



Ontario
College of
Teachers

Ordre des
enseignantes et
des enseignants
de l'Ontario

Additional Qualification Course Guideline Senior Division, Science – Biology

(Previously referred to as Additional Basic Qualification [ABQ] – updated to reflect the Teachers' Qualification Regulation 176/10)

Schedule A Teachers' Qualifications Regulation

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Additional Qualification Course Guideline Senior Division, Science - Biology

1. Introduction

The Schedule A *Senior Division, Science - Biology* Additional Qualification course guideline provides a conceptual framework (Figure 1) for providers and instructors to develop and facilitate the Schedule A *Senior Division, Science - Biology* course. This guideline framework is intended to be a fluid, holistic and integrated representation of key concepts associated with *Senior Division, Science - Biology*.

The Additional Qualification (AQ) guideline: *Senior Division, Science - Biology* is organized using the following conceptual framework:

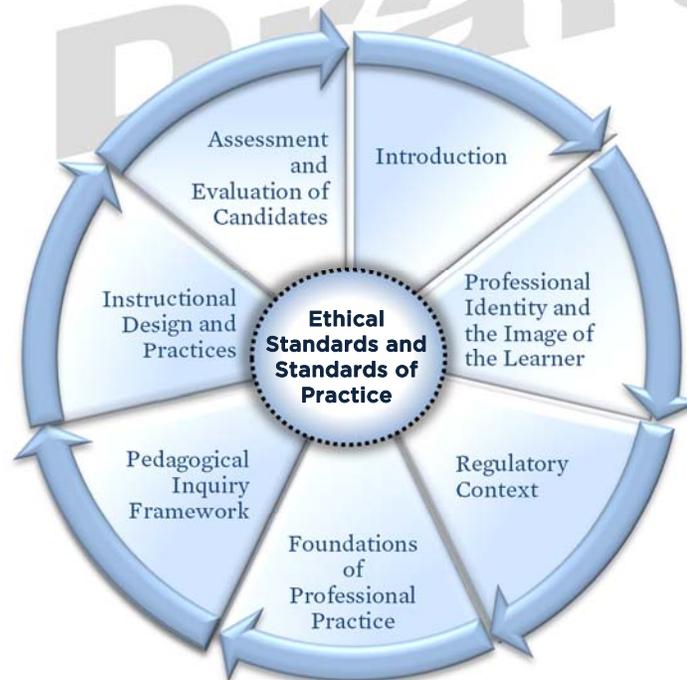


Figure 1: Conceptual Framework

Candidates come to the Additional Qualification Course: *Senior Division, Science - Biology* with an interest and/or background in this area of study.

The Additional Qualification course is intended to explore and enhance professional practice, program planning and leadership within the Senior Division. This AQ will also extend professional knowledge, skills and pedagogies within this specific area of study and explore the theoretical foundations associated with supporting the adolescent learner.

The Additional Qualification Course: *Senior Division, Science - Biology* employs a critical, pedagogical lens to explore in a holistic and integrated manner theoretical foundations, learning theory, program planning, development and implementation, instructional design and practices, assessment and evaluation, the learning environment, research and ethical considerations related to teaching and learning within and across the division(s). Through these explorations, candidates strengthen professional efficacy by gaining in-depth knowledge, refining professional judgment and generating new knowledge for practice.

AQ Course Implementation

Course providers, instructors and developers will use this AQ guideline framework to inform the emphasis given to key guideline concepts in response to candidates' diverse professional contexts, knowledge, skills and understandings.

Critical to the holistic implementation of this course is the modeling of a positive learning environment that reflects care, diversity and equity. This course supports the enhancement of professional knowledge, ethical practice, leadership and ongoing professional learning.

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.

Provincial Context

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 *Senior Division, Science - Biology* as understood from a variety of contexts.

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.

2. Professional Identity and the Image of the Learner

The professional identity of the AQ course instructor and course candidates conveyed in this AQ course guideline reflects the vision of the educator articulated in the *Ethical Standards for the Teaching Profession*, the *Standards of Practice for the Teaching Profession* and the *Professional Learning Framework for the Teaching Profession*.

