



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 Teacher's Qualification Regulation

June 2019

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Additional Qualification Course Guideline for Senior Division, Science – Biology

1. Introduction

Additional Qualification courses support educators in creating a safe, inclusive and welcoming learning environment and provide the context for educators to explore the professional knowledge and practices needed, as they strive to honour the strengths, interests and needs of every student.

Creating inclusive learning environments requires the commitment of all partners – teachers, students, families, guardians, caregivers and the community. This vision of inclusivity, as well as working to sustain it, requires ongoing effort and shared responsibility. This involves collectively and critically reflecting on the impact of policies, practices and processes on inclusive learning environments.

The following critical reflections (Figure 1) may guide educators in creating and sustaining a vision of inclusive education:

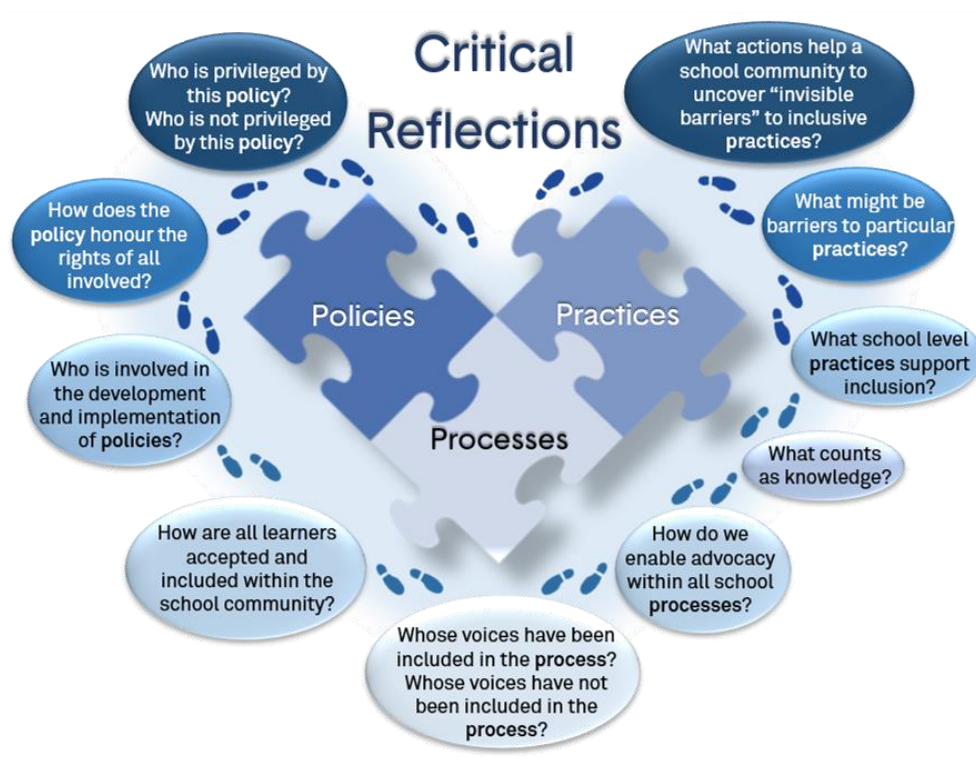


Figure 1: Critical Reflections

2. Conceptual Framework

The Schedule A *Senior Division, Science – Biology* Additional Qualification course guideline provides a conceptual framework 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 course guideline for *Senior Division, Science – Biology* is organized using the following conceptual framework (Figure 2),



Figure 2: 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 Additional Qualification 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 divisions. Through these explorations, candidates strengthen professional efficacy by gaining in-depth knowledge, refining professional judgment and generating new knowledge for practice.

Additional Qualification Course Implementation

Course providers, instructors and developers will use this Additional Qualification 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 from an asset-based and ethical lens. 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.

Educators in Ontario work in varied and diverse educational contexts. Educators may find themselves in a variety of educational settings such as: a rural French language school, a Catholic school, an urban public school, a First Nation school, a provincial school, a private or independent school. Educators will reflect on the unique context of each community to enhance learning, and well-being.

In this document, all references to “candidates” are to educators enrolled in the Additional Qualification course. References to “learners” indicate those enrolled in school programs.

3. Professional Identity and the Vision of the Learner

The professional identity of the Additional Qualification course instructor and course candidates conveyed in this Additional Qualification 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*, as well as through Additional Qualification consultations.

