Ontario College of Teachers

Ordre des enseignantes et des enseignants de l'Ontario

Additional Qualification Course Guideline Framework Mathematics, Grades 7 and 8

Schedule C
Teachers' Qualifications Regulation

Draft

July 2014

Ce document est disponible en français sous le titre *Ligne directrice du cours menant à la qualification additionnelle Mathématiques – 7e et 8e année*, juillet 2014.

Additional Qualification Course Guideline

1. Introduction

The guideline for Mathematics, Grades 7 and 8 is organized using the following framework.

Diagram 1: Guideline Organization

Draft

The Additional Qualification Course: Mathematics, Grades 7 and 8employs a critical, pedagogical lens to explore in holistic and integrated manner theoretical foundations, development of learners, program planning and implementation, instructional practices, assessment and evaluation, the learning environment and ethical considerations related to teaching and learning across the divisions.

The Ontario College of Teachers recognizes that candidates working in the publicly funded school system, independent/private institutions or First Nations schools will have a need to explore topics and issues of particular relevance to the context in which they work or may work.
Critical to the implementation of this course is the creation of positive learning experiences that reflect care, diversity and equity. This course supports the

enhancement of professional knowledge, ethical practice, leadership and ongoing learning.

The French language and the English language communities will also need to implement these guidelines to reflect the unique contextual dimensions and needs of each community. Each of these language communities will explore the guideline content from distinct perspectives and areas of emphasis. This flexibility will enable both language communities to implement Mathematics, Grades 7 and 8 as understood from a variety of contexts.

The Schedule C Mathematics, Grades 7 and 8additional qualification course guideline provides a conceptual framework for providers and instructors to develop and facilitate the Schedule C Mathematics, Grades 7 and 8course. The guideline framework is intended to be a fluid, holistic and integrated representation of key concepts associated with Mathematics, Grades 7 and 8.

Course providers, instructors and developers will use this AQ guideline framework to guide and inform areas of identified key guideline concepts in response to the contexts of each course as well as the professional knowledge, skills and understandings of course candidates.

2. Regulatory Context

Draft

The College is the self-regulating body for the teaching profession in Ontario. The College's responsibility related to courses leading to additional qualifications includes the following:

- To establish and enforce professional standards and ethical standards applicable to members of the College.
- To provide for the ongoing education of members of the College.
- To accredit additional qualification courses and more specifically,

> *The program content and expected achievement of persons enrolled in the program match the skills and knowledge reflected in the College's Standards of Practice for the Teaching Profession and the Ethical Standards for the Teaching Profession and in the program guidelines issued by the College.* (Regulation 347/02, *Accreditation of Teacher Education Programs*, Part IV, Subsection 24).

Additional qualifications for teachers are identified in the *Teachers' Qualifications Regulation*. This regulation includes courses that lead to Additional Qualifications, the Principal's Qualifications and the Supervisory Officer's Qualifications. A session of a course leading to an additional qualification shall consist of a minimum of 125 hours as approved by the Registrar. Accredited additional qualification courses reflect the *Ethical Standards for the Teaching Profession,* the *Standards of Practice for the Teaching Profession* and the *Professional Learning Framework for the Teaching Profession.*

The course developed from this guideline is open to candidates who meet the entry requirements identified in the *Teachers' Qualifications Regulation*.

Successful completion of the course leading to the Additional Qualification: Mathematics, Grades 7 and 8, listed in Schedule C of the *Teachers' Qualifications Regulation* is recorded on the Certificate of Qualification and Registration.

In this document, all references to candidates are to teachers enrolled in the Additional Qualification course. References to students indicate those enrolled in school programs.

3. Foundations of Professional Practice

The *Foundations of Professional Practice* conveys a provincial vision of what it means to be a teacher in Ontario. This vision lies at the core of teacher professionalism. The *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession* (Appendix 1) are the foundation for the development and in the realization of the Additional Qualification course. These nine standards, as principles of professional practice, provide the focus for ongoing professional learning and are the foundation for the development and implementation of the Additional Qualification Course: Mathematics, Grades 7 and 8. In addition, the *Professional Learning Framework for the Teaching Profession* is underpinned by the standards, articulates the principles on which effective teacher learning is based and acknowledges a range of options that promote continuous professional learning. The ongoing enhancement of informed professional judgment, which is acquired through the processes of lived experience, inquiry, and critical reflection, is central to the embodiment of the standards and the Professional Learning Framework within this AQ course and professional practice.