This vision of the educator (Figure 2) positions professional educators as innovative scholars and practitioners, critical pedagogues who forward social and ecological justice, as well as:

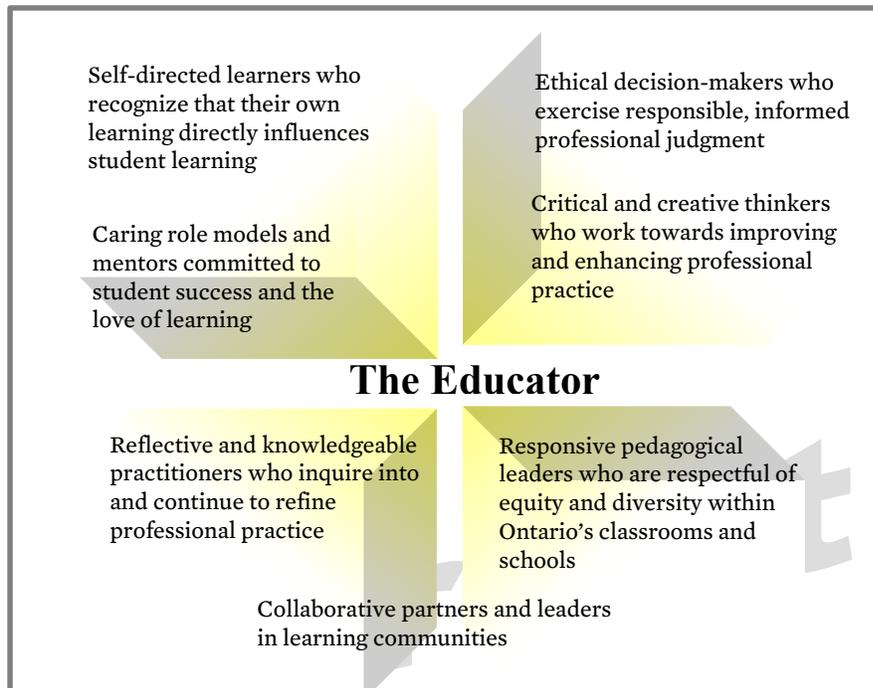


Figure 2: Image of the Educator¹

The image of the student conveyed in this AQ (Figure 3) is of a learner who is empowered, independent, a democratic citizen, knowledgeable, creative, collaborative, a critical thinker, ethical, reflective, accepting, inclusive, courageous, self-efficacious, a problem-solver, and whose voice and sense of efficacy are integral to shaping the teaching and learning process.

¹ *Note.* From “The Foundations of Professional Practice,” by Ontario College of Teachers, 2012, p. 17. Copyright 2012 by Ontario College of Teachers. Reprinted with permission.