This vision of the educator (Figure 3) positions professional educators as innovative scholars and practitioners, critical pedagogues who forward social and ecological justice, as well as:

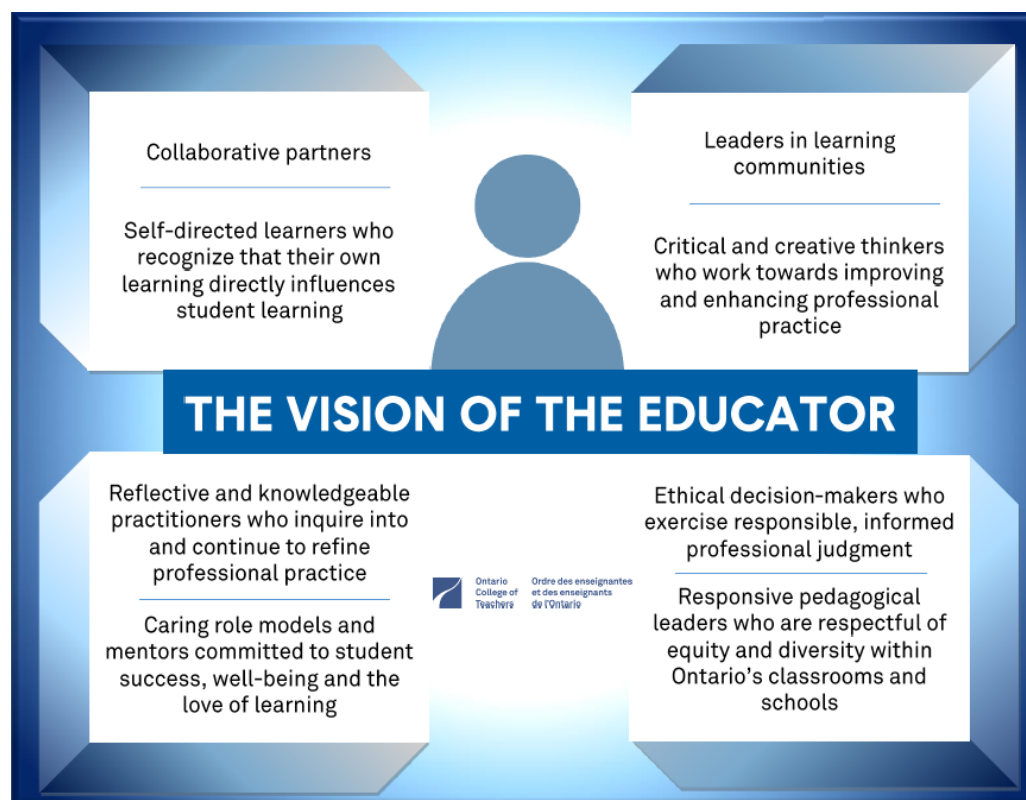


Figure 3: Vision of the Educator¹

¹ Note. From “The Foundations of Professional Practice,” by Ontario College of Teachers, 2016, p. 16. Copyright 2016 by Ontario College of Teachers. Reprinted with permission.

The learner conveyed in this Additional Qualification (Figure 4) 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, perspectives and sense of efficacy and agency are integral to shaping the teaching and learning process.



Figure 4: Vision of the Learner

4. 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 educators 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 Additional Qualification 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 Course: *Senior Division, Science – Biology*, listed in Schedule A of the *Teachers' Qualifications Regulation*, is recorded on the Certificate of Qualification and Registration.

5. Foundations of Professional Practice

The *Foundations of Professional Practice* conveys a provincial vision of what it means to be an educator in Ontario. This vision lies at the core of educator professionalism. The *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession* (see 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 educator 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 Additional Qualification 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 educators 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 Additional Qualification courses.

6. Pedagogical Inquiry Framework

The pedagogical inquiry framework (Figure 5) for *Senior Division, Science – Biology* supports a holistic, integrated, experiential and inquiry-based Additional Qualification Course. This pedagogical inquiry framework supports the professional knowledge, judgment, critical pedagogies and practices of course candidates.