Draft

The *Ethical Standards of the Teaching Profession* and the *Standards of Practice for the Teaching Profession* serve as guiding frameworks that underpin professional knowledge, skills and experiences that teachers require in order to teach effectively within and contribute to an environment that fosters *respect, care, trust* and *integrity.*

Teacher-Education Resources

The College has developed resources to support the effective integration of the standards within Additional Qualification courses. These teacher education resources explore the integration of the standards within professional practice through a variety of educative, research and inquiry-based processes. This guideline has been designed to reflect the *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession* and the *Professional Learning Framework for the Teaching Profession.* These resources can be found on the College web site (www.oct.ca). These resources support the development of professional knowledge and professional judgment through reflective practice. The lived experiences of Ontario educators are illuminated in the resources and serve as AQ course support for teacher education.

4. Conceptual Framework

The design, course content and holistic implementation of the Additional Qualification Course Guideline: Mathematics, Grades 7 and 8support effective teacher education practices. These course guideline components provide a conceptual framework for the development of a holistic, integrated and experiential course. The following conceptual framework supports and informs professional knowledge, judgment and practices within the Additional Qualification Course: Mathematics, Grades 7 and 8.

Draft

Diagram 2: Conceptual Framework for Mathematics, Grades 7 and 8

Draft

A. The *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession*:

The *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession* represent a collective vision of professional practice. At the heart of a strong and effective teaching profession is a commitment to students and their learning. Members of the Ontario College of Teachers, in their position of trust, demonstrate responsibility in their relationships with students, parents, guardians, colleagues, educational partners, other professionals, the environment and the public.

The holistic integration of the standards within all course components supports the embodiment of the collective vision of the teaching profession that guides professional knowledge, learning, and practice. The following principles and concepts support this holistic integration within the AQ course.

- understanding and embodying care, trust, respect and integrity
- fostering commitment to students and student learning

- integrating professional knowledge
- enriching and developing professional practice
- supporting leadership in learning communities
- engaging in ongoing professional learning.

Through professional dialogue, collaborative reflection and an ethical culture, course candidates will continue to critically inquire into and refine professional practice and ethical culture through the lens of the *Standards of Practice for the Teaching Profession*.

B. A Framework for Inquiry

The *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession* are embedded throughout the Additional Qualification course guideline.

This Additional Qualification course supports critical reflective inquiry and dialogue informed by the following concepts which will be focused on through holistic and interrelated processes:

- analyzing, interpreting and implementing Ontario's curriculum, policies, frameworks, strategies and guidelines
- developing awareness of First Nations, Métis and Inuit ways of knowing and perspectives
- applying the theoretical understanding to design, implement and assess practices and/or programs
- adapting pedagogical strategies and assessment and evaluation practices in response to the individual needs of students
- facilitating the creation of holistic learning environments conducive to the intellectual, social, emotional, physical, , linguistic, cultural, spiritual and moral development of students
- collaborating with in-school personnel, parents/guardians and the community
- accessing and critically exploring a variety of resources, including technological resources, within and beyond the educational system to enhance professional knowledge in support of student learning

draft

- refining professional practice through ongoing collaborative inquiry, dialogue and reflection
- modelling ethical practices and addressing ethical issues
- critically exploring and integrating environmentally sustainable practices
- fostering responsible, active environmental citizenship
- collaboratively developing and sustaining professional learning communities for enhancing professional knowledge and supporting student learning
- integrating information and communication technology to enhance teaching and learning
- creating and sustaining safe, healthy, equitable and inclusive learning environments that honour and respect diversity and foster student learning
- understanding the importance of critically examining qualitative and quantitative research related to professional practice
- critically exploring the relationship between education, mental health and well-being
- critically exploring educational strategies that support learners' well-being and mental health needs
- critically exploring strategies for working collaboratively with interdisciplinary school teams to develop and implement Individual Education Plans (IEPS) of students.
- exploring strategies that contribute to a culture that promotes openness and innovation.