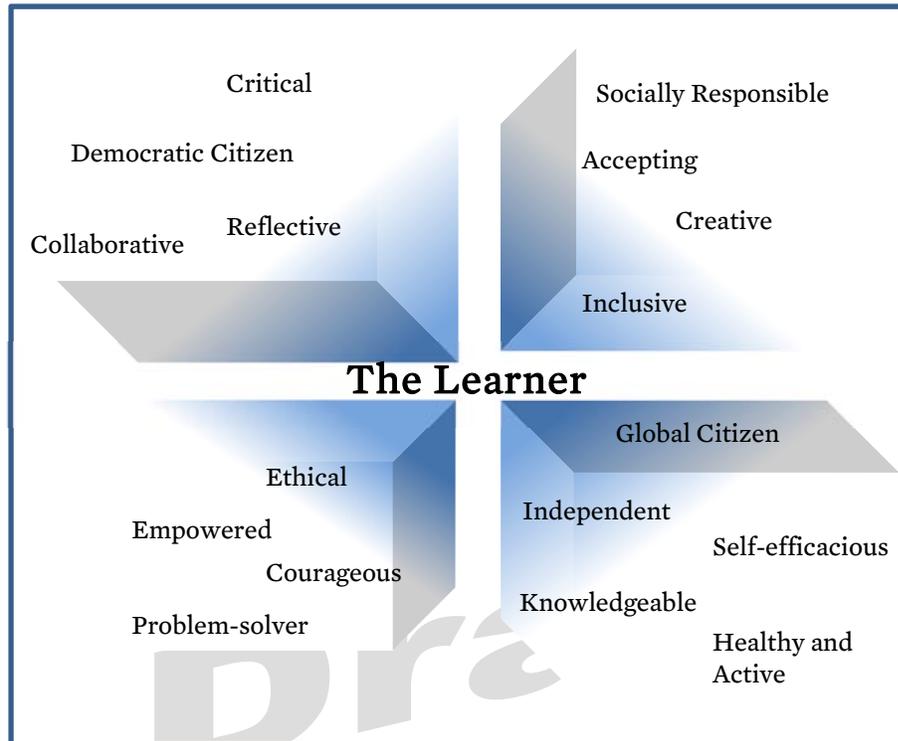


Figure 3: Image of the Learner

3. Regulatory Context

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* (Regulation 176/10). This regulation includes courses that lead to Additional Qualifications, the Principal's Development Qualification, the Principal's Qualifications, the Primary Division, the Junior Division 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 AQ 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: *Senior Division, Science - Biology* listed in Schedule A of the *Teachers' Qualifications Regulation* is recorded on the Certificate of Qualification and Registration.

4. 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 implementation of the Additional Qualification course. These nine standards, as principles of professional practice, provide the focus for ongoing professional learning in the Additional Qualification course: *Senior Division, Science - Biology*. 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 for the Teaching Profession* within this AQ course and professional practice.

The *Ethical Standards for 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. These resources can be found on the College web site:

<http://www.oct.ca/resources/categories/professional-standards-and-designation>

These teacher education resources support the development of professional knowledge, judgment and efficacy through critical reflective praxis. The lived experiences of Ontario educators are illuminated in these teacher education resources and serve as key supports for AQ courses.

5. Pedagogical Inquiry Framework

The pedagogical inquiry framework (Figure 4) for *Senior Division, Science - Biology* supports a holistic, integrated, experiential and inquiry-based AQ course. This pedagogical inquiry framework supports the professional knowledge, judgment, critical pedagogies and practices of course candidates.



Figure 4: Pedagogical Inquiry Framework for *Senior Division, Science - Biology*

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, families, 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.

Course candidates will continue to critically inquire into professional practices, pedagogies and ethical cultures through professional dialogue, collaborative reflection and the lenses of the *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession*.

B. Guiding Concepts for Pedagogical Inquiry

The following theoretical concepts are provided to facilitate the holistic design and implementation of this AQ course through pedagogical and professional inquiries.

This Additional Qualification course supports critical reflective inquiry and dialogue informed by the following concepts which will be critically explored through equitable, holistic and interrelated processes:

- critically exploring assumptions, beliefs and understandings associated with teaching and learning within the context of this AQ
- critically exploring the professional identity and practices associated with the views of teachers as co-inquirers, teacher scholars and teacher researchers working alongside student researchers in the co-creation of democratic, knowledge-rich learning environments
- critically exploring and interpreting Ontario's curriculum, policies, frameworks, strategies and guidelines
- collaboratively examining and integrating the meaningful and respectful inclusion of First Nations, Métis and Inuit ways of knowing, cultures, histories and perspectives in teaching and learning processes as valid means to understand the world
- critically exploring multiple ways of knowing and being in community

- applying critical pedagogy as a theoretical foundation for the design, assessment and implementation of practices and/or programs
- critically exploring pedagogical processes and assessment and evaluation practices that link curriculum to student interests, strengths, inquiries, needs, resiliency, well-being and mental health
- critically examining processes, practices and policies to create and sustain holistic learning environments that nurture the identities of students and their intellectual, social, emotional, physical, linguistic, cultural, spiritual and moral development
- critically exploring engagement processes and practices intended to foster collaboration with students, in-school personnel, parents/guardians/families and the community to support the learning, identity, resiliency and well-being of the school community
- critically exploring and integrating a variety of resources, including technological and communication resources, to enhance professional knowledge in support of student learning, independence, well-being and agency
- critically exploring professional practice through ongoing collaborative inquiry, dialogue, reflection, innovation and critical pedagogy
- critically examining the ethical principles, ethical knowledge and ethical actions that contribute to collective ethical pedagogy and leadership
- critically exploring and integrating environmentally sustainable practices, policies and pedagogies
- critically examining processes to foster responsible and active environmental stewardship, social justice and democratic citizenship
- collaboratively exploring the co-construction of communities of inquiry committed to critical pedagogy, ongoing professional learning and collective professional efficacy
- critically exploring innovative practices for integrating information and communication technology to enhance teaching and learning
- critically examining the processes involved in creating and sustaining safe, healthy, equitable, holistic and inclusive learning environments that honour and respect diversity, facilitate student learning, foster student voice, encourage critical thinking and promote social justice