Figure 5: 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 learners and their learning. Members of the Ontario College of Teachers, in their position of trust, demonstrate responsibility in their relationships with learners, parents, families, caregivers, guardians, educational partners, colleagues, 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 Additional Qualification 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 Additional Qualification 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 biases, assumptions, beliefs and understandings associated with teaching and learning within the context of this Additional Qualification
- critically exploring the professional identity and practices associated with the views of educators as co-inquirers, scholars and researchers working alongside empowered learners 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 the concept of cultural appropriation
- 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, including assessment and evaluation practices, that link curriculum to learners' interests, strengths, inquiries, needs and well-being
- critically examining processes, practices and policies to create and sustain holistic learning environments that nurture the identities of learners and their intellectual, social, emotional, physical, linguistic, cultural, spiritual and moral development
- critically exploring engagement processes and practices intended to foster collaboration with learners, in-school personnel, families, caregivers, guardians and the community to support the learning, identities 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 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, ecological consciousness, social justice and democratic citizenship within local, national and global contexts
- 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 learning, foster learner voice and perspectives, encourage critical thinking and promote social justice
- critically examining qualitative and quantitative research associated with professional practices, policies and pedagogies in support of learning, empowerment and agency

- critically exploring and integrating educational processes, practices and policies that support learners' well-being and efficacy
- critically exploring and integrating inclusive processes for fostering interprofessional collaboration that support the development and implementation of Individual Education Plans (I.E.P.) and Transition Plans for learners that include the voices and perspectives 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 socio-constructivist theories as theoretical foundations for this Additional Qualification
- critically exploring the *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession* as theoretical foundations for educator 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 curriculum design that uses learners' inquiry questions, passions and interests (for example, R.A.F.T. [Role, Audience, Format, Topic] projects, P.B.L. [Problem-Based Learning], ConcepTesting, Science Fair, P.E.O.E. cycle [Predict-Explain-Observe-Explain] and J.i.T.T. [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 learners
- critically exploring the significance of relevant legislation at the municipal, provincial, federal and international levels and associated responsibilities of professional practice

- critically exploring educators' 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 educators' 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 assessment and evaluation practices that are fair, transparent and equitable
- 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 learning and engagement (for example, print, visual and digital)
- critically exploring a variety of assistive technologies to support learning and well-being
- critically exploring and planning learning opportunities and programs that support various educational pathways and goals
- critically exploring how learners' 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 the learning styles, voice, perspectives, strengths and experiences of learners and makes modifications for learner exceptionalities
- critically exploring how the study of biology can influence the lives of learners and their learning journey
- critically exploring practices that promote deeper engagement and understanding of course inquiries through understanding the learner's own curiosities and leveraging the learner's own context and experience
- critically exploring pedagogical documentation and utilizing a variety of assessment processes to inform program planning, support learning and foster engagement
- critically exploring information technology that supports 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, Whiteboards, First Steps Process and ConcepTests)
- critically exploring and understanding a variety of assessment and evaluation instruments appropriate for the developmental stages of learners
- critically exploring Science and Technology in Society and the Environment (S.T.S.E.).

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 ethical, positive, equitable, accepting, inclusive, safe and engaging learning environments for learners and families, caregivers and guardians while teaching biology
- critically exploring the ethical and safe preparation, handling, storage and disposal of biological specimens, materials and chemicals
- promoting safety through the use of Personal Protective Equipment (P.P.E.)
- 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 learner voice and perspectives, leadership, critical inquiry and self-regulation
- critically exploring a variety of instructional strategies to support learning and well-being
- cultivating safe, ethical, legal and respectful practices in the use of different technological tools that 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 learners 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 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, identities and development of all learners
- critically exploring feedback processes that empower and inspire learners to positively reflect on and identify goals for their learning
- fostering an examination of a variety of feedback from different sources that engages learners 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 learners and to adjust instruction (*assessment for learning*); to develop learners' capacity to be independent, autonomous learners (*assessment as learning*); to make informed professional judgments about the quality of 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 for authentic collaboration with families, caregivers, guardians, school/board personnel and community agencies
- fostering open and transparent partnerships with families, caregivers and guardians that honour and value shared decision-making, confidentiality, advocacy and leadership
- critically and creatively exploring processes to encourage and honour learners' voice and perspectives and identities in the learning process through shared decision-making and leadership
- critically exploring strategies and opportunities for professional collaboration that support learning, 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 voices and 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 learning, well-being, 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 [C.S.M.B.] and Canadian Society of Environmental Biologists [C.S.E.B.-S.C.B.E.])
- critically exploring the benefits of participating in organizations related to the teaching of Biology (for example, Science Teacher's Association of Ontario [S.T.A.O.] and the National Association of Biology Teachers [N.A.B.T.])
- 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, P.B.L. [Problem-Based Learning] and R.A.F.T. [Role, Audience, Format, 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*
- critically exploring theories and pedagogies about multiple forms of oppression, power and privilege.