Draft

C. Ontario Context: Curriculum, Policies, Legislation, Frameworks, Strategies and Resources

The Additional Qualification Course: Mathematics, Grades 7 and 8is aligned with current Ontario curriculum, relevant legislation, government policies, frameworks, strategies and resources. These documents inform and reflect the development and implementation of the Additional Qualification Course: Mathematics, Grades 7 and 8 and can be viewed at www.edu.gov.on.ca.

Course candidates are also encouraged to critically explore the policies, practices and resources available at school and board levels that inform teaching and learning related to Mathematics, Grades 7 and 8.

D. Theoretical Foundations of Mathematics, Grades 7 and 8

The following concepts will inform the emphasis given to inquiries related to the theoretical foundations through holistic and interrelated processes.

- understanding theories of child and adolescent development
- having awareness of Ontario curriculum, resources and government policies, frameworks and strategies related to Mathematics, Grades 7 and 8
- understanding learning theories and the particular learning needs of all students
- critically exploring a variety of conceptual frameworks related to Mathematics, Grades 7 and 8
- reflecting on teaching practice and engaging in professional dialogue regarding the relationship between theory and effective practices
- integrating the *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession* as the foundation for teacher professionalism within the Additional Qualification Course: Mathematics, Grades 7 and 8
- critically exploring the significance of relevant legislation including the Ontario Human Rights Code, Ontarians with Disabilities Act, and the Accessibility for Ontarians with Disabilities Act (AODA) and associated responsibilities within professional practice
- recognizing teachers' legal obligations and ethical responsibilities according to current provincial legislation
- critically inquiring into the dimensions associated with creating and sustaining safe learning environments
- critically exploring holistic and inclusive educational programs that build on learners' abilities and empower them to reach their learning goals
- critically exploring a variety of constructivist theories in the context of effective classroom environments (for example, growth mindset, transformative teaching approaches)
- critically reflecting on the dimensions associated with creating and sustaining culturally relevant and responsive learning environments
- critically exploring digital learning and the purposeful use of technology

Draft

E. Program Planning, Development and Implementation

The following concepts will inform the emphasis given to inquiries related to program planning, development and implementation through holistic and interrelated processes.

- critically exploring and implementing of program planning frameworks (for example, backward mapping, design down)
- critically exploring the connected integration of math curriculum strands
- critically exploring relevant and responsive cross-curricular learning that incorporates critical thinking in mathematics (for example, financial literacy, culturally-responsive pedagogy, current Ministry and board initiatives)
- critically and collaboratively exploring the explicit and intentional integration of the mathematical process expectations
- critically exploring intentional teaching in mathematics
- applying the *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession* to inform a program planning framework
- critically exploring the influence of society's diverse and changing nature on student learning and well-being
- deepening understanding of program planning, development, implementation strategies and frameworks related to Mathematics, Grades 7 and 8
- critically and collaboratively exploring and extending the understanding of the philosophical underpinnings that strengthen teachers' professional efficacy to support integration
- fostering opportunities to critically explore various approaches to curricular integration through diverse planning models, content and resource development, pedagogical practices, and the implementation of assessment and evaluation practices
- deepening understanding of differentiated instruction, universal design and the tiered approach in program planning, development and implementation
- critically exploring learning resources (for example, print, visual, digital) that support student learning
- planning learning opportunities and programs that support various educational pathways and goals

Draft

- critically exploring how students' lived experiences, development, strengths, interests and needs can inform program planning, development and implementation
- integrating culturally responsive pedagogy within program planning and development
- critically exploring strategies that support learners' well-being and mental health needs
- planning instructional strategies that integrate students' learning styles, strengths and experiences
- critically exploring and integrating multiple formal and informal assessment methods and data to inform program planning and support student learning
- critically and collaboratively exploring conceptual foundations of key math concepts, models, strategies and tools that support program planning (for example, curriculum mapping, learning trajectory, continuum, Big Ideas, concrete materials)

F. Learning Environments and Instructional Strategies

The following concepts will inform the emphasis given to inquiries related to the learning environment and instructional strategies through holistic and interrelated processes.