- critically examining qualitative and quantitative research associated with professional practices, policies and pedagogies in support of student learning, empowerment and agency
- critically exploring and integrating educational processes, practices and policies that support students' well-being, resiliency, efficacy and mental health
- critically exploring and integrating inclusive processes for fostering interprofessional collaboration that support the development and implementation of Individual Education Plans (IEPs) and Transition Plans for students that include the voices of all those involved
- critically examining processes, practices and policies that contribute to a school and/or system culture of inquiry that promotes openness to innovation, change, culturally inclusive pedagogies and the democratization of knowledge
- critically analyzing individual and systemic manifestations of power and privilege and their implications for teaching and learning
- critically examining the engineering design process used in technology (for example, define the problem, research/brainstorm solutions, design a prototype, build a prototype, test, refine and retest)
- critically examining initiatives that promote critical thinking through scientific literacy
- critically exploring and applying scientific inquiry strategies with a focus on the Scientific Investigation Skills outlined in the curricular expectations
- critically evaluating and adapting learning experiences that allow students to respond to issues in Biology and to take action
- critically exploring the relationship between traditional, ecological, Indigenous knowledge and contemporary theories about the nature of the world.

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

The Additional Qualification course: *Senior Division, Science - Biology* is aligned with current Ontario curriculum, relevant legislation, government policies, frameworks, strategies and resources. These documents inform the design,

development and implementation of the Additional Qualification course: *Senior Division, Science - Biology* 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 provincial school and board levels that inform Senior Division teaching and learning related to *Senior Division, Science - Biology*.

D. Theoretical Foundations: Supporting the Adolescent Learner within the Additional Qualification course: Senior Division, Science - Biology

The exploration of the following guiding concepts will be facilitated through equitable, holistic and interrelated inquiry processes:

- critically exploring the theoretical foundations and learning theory specific to *Senior Division, Science - Biology*
- critically exploring the historical, philosophical, sociological and psychological context related to the study of Biology
- critically exploring the relevance of critical pedagogy and constructivist theories as theoretical foundations for this AQ
- critically exploring the *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession* as theoretical foundations for teacher professionalism within the Additional Qualification Course: *Senior Division, Science - Biology*
- critically reflecting on personal teaching practice and engaging in professional dialogue regarding the relationship between theory and practice in the teaching of Biology
- critically exploring critical pedagogy that is committed to curriculum design using students' inquiry questions, passions and interests (for example, RAFT [Role, Audience, Format and Topic] projects, PBL [Problem Based Learning], ConcepTesting, Science Fair, PEOE cycle [Predict-Explain-Observe-Explain] and JiTT [Just in Time Teaching])
- critically exploring and promoting a culture of openness amongst teachers towards learning how to integrate technology into the Biology classroom in meaningful, safe and inclusive ways

- critically exploring Ontario curriculum, resources and government policies, frameworks and strategies related to *Senior Division, Science – Biology*
- critically exploring a culture of dialogue and leadership committed to honouring learning theories and the individual learning strengths, styles and needs of students
- critically exploring the significance of relevant legislation including the Ontario Human Rights Code, the Canadian Charter of Rights and Freedoms, Safe Schools Act, Accepting Schools Act, Ontarians with Disabilities Act, Municipal Freedom of Information and Protection of Privacy Act (MFIPPA) the Accessibility for Ontarians with Disabilities Act (AODA) and associated responsibilities of professional practice
- critically exploring teachers' legal obligations and ethical responsibilities according to current provincial legislation and practices
- critically exploring innovative practices for integrating artistic expression to enhance teaching and learning.