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

The instructional design and practices (Figure 6) employed in this Additional Qualification 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** andragogical 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 andragogical 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.

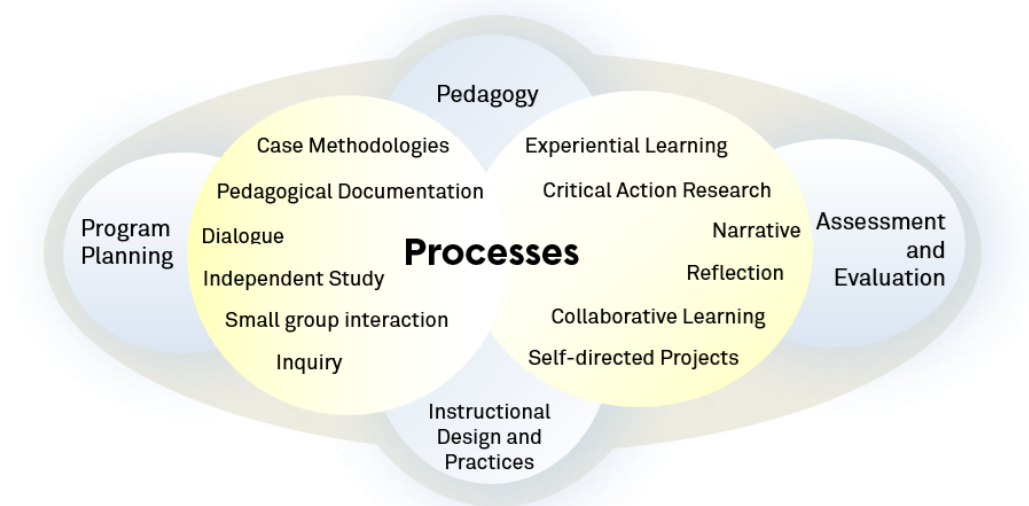


Figure 6: Instructional Processes

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>.

8. 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 Additional Qualification. 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 Additional Qualification course and are reflective of experiential learning and critical pedagogies. This list is not exhaustive.

Assessment Processes

- a) **Pedagogical Leadership:** co-constructing, designing and critically assessing culturally inclusive learning opportunities that integrate voice and perspectives, strengths, interests and needs. The learning opportunities will incorporate a variety of technologies and resources and are reflective of Ministry of Education curriculum
- b) **Pedagogical Documentation:** assembling visible records (for example, written notes, photos, videos, audio recordings, artefacts and records of learning) that enable educators, families, caregivers, guardians and learners to discuss, interpret and reflect upon the learning process
- c) **Critical Reflection:** critically analyzing educational issues associated with this Additional Qualification utilizing scholarly research through multiple representations (for example, narratives, written documentation and images or graphics)
- d) **Critical Action Research:** engaging in individual and/or collaborative action research that is informed by the critical exploration of various action research approaches
- e) **Case Inquiry:** critically reflecting on and inquiring into professional practice through case writing and/or case discussion
- f) **Transition Plan:** critically reflecting on and analyzing a transition plan and generating recommendations for enhancement
- g) **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

- h) **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
- i) **Innovative Learning Experience:** designing and facilitating an engaging, innovative learning experience that reflects differentiated instruction, universal design and the tiered approach
- j) **Partnership Plan:** designing a comprehensive plan that engages learners, families, caregivers, guardians and the school and local communities in collaborative partnerships that support learning, growth and well-being
- k) **I.E.P. Development:** collaboratively developing an I.E.P. with families, caregivers, guardians, learners and the school team
- l) **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.

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 to 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.

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.

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.

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

- 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.

Appendix 2

College Standards-Based Resources

Information pertaining to the following standards-based resources, which support learning through professional inquiry, is available through the College web site at www.oct.ca.

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