2010
Saskatchewan Curriculum

Renewed Curricula:

Understanding Outcomes

August 2010

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Curriculum Renewal

Saskatchewan's education partners have a long history of commitment to providing the best research-based educational programs possible. This commitment, combined with high quality curriculum and instruction, effective assessment practices, a wide range of resources, and supportive families and communities, prepares students to live full and rewarding lives, embrace opportunities and challenges, and actively engage with their communities.

Renewal of K-12 curricula has been undertaken to incorporate recent educational research, and to make clear the desired results for learning, in order to effectively address the learning needs and potential of every student.

> **Purpose of this Document**
>
> **The purpose of this document is to assist school division central office personnel, administrators, educators, and communities in coming to a deeper understanding of renewed Saskatchewan curricula, including student outcomes and indicators, and planning for student achievement.**

Curriculum renewal has been taking place within five broad strategies:

- development of curriculum frameworks
- focus on First Nations, Métis, and Inuit content, perspectives, and ways of knowing
- evaluation, identification, and development of learning resources
- provision of professional learning supports
- consultation and collaboration with partners and stakeholders.

Renewal began with the common understanding that K-12 students must be educated to participate in a world of rapid and complex change. This dynamically evolving environment requires that students develop multiple literacies, increase depth of knowledge, and acquire a range of twenty-first century skills and abilities. Students must also develop a desire for personal and collective achievement, and a willingness to collaborate for the well-being of themselves, others, and their planet. With these and other worthy goals in mind, it is essential that everyone involved in the education of Saskatchewan students have an in-depth understanding of grade-level expectations for learning in all areas of study. This document is intended to support educators and educational partners in achieving that deep understanding.

The Renewal Process

To prepare for curriculum renewal, Saskatchewan embarked upon a review of Canadian and international jurisdictions to determine how current research is reflected in curricula. The review also focused on challenges such as students not achieving at desired levels, some teachers feeling overwhelmed by a large number of learning objectives, and curriculum documents that were large and difficult to navigate. In addition, educational partners and communities dedicated many years to addressing First Nations, Métis, and Inuit content and perspectives and recognized the need to think more deeply about how to address this critical area in ways that are foundational to curriculum development and implementation processes. Results of the review indicated that many jurisdictions were moving towards identification of high level outcomes and indicators.

While acknowledging that much of Saskatchewan's curricula is highly respected nationally and internationally, the purpose of renewal is to sustain and strengthen the best of what already exists, and develop renewed curricula that are concise, persuasive, and educative. The goals of renewal are achieved through:

- clarifying expectations and outcomes for students
- ensuring relevance and consistency for all students across grade levels and areas of study
- focusing on central tenets and developing deep understanding within areas of study (which are living disciplines)
- incorporating effective research-based instruction and assessment practices and providing ease of access and use for teachers
- promoting a contextualized and constructivist approach to instruction and learning.

Using this Curriculum Support Document

This document may be used in professional learning workshops or meetings to provide participants with an overview of curriculum renewal including examination of student outcomes in each area of study. Alternatively, the same topics included in this document may be addressed on separate occasions, and in more depth, over a longer period of time.

The discussion questions and suggested activities included in this document may be adapted to support individual teacher reflection and planning, subject area or grade-alike professional learning groups, an entire school staff, cluster of schools, or school division-wide inservice. Some of the discussion questions and activities can also be adapted for K-12 students, parents/caregivers, community groups, university students, and others.

In the spirit of inquiry and co-construction of knowledge, teachers and professional learning groups can build upon their current understanding through the activities suggested in this document and through other reflective processes (i.e., Curriculum Reflection, Curriculum Inquiry, and Curriculum Networking) described in *Classroom Curriculum Connections: A Teacher's Handbook for Personal-Professional Growth* (2001). Teachers will want to return multiple times to the information included in this support document to gain a more complete understanding of outcomes in each area of study.

The following professional learning topics are intended to be examined in the order in which they are presented here, as each new topic builds upon understanding gained from the previous topics.

Topics for Professional Learning

Broad Areas of Learning

Cross-curricular Competencies

Aims

Goals

Understanding the Conceptual Foundations

Identifying the Big Ideas

Outcomes

Assessment and Evaluation

Planning with a Focus on the Outcomes

Reflecting on the Conceptual Framework

In addition to the topics mentioned above, professional learning facilitators will find useful information in the sections entitled:

Next Steps

Questions and Responses (Appendix E)

The information, questions, and activities included in this document will assist administrators, teachers, and others in constructing a contextualized understanding of curriculum renewal and recognizing connections between Broad Areas of Learning, Cross-curricular Competences, K-12 aims and goals, and grade-specific outcomes and indicators in each area of study.