E. Program Design, Planning and Implementation

The exploration of the following guiding concepts will be facilitated through equitable, holistic and interrelated inquiry processes:

- critically exploring and deepening understanding of how the *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession* can inform a program planning framework
- critically exploring areas of student misconceptions related to concepts in Biology (for example, evolution, biodiversity and metabolic processes)
- critically exploring the Ministry of Education curriculum policy and resource documents for the Senior Division
- critically exploring the philosophical underpinnings and strategies that strengthen teachers' professional efficacy to support curricular and interdisciplinary integration
- critically exploring various approaches to curricular integration through diverse planning models, content and resource development, pedagogical practices and the implementation of equitable assessment and evaluation practices

- critically exploring and deepening understanding of differentiated instruction, universal design and the tiered approach in program planning, development and implementation
- critically exploring learning resources that support student learning and engagement (for example, print, visual and digital)
- critically exploring and planning learning opportunities and programs that support various educational pathways and goals
- critically exploring how students' lived experiences, identities, narratives, development, strengths, inquiries, interests and needs can inform program planning, development and implementation in Biology
- critically exploring the integration of culturally inclusive pedagogies within program design, planning and development
- critically exploring multiple perspectives that might inform scientific work worldwide
- exploring and understanding theories of exceptionalities related to the learner
- critically exploring planning and instructional strategies that honour students' learning styles, voice, strengths and experiences and makes modifications for student exceptionalities
- critically exploring how the study of biology can influence the lives of students and their learning journey
- critically exploring pedagogical documentation and utilizing a variety of assessment processes to inform program planning, support student learning and foster student engagement
- critically exploring information technology that supports students learning biology (for example, gamification, animation and virtual experiences)
- critically evaluating, adapting and implementing programs that integrate current issues and events in Biology
- critically exploring and practicing engagement pedagogies that work best for various learning outcomes (for example, Peer Instruction, Guided Inquiry, Just-in-Time Teaching, interactive boards, First Steps Process and ConcepTests)
- critically exploring and understanding a variety of assessment and evaluation instruments appropriate for the developmental stages of students.

F. Learning Environments and Instructional Strategies

The exploration of the following guiding concepts will be facilitated through equitable, holistic and interrelated inquiry processes:

- critically exploring processes for the creation of inclusive and vibrant learning environments that reflect the *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession*
- creating and sustaining positive, ethical, equitable, accepting, inclusive, engaging and safe learning environments while teaching biology
- critically exploring the ethical and safe handling of biological specimens, materials and chemicals
- critically exploring processes for engaging all members of the community, supporting dialogue and collegiality and nurturing a sense of belonging
- critically exploring processes for fostering a collaborative community of empowered and engaged learners
- critically exploring and fostering engaging, trusting and inviting learning environments that promote student voice, leadership, critical inquiry and self-regulation
- critically exploring a variety of instructional strategies to support student learning, resiliency and well-being
- cultivating safe, ethical, legal and respectful practices in the use of information and communication technologies to support pedagogical practices
- critically exploring inclusive and innovative learning environments that integrate a variety of instructional strategies to respond to the interests and needs of all learners (for example, universal design, experiential learning, differentiated instruction, inquiry and the tiered approach)
- critically exploring processes that engage students as active, democratic and global citizens in supporting environmental, social and economic sustainability
- critically exploring employee/employer health and safety requirements for laboratory and fieldwork practices to enhance the learning environment for students

- critically exploring the professional identity, knowledge and leadership practices of educators as described in the *Ethical Standards for the Teaching Profession*, the *Standards of Practice for the Teaching Profession*, the *Professional Learning Framework for the Teaching Profession* and the *Foundations of Professional Practice*
- critically exploring and implementing effective classroom management strategies (for example, consensus-building, participatory democracy and student empowerment) appropriate for the adolescent learner in Biology
- critically implementing curricular experiences and learning resources that explore biological systems as they apply to everyday life
- critically implementing instructional strategies, metacognitive tools and learning experiences that develop scientific literacy and promote student learning skills
- critically exploring and identifying factors in a diverse and changing society that impact on the adolescent learner in Biology
- critically exploring strategies to help the adolescent learner relate scientific and technological knowledge to each other and to the world outside the school
- exploring methods for consensus-building, participatory democracy and student empowerment at the school and community levels.