- creating and sustaining positive, ethical, equitable, accepting and safe learning environments
- fostering a collaborative community of empowered learners
- fostering engaging, trusting and inviting learning environments that promote student voice, leadership, critical inquiry, work habits and learning skills in a mathematics context
- critically exploring a variety of instructional strategies to support student learning
- cultivating safe, ethical and respectful practices in the use of technology in purposeful and legal ways
- integrating information and communication technologies that support student learning
- critically exploring a variety of strategies for adapting instruction to meet the needs of all learners

Draft

- critically exploring strategies that engage students as active citizens in supporting environmental, social and economic sustainability
- using pedagogies that reflect the professional identity of educators as described in the ethical standards, the standards of practice and in the Foundations of Professional Practice
- creating inclusive learning environments that reflect the *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession*
- critically exploring ways of developing a collaborative culture that embraces co-learning, co-planning and co-teaching

G. Reflecting, Documenting and Interpreting Learning

The following concepts will inform the emphasis given to inquiries related to reflecting, documenting and interpreting learning through holistic and interrelated processes.

- critically exploring fair, equitable, transparent, valid, reliable assessment and evaluation methods that honour the dignity, emotional wellness and cognitive development of all students
- critically exploring and integrating assessment, evaluation and reporting practices that align with the principles and processes of Ontario's curriculum, frameworks and policy documents
- using assessment for the following three purposes: to provide feedback to students and to adjust instruction (assessment for learning); to develop students' capacity to be independent, autonomous learners (assessment as learning); to make informed judgements about the quality of student learning (assessment of learning)
- critically exploring strategies to analyze, deconstruct and honour student work
- collaboratively exploring the relationship between learning goals, success criteria, descriptive feedback and achievement charts.

H. Shared Responsibility for Learning

Draft

The following concepts will inform the emphasis given to inquiries related to shared responsibility for learning through holistic and interrelated processes.

- critically exploring and integrating a variety of effective communication and engagement strategies for authentic collaboration with parents/guardians, school/board personnel and community agencies
- critically exploring strategies and opportunities for professional collaboration that supports co-learning and student well-being
- critically exploring and addressing biases, discrimination and systemic barriers in order to support student learning, well-being and inclusion
- fostering and sustaining a positive, inclusive mathematical culture in which perspectives are freely expressed and critically analyzed
- understanding and respecting the importance of shared responsibility and partnership as conveyed in the standards and the *Foundations of Professional Practice*
- critically exploring professional collaboration within interdisciplinary teams to support student learning and self-advocacy
- exploring strategies to support a culture of collaboration with interdisciplinary teams to support student transitions
- critically examining the impact of various transitions on programming, teaching and student learning (for example, from additive thinking to proportional reasoning, from childhood to adolescence)
- exploring the development of and access to community resources.

Draft

I. Research, Professional Learning and the Scholarship of Pedagogy

The following concepts will inform the emphasis given to inquiries related to research, professional learning and the scholarship of pedagogy through holistic and interrelated processes.

- critically exploring past, present and evolving practices in Mathematics, Grades 7 and 8
- critically exploring professional practice through ongoing inquiry into theory and pedagogy/andragogy
- engaging in professional learning through research, scholarship and leadership

- integrating research and the scholarship of pedagogy/andragogy into teaching practice
- collaborating in research and the scholarship of pedagogy/andragogy
- critically exploring knowledge-creation and mobilization as professional practice
- critically implementing teacher engagement in mathematical activities, co-learning, inquiry and problem-solving to improve their understanding of conceptual foundations
- critically exploring mathematical high-yield instructional and learning strategies to deepen mathematical understanding and improve student learning (for example, asking effective questions, formative/descriptive feedback, accountable math talk and communication, teacher moderation of student work, explicit instruction, the three-part lesson). .

