documents if you would like to write on them.</i></p>
	6	<ul style="list-style-type: none"> Statistics: Measures of Center – median, mean, & mode Planning to Orchestrate a Discussion: Statistics What to Expect for Rehearsals 	<ul style="list-style-type: none"> Protocols Due – Groups M5, M6, M7, M8 (<i>submit on myCourses</i>) 	<ul style="list-style-type: none"> Small Ch. 21 QEP Framework for the Evaluation of Learning (<i>on myCourses</i>) PL (Mathematics, Statistics), p. 20

Week 4 Jan 29- Feb 2	7	<ul style="list-style-type: none"> • Overview of E-Portfolio • Assessment: Using the QEP Framework for the Evaluation of Learning 	<ul style="list-style-type: none"> • Rehearsals Measurement (Groups M1, M2, M3, M4) • Cognitive Demand of Tasks Assignment Due 	<ul style="list-style-type: none"> • Cycle of Enactment & Investigation/E-Portfolio Assignment Description
	8	<ul style="list-style-type: none"> • Probability: Experimental • Technology Tools for Exploring Experimental Probability 	<ul style="list-style-type: none"> • Rehearsals Measurement (Groups M5, M6, M7, M8) • Protocols Due – Groups S1, S2, S3, S4 (<i>submit on myCourses</i>) 	<ul style="list-style-type: none"> • Small Ch. 22 • PL (Mathematics, Probability), pp. 21-22
Week 5 Feb 5- 9	9	<ul style="list-style-type: none"> • Probability: Theoretical • Geometry: The Role of Definitions 		
	10	<ul style="list-style-type: none"> • Planning to Orchestrate a Discussion – Definitions 	<ul style="list-style-type: none"> • Rehearsals Statistics (Groups S1, S2, S3, S4) 	
Week 6 Feb 12-16	11	<ul style="list-style-type: none"> • Integrating Movement into Mathematics • Differentiating in Mathematics 	<ul style="list-style-type: none"> • Flexible interview on Measurement – Individual Portion due (<i>submit transcript on myCourses; pamphlet due in class</i>) • Protocols Due – Groups G1, G2, G3, G4 (<i>submit on myCourses</i>) 	<ul style="list-style-type: none"> • PL (Mathematics, Geometry), pp. 14-16 • (Optional) MM Ch. 10-11 (<i>on-line via Library</i>) • (Optional) Keiser (2000) on myCourses
	12	<ul style="list-style-type: none"> • Looking forward professionally 	<ul style="list-style-type: none"> • Flexible Interview – Group Portion (<i>to be completed in class</i>) • Take Home Exam due • Rehearsals Geometry (Groups G1, G2, G3, G4) 	

NOTE:

The Cycle of Enactment and Investigation E-Portfolio Assignment is due to your Instructor on **Friday, March 16 (midnight)**. Submit the link to your E-Portfolio on myCourses.

MM refers to *Math Matters*; **PL** refers to the QEP Progression of Learning.
Small refers to the Small textbook.