G. Leadership in the Instructional Setting

The exploration of the following guiding concepts will be facilitated through holistic and interrelated inquiry processes:

- critically exploring feedback processes that empower and inspire students to positively reflect on and identify goals for their learning
- critically fostering a variety of feedback that engages students in analysis and interpretation of the learning process
- critically exploring culturally inclusive processes for reflecting, documenting and interpreting learning
- critically exploring and integrating assessment, evaluation and reporting practices that align with the principles and processes of Ontario's curriculum, frameworks and policy documents

- critically exploring assessment practices 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)
- exploring access to organizational, print and electronic resources which support curriculum, professional growth and leadership.

H. Reflecting, Documenting and Interpreting Learning

The exploration of the following guiding concepts will be facilitated through equitable, holistic and interrelated inquiry processes:

- critically exploring fair, equitable, transparent, valid and reliable assessment and evaluation methods that honour the dignity, emotional wellness, identity and development of all students
- critically exploring feedback processes that empower and inspire students to positively reflect on and identify goals for their learning
- fostering an examination of a variety of feedback from different sources that engages students in the critical analysis and interpretation of the learning process
- critically exploring equitable and inclusive processes for reflecting, documenting and interpreting learning
- critically exploring and integrating assessment, evaluation and reporting practices that align with the principles and processes of Ontario's curriculum, frameworks and policy documents
- critically exploring assessment practices 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).

I. Shared Responsibility for Learning

The exploration of the following guiding concepts will be facilitated through equitable, holistic and interrelated inquiry processes:

- critically exploring a variety of effective communication and engagement strategies, including electronic learning platforms, for authentic collaboration with parents/guardians/families, school/board personnel and community agencies
- fostering partnerships with parents/guardians/families that honour and value shared decision-making, advocacy and leadership
- critically and creatively exploring processes to encourage and honour student voice and identity in the learning process through shared decision-making and leadership
- critically exploring strategies and opportunities for professional collaboration that support student learning, resiliency, well-being and leadership
- critically exploring and openly addressing biases, discrimination and systemic barriers in order to support student learning, resiliency, well-being and inclusion
- critically exploring and analyzing positive, inclusive educational and professional cultures in which perspectives are freely-expressed and critically analyzed
- critically exploring, understanding and respecting the importance of shared responsibility and partnership that promotes social and ecological justice as conveyed in the *Foundations of Professional Practice*
- critically exploring professional collaboration within interdisciplinary teams to support student learning, resiliency, self-advocacy and transitions
- critically exploring the meaning of educational and learning stewardship
- critically exploring local, provincial and international developments and scholarship in the teaching of biology (for example, Canadian Society for Molecular Biosciences [CSMB] and Canadian Society of Environmental Biologists [CSEB-SCBE])
- critically exploring and creating a community of learners that can guide students towards different steps in the inquiry process.

J. Research, Professional Learning and the Scholarship of Pedagogy

The exploration of the following guiding concepts will be facilitated through equitable, holistic and interrelated inquiry processes:

- explicitly exploring scholarship and research in metacognition that support student learning and well-being
- critically exploring and reflecting on current and evolving practices in Biology (for example, PBL [Problem Based Learning] and RAFT [Role, Audience, Format and Topic] scenarios)
- critically exploring professional practice through ongoing inquiry into theory and pedagogy/andragogy
- critically exploring and engaging in transformational professional learning through research, scholarship and leadership
- critically exploring factors that relate to ethical responsibility in research and scholarship (for example, morality, cultural mores, stakeholder positions, contrary data, intellectual honesty, pseudoscience and transparency)
- critically exploring critical pedagogy that integrates research and the scholarship of pedagogy/andragogy into teaching practice
- critically exploring and engaging in research and the scholarship of critical pedagogy/andragogy to advance communities of practice
- critically exploring knowledge-creation and mobilization to enhance professional practice and leadership
- critically exploring ethical responsibilities in research and scholarship that honour and embody the *Ethical Standards for the Teaching Profession*.

6. Instructional Design and Practices in the Additional Qualification Course: Senior Division, Science - Biology

The instructional design and practices (Figure 5) employed in this AQ course reflect adult learning theories, effective andragogical processes and experiential learning methods that promote critical reflection, dialogue and inquiry.

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

In the implementation of this Additional Qualification course, instructors **facilitate** pedagogical processes that are relevant, meaningful and practical to provide candidates with inquiry-based learning experiences related to program

design, planning, instruction, pedagogy, integration and assessment and evaluation. The pedagogical processes include but are not limited to: experiential learning, role-play, simulations, journal writing, self-directed projects, independent study, small group interaction, dialogue, action research, inquiry, pedagogical documentation, collaborative learning, narrative, case methodologies and critical reflective praxis.