5. Instructional Practice in the Additional Qualification Course: Mathematics, Grades 7 and 8

Candidates will collaboratively develop with course instructors the specific learning inquiries, learning experiences, holistic processes and forms of assessment and evaluation that will be used throughout the course.

In the implementation of this Additional Qualification course, instructors use strategies that are relevant, meaningful and practical in providing candidates with learning experiences about instruction, pedagogy and assessment and evaluation. These include but are not limited to: experiential learning, small group interaction; action research; presentations; independent inquiry; problem solving; collaborative learning and direct instruction.

Instructors model the *Ethical Standards of the Teaching Profession* and the *Standards of Practice for the Teaching Profession*, honour the principles of adult learning, recognize candidates' experience and prior learning and respond to individual needs. Important to the course are opportunities for candidates to create support networks and receive feedback from colleagues and instructors and share the products of their learning with others. Opportunities for professional reading, reflection, dialogue and expression are also integral parts of the course.

Draft

Instructors model effective instructional and assessment strategies that can be replicated or adapted in a variety of classroom settings.

A. Experiential Learning

Candidates will be provided with opportunities to engage in experiential learning related to key concepts and aspects of Mathematics, Grades 7 and 8 as collaboratively determined by both the instructor and course candidates. The intent of the experiential learning opportunities is to support the application and integration of practice and theory within the authentic context of teaching and learning. Candidates will also engage in critical reflection and analysis of their engagement in experiential learning opportunities related to Mathematics, Grades 7 and 8. The professional judgment, knowledge and pedagogical practices of candidates will be enhanced and refined through experiential learning and critical inquiry.

The College's standards-based resources help to support experiential learning through various forms of professional inquiry.

6. Assessment and Evaluation of Candidates

At the beginning of the course, candidates will collaboratively develop with course instructors the specific learning inquiries, learning experiences, and forms of assessment and evaluation that will be used throughout the course. Instructors will provide opportunities for regular feedback regarding candidates' progress throughout the course.

A balanced approach to candidate assessment and evaluation is used. It includes the combination of candidate self and peer assessment, as well as instructor evaluation. The assessment and evaluation strategies reflect effective, collaborative and inquiry-based practices. A variety of assessment approaches will be used that enable candidates to convey their learning related to course inquiries. The course provides opportunities for both formative and summative assessment and evaluation.

Central to candidates enrolled in Additional Qualification courses is the opportunity to be engaged in relevant and meaningful inquiries. Assignments, artefacts and projects enable candidates to make connections between theory and practice. At the same time, assignments must allow candidates flexibility, choice and individual inquiry opportunities.

Draft

Part of the evaluation process may include a major independent project or action research component over the duration of the course. This project is an opportunity for candidates to illustrate a high level of professional knowledge, communication skills, pedagogy, ethical practices and instructional leadership. Similarly, if a portfolio assignment is used it will also include reflections and analysis of a candidate's learning over time.

A final culminating experience in the course is recommended. This syntheses experience may take the form of a written assessment, a research paper, a performance, an inquiry project or a product that is original, meaningful and practical.

The following list of assessment strategies which are reflective of experiential learning is not exhaustive; it is intended to serve as a guide to inform the various inquiries engaged in within this course only.

a) Performance assessment: designing a sample unit which includes a culminating activity and appropriate assessment and evaluation tools, incorporates a variety of technologies and resources relevant to the study of Mathematics, Grades 7 and 8, and is based on Ministry of Education expectations

b) Written assignment: reflecting critically on issues arising from articles, publications, research and/or other resources related to the teaching or practice to Mathematics, Grades 7 and 8

c) Presentation: developing a digital story, presenting an issue related to the teaching and learning related to Mathematics, Grades 7 and 8

d) Portfolio: creating a portfolio of practical resources, artefacts, photographs and recording critical reflections for one or several components related to Mathematics, Grades 7 and 8

e) Action research: engaging in action research by reflecting and acting upon a specific inquiry into teaching practice related to Mathematics, Grades 7 and 8

f) Independent project: addressing any aspect of the course that is approved by the instructor