Broad Areas of Learning

Three Broad Areas of Learning (Appendix A) provide a conceptual foundation for the renewal of curricula, and encompass and build upon the provincial Goals of Education. Refer to renewed curriculum documents for descriptions of how each area of study contributes to student development in each Broad Area of Learning. The K-12 goals and grade level outcomes for each area of study are designed to ensure that students reach their full potential in each of the following Broad Areas of Learning:

Lifelong Learners

**Sense of Self,
Community, and Place**

Engaged Citizens

Discussion questions for professional learning

1. What are the central ideas in each Broad Area of Learning?
2. In what ways might each area of study address the three Broad Areas of Learning?
3. How are First Nations and Métis perspectives and ways of knowing reflected in each Broad Area of Learning?

Professional learning activities

Facilitators:

- Ensure that participants receive copies of Appendix A.
- Form grade-alike or area of study groups.
- Select one or more of the above-mentioned discussion questions.
- Ask each group, or teacher, to represent a different area of study, ensuring that all areas of study are included.

Participants:

- Read the explanation of the Broad Areas of Learning.
- Discuss and answer the question(s) ensuring that all areas of study are considered.

Reflection/Extension

- How might the K-12 goals and outcomes for each area of study support student development in the three Broad Areas of Learning?
- How do the Broad Areas of Learning provide a foundation for curriculum renewal in Saskatchewan?

Cross-curricular Competencies

Saskatchewan curricula are designed to develop four interrelated Cross-curricular Competencies (Appendix B) that synthesize and build upon the six Common Essential Learnings. The following competencies contain understandings, values, skills, and processes considered important for learning in all areas of study.

Developing Thinking

Developing Identity and Interdependence

Developing Literacies

Developing Social Responsibility

Discussion questions for professional learning

1. What are the important ideas in each Cross-curricular Competency?
2. How do the Cross-curricular Competencies connect to student development of the Broad Areas of Learning?
3. In what ways might each area of study strengthen students' development of each Cross-curricular Competency?
4. What particular classroom practices will support student development in each Cross-curricular Competency?
5. How do the Cross-curricular Competencies support student learning in each area of study?

Professional learning activities

Facilitators:

- Ensure that participants have copies of Appendix B.
- Form grade-alike or area of study groups.
- Select one or more of the above-mentioned discussion questions.
- Ask each group, or teacher, to represent a different area of study, ensuring that all areas of study are included.

Participants:

- Read the explanations of the Cross-curricular Competencies.
- Discuss and answer the question(s) ensuring that all areas of study are considered.
- Share insights with the whole group. Explain to the other participants, for example, how arts education might help students to develop various literacies, or how mathematics might develop thinking, or how health education might help students develop social responsibility.
- Continue until all areas of study have been included in the discussion.

Reflection/Extension

- What Cross-curricular Competencies do I tend to focus on in classroom practice? What are the strategies I use? What additional strategies could I use to further strengthen students' abilities related to these Cross-curricular Competencies?
- To what Cross-curricular Competencies do I pay the least attention? What strategies could I begin to incorporate into my classroom practice to support student development related to these Cross-curricular Competencies?

Aims

Each area of study has a K-12 aim (Appendix C). The aims describe the reason why students should develop deep understanding in that discipline.

Discussion questions for professional learning

1. What is the essence of each K-12 aim?

2. Why is it important to ensure that each aim receives appropriate focus and attention in the education of each child/student?

3. How does each K-12 aim support development of Cross-curricular Competencies and Broad Areas of Learning?

Professional learning activities

Facilitators:

- Hand out the list of aims for all areas of study (Appendix C).

Participants:

- Select question(s) for discussion in pairs, followed by whole group discussion at each table.
- Explain how educators might describe and share in a meaningful way the K-12 aims to students and/or parents/caregivers.
- Imagine that one or more of the aims were removed from the list, and then discuss what would be the lifelong implications of that omission for the development of the whole child.

Reflection/Extension

- Back in the classroom, provide students with a copy of the K-12 aims for all areas of study. Create an explanation of each aim for younger students.
- Ask pairs or groups of students to discuss and explain the importance of one aim to the whole group.
- Have students examine the meaning and implications of each aim, and ask why they think these aims are believed to be worthwhile.
- Ask students to discuss and describe how the various aims combine to educate the whole child/student.
- Ask students to individually or collaboratively construct a model (or other type of interpretation such as music or dance) to represent their collective understanding of the aims. Or alternatively, guide students through the creation of a drama in which some fictional individuals have been denied the opportunity to develop one or more of the aims (e.g., What if students never learned to read, use mathematics, understand science, or make healthy choices in life, and so on?).
- Display the models or present the students' representations of the aims in an innovative way to share information with parents/caregivers at a school or community event.

Goals

K-12 goals are clearly identified for each area of study (Appendix D). These K-12 goals are foundational to the development of deep understanding in each area of study and provide a long-term focus for teaching and learning in contributing to the achievement of the K-12 aim.

> "The complexity of teaching for deep understanding can be made clearer by an examination of constructivism, an approach to teaching and learning widely advocated today. ... According to constructivists, students acquire fuller understanding if they are personally involved in building their knowledge. It is not enough that teachers go further into a subject; students must go with them, and they will only do so if they are engaged intellectually, emotionally, and in other ways."
>
> (Leithwood, McAdie, Bascia, & Rodrigue, 2006, p. 18)

Discussion questions for professional learning

1. In what ways do the K-12 goals for each area of study provide a comprehensive and holistic context for attainment of deep understanding in that discipline?

2. How do the K-12 goals in each area of study relate to its K-12 aim?

3. How do the K-12 goals in each area of study help teachers to plan for and support student engagement, various perspectives, worldviews, and multiple ways of knowing?

4. How do the K-12 goals in each area of study help teachers to plan for and support student achievement of outcomes?

5. How could the meaning of these K-12 goals be shared/developed/constructed with students at various grade levels?

Professional learning activities

Facilitators:

-   Hand out the list of K-12 goals (Appendix D).
-   Partner participants together. Ask the pairs to read, analyze, and discuss the goals for the same area of study.
-   Following the sharing, partner with new pairs from a different area of study to share information.

Participants:

-   Investigate and discuss one or more of the suggested questions.
-   In pairs, discuss the K-12 goals from one area of study. Share insights with pairs from another area of study.

Reflection/Extension

-   Reflect on how the K-12 goals for each area of study interrelate with each other and contribute to the achievement of the K-12 aim.
-   Reflect upon current incorporation of K-12 goals in classroom practice. Create a plan for ensuring that all of the goals in an area of study are adequately addressed throughout the year.
-   Back in the classroom, assist students in the interpretation and construction of models to represent the goals for various areas of study. Display student-created representations of the goals of each area of study as a way of deepening student understanding about what they are studying, and share those insights with other students, parents, and communities. Through journal writing or other activities, students could reflect upon how the K-12 goals within each area of study relate to the respective K-12 aim.

Understanding the Conceptual Foundations

An effective learning program is purposefully planned to connect the parts to the whole. The Broad Areas of Learning, Cross-curricular Competencies, area of study K-12 aims and goals, and grade-level outcomes are interconnected. It is important that teachers keep this interconnectedness in mind when planning.
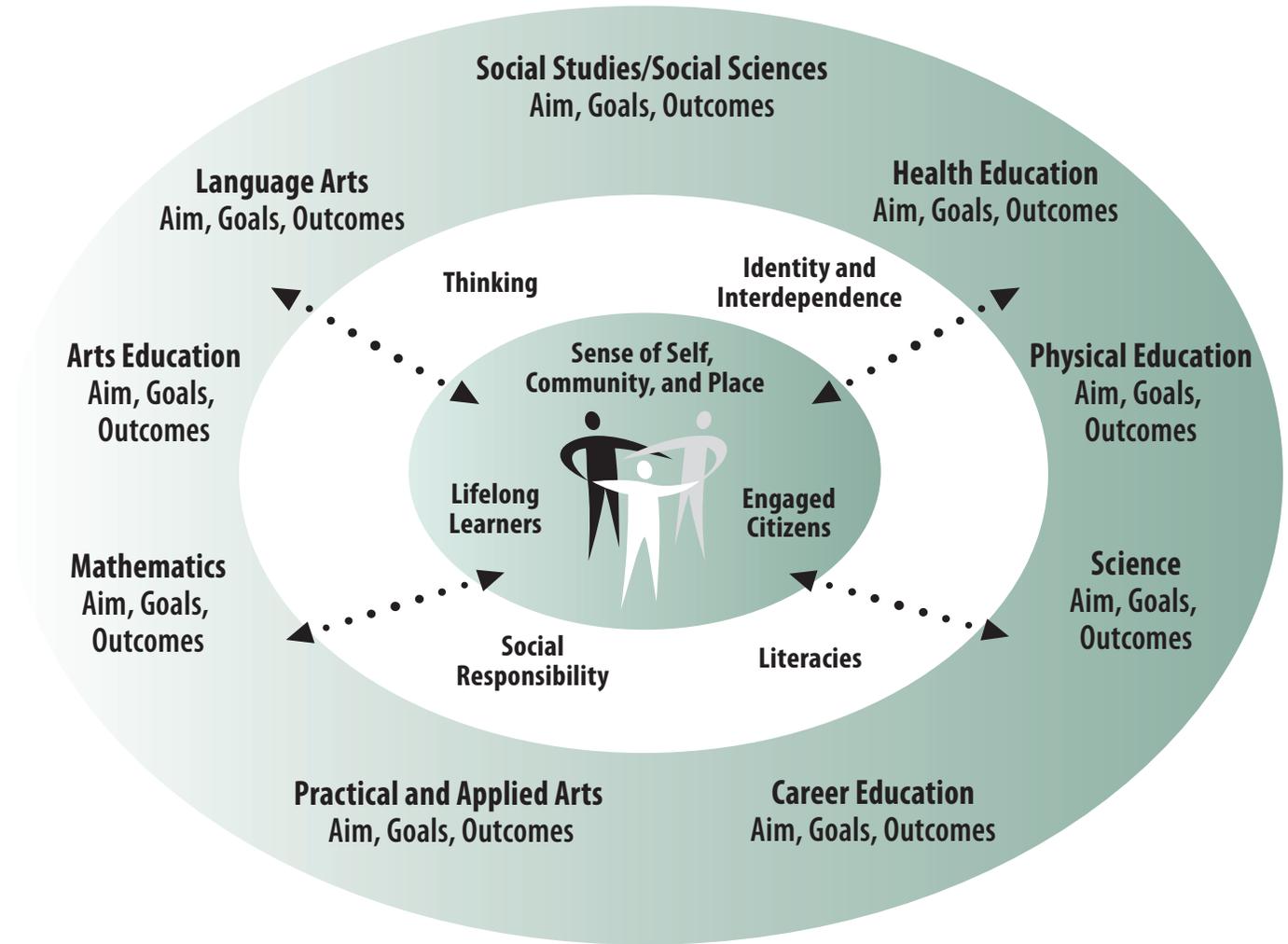

Figure 1. Conceptual Foundations for Saskatchewan Curricula

Understanding the Conceptual Foundations (continued)

Discussion questions for professional learning

1. How do I currently plan for and support students in developing the important ideas encompassed by the Broad Areas of Learning? What else might be done to deepen students' understanding in these areas?
2. How do I currently plan for and support students in developing the important ideas encompassed by the four Cross-curricular Competencies? What else might be done to engage students in developing these competencies?
3. How do the K-12 goals reflect the aim of an area of study?
4. How would I explain to others the vision for K-12 curriculum in Saskatchewan based on what I have learned about the Broad Areas of Learning, Cross-curricular Competencies, and K-12 aims and goals for all areas of study?

Professional learning activities

Facilitators:
- In addition to previous handouts, ensure that participants have a copy of Figure 1. A specific version of the graphic is contained in each curriculum.
- Work with participants as a whole group to synthesize their understandings of the previous discussion topics (i.e., Broad Areas of Learning, Cross-curricular Competencies, Aims, and Goals).

Participants:
- Select a goal for any area of study and visualize the connections from that goal, to the Cross-curricular Competencies, through to the Broad Areas of Learning. Discuss how the integrity of these connections could be kept in mind and maintained when planning units and lessons.

Reflection/Extension

- Discuss and co-construct with colleagues a vision or representation of K-12 education in Saskatchewan as articulated by the Broad Areas of Learning, Cross-curricular Competencies, and the K-12 aims and goals for the various areas of study. Share this vision with students, other educators, and community members.

Identifying the Big Ideas

It is important that teachers and students learn within meaningful contexts that relate to their lives, communities, and world. Teachers and students need to identify big ideas and questions for deeper understanding central to the area of study.

> "'A big idea' is not necessarily vast in the sense of a vague phrase covering lots of content. Nor is a big idea a 'basic' idea. Rather, big ideas are at the 'core' of the subject; they need to be uncovered; we have to dig deep until we get to the core. ... The big ideas at the core of a subject are arrived at, sometimes surprisingly slowly, via teacher-led inquiries and reflective work by students."
>
> Exploration of big ideas involves discovery of facts, concepts, skills, strategies, processes, connections, and meaning. Big ideas encompass concepts, skills, attitudes, and habits of mind. This knowledge helps students make sense of and apply what they learn. A "big idea can be thought of as:
>
> - providing a focusing conceptual 'lens' for any study
> - providing breadth of meaning by connecting and organizing many facts, skills, and experiences; serving as the linchpin of understanding
> - pointing to ideas at the heart of expert understanding of the subject
> - requiring "uncoverage" because its meaning or value is rarely obvious to the learner, is counterintuitive or prone to misunderstanding
> - having great transfer value; applying to many other inquiries and issues over time – 'horizontally' (across subjects) and 'vertically' (through the years in later courses) in the curriculum and out of school".
>
> In pedagogical practice, a **big idea** is typically manifest as a helpful:
>
> - concept (e.g., adaptation, communication, function, transportation, perspective)
> - broad or overarching theme (e.g., 'relationships', 'good triumphs over evil', 'coming of age', 'cultural traditions', 'extinction' rather than a narrower topic such as dinosaurs