Figure 5: Instructional Processes

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

Instructors **model** critical inquiry, universal design, differentiated instruction and assessment practices that can be replicated or adapted in a variety of classroom settings.

Experiential Learning

Candidates will be provided with opportunities to engage in experiential learning related to key concepts and aspects of *Senior Division, Science - Biology* 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 and inquiries related to *Senior Division, Science - Biology*. The professional judgment, knowledge, skills, efficacy and pedagogical practices of candidates will be enhanced and refined through experiential learning and critical inquiry.

Safety training is important for every science teacher, including *Senior Division, Science - Biology* candidates. In formulating their experiential learning activities, both course instructors and candidates need to be aware of safety considerations. There are a variety of resources available online to explore these safety considerations.

The College's standards-based resources help to support experiential learning through various professional inquiry processes. These can be found at: <http://www.oct.ca/resources/categories/professional-standards-and-designation>

7. Assessment and Evaluation of Candidates

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

A balanced approach to candidate assessment and evaluation is used. It includes the combination of self, peer and mutual (instructor and candidate) 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 also allow candidates flexibility, choice and the opportunity to design individual inquiry opportunities.

Learning processes support an in-depth exploration of concepts and inquiries. These processes occur over the duration of the course and are reflective of critical thinking and reflection as the candidate gains knowledge and skills over the duration of the course.

The evaluation practices will also support significant and in-depth critical inquiries utilizing a variety of processes over the duration of the course. These inquiry-based assessment processes provide opportunities for candidates to illustrate a depth of professional knowledge, skills, pedagogies, ethical practices and instructional leadership.

A final culminating experience in the course is recommended. This synthesis experience will reflect the in-depth knowledge and understanding gained as a result of engagement in this AQ. It will also include critical reflections and an analysis of a candidate's learning over time.

The following processes are provided to guide assessment practices within this AQ course and are reflective of experiential learning and critical pedagogies. This list is not exhaustive.

<p>a) Pedagogical Leadership: co-constructing, designing and critically assessing culturally inclusive learning opportunities that integrate student voice, strengths, interests and needs. The learning opportunities will incorporate a variety of technologies and resources and are reflective of Ministry of Education curriculum</p> <p>b) Pedagogical Portfolio: creating a professional portfolio that critically analyzes teaching and learning philosophies, assumptions, practices and pedagogies designed to inform ethical and democratic learning environments</p>	<p>g) Transition Plan: critically reflecting on and analyzing a student transition plan and generating recommendations for enhancement</p> <p>h) Narrative Inquiry: collaboratively and critically analyzing narratives of teaching and learning through a number of lenses (for example, professional identity, professional efficacy, ethical leadership and critical pedagogies) utilizing the processes of narrative writing and/or narrative discussion</p> <p>i) Innovative Learning Experience: designing and facilitating an engaging, innovative learning experience that reflects differentiated instruction, universal design and the tiered approach</p>
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<p>c) Pedagogical Documentation: assembling visible records (for example, written notes, photos, videos, audio recordings and artefacts, records of students' learning) that enable teachers, parents/guardians/families and students to discuss, interpret and reflect upon the learning process</p> <p>d) Educational Grant: prepare for an educational grant for school improvement such as school greening project or a student voice grant</p> <p>e) Critical Action Research: engaging in individual and/or collaborative action research that is informed by the critical exploration of various action research approaches</p> <p>f) Case Inquiry: critically reflecting on and inquiring into professional practice through case writing and/or case discussion</p>	<p>j) IEP Development: collaboratively developing an IEP with the family, student and school team</p> <p>k) Partnership Plan: designing a comprehensive plan that engages students, families and the school and local communities in collaborative partnerships that support student learning, growth, resiliency and well-being</p> <p>l) Critical Reflection: critically analyzing educational issues associated with this AQ utilizing scholarly research through multiple representations (for example, narratives, written documentation and images or graphics)</p> <p>m) Visual Narrative: creating a visual narrative (for example, digital story) that helps to support the collective professional identity of the teaching profession and advances professional knowledge and pedagogy.</p>
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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, families, 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, families 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.

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.