Draft

g) Instructional resource: developing a meaningful resource that will support instruction and pedagogy related to the teaching and learning of Mathematics, Grades 7 and 8

h) Reflective writing: reflecting on professional practice through journal-writing, or writing a case or vignette that will support instruction and pedagogy related to the teaching and learning of Mathematics, Grades 7 and 8

i) Case inquiry: writing or exploring a case related to collaboration and shared partnerships, with parents, colleagues, and community organizations

j) IEP development: collaboratively develop an IEP related to Mathematics, Grades 7 and 8with the family, student and school team

k) Facilitating a Learning Experience: developing and implementing an engaging learning experience that reflects differentiated instruction and universal design and the tiered approach.

Draft

Appendix 1

The *Ethical Standards for the Teaching Profession*

The *Ethical Standards for the Teaching Profession* represent a vision of professional practice. At the heart of a strong and effective teaching profession is a commitment to students and their learning. Members of the Ontario College of Teachers, in their position of trust, demonstrate responsibility in their relationships with students, parents, guardians, colleagues, educational partners, other professionals, the environment and the public.

The Purposes of the Ethical Standards for the Teaching Profession are:

- to inspire members to reflect and uphold the honour and dignity of the teaching profession
- to identify the ethical responsibilities and commitments in the teaching profession
- to guide ethical decisions and actions in the teaching profession
- to promote public trust and confidence in the teaching profession.

The Ethical Standards for the Teaching Profession are:

Care
The ethical standard of *Care* includes compassion, acceptance, interest and insight for developing students' potential. Members express their commitment to students' well-being and learning through positive influence, professional judgment and empathy in practice.

Respect
Intrinsic to the ethical standard of *Respect* are trust and fair-mindedness. Members honour human dignity, emotional wellness and cognitive development. In their professional practice, they model respect for spiritual and cultural values, social justice, confidentiality, freedom, democracy and the environment.

Trust
The ethical standard of *Trust* embodies fairness, openness and honesty. Members' professional relationships with students, colleagues, parents, guardians and the public are based on trust.

Integrity
Honesty, reliability and moral action are embodied in the ethical standard of *Integrity*. Continual reflection assists members in exercising integrity in their professional commitments and responsibilities.

Draft

The *Standards of Practice for the Teaching Profession*

The *Standards of Practice for the Teaching Profession* provide a framework of principles that describes the knowledge, skills, and values inherent in Ontario's teaching profession. These standards articulate the goals and aspirations of the profession. These standards convey a collective vision of professionalism that guides the daily practices of members of the Ontario College of Teachers.

The Purposes of the Standards of Practice for the Teaching Profession are:

- to inspire a shared vision for the teaching profession
- to identify the values, knowledge and skills that are distinctive to the teaching profession
- to guide the professional judgment and actions of the teaching profession
- to promote a common language that fosters an understanding of what it means to be a member of the teaching profession.

The Standards of Practice for the Teaching Profession are:

Commitment to Students and Student Learning
Members are dedicated in their care and commitment to students. They treat students equitably and with respect and are sensitive to factors that influence individual student learning. Members facilitate the development of students as contributing citizens of Canadian society.

Professional Knowledge
Members strive to be current in their professional knowledge and recognize its relationship to practice. They understand and reflect on student development, learning theory, pedagogy, curriculum, ethics, educational research and related policies and legislation to inform professional judgment in practice.

Professional Practice
Members apply professional knowledge and experience to promote student learning. They use appropriate pedagogy, assessment and evaluation, resources and technology in planning for and responding to the needs of individual students and learning communities. Members refine their professional practice through ongoing inquiry, dialogue and reflection.

Leadership in Learning Communities
Members promote and participate in the creation of collaborative, safe and supportive learning communities. They recognize their shared responsibilities and their leadership roles in order to facilitate student success. Members maintain and uphold the principles of the ethical standards in these learning communities.

Ongoing Professional Learning
Members recognize that a commitment to ongoing professional learning is integral to effective practice and to student learning. Professional practice and self-directed learning are informed by experience, research, collaboration and knowledge.

Draft

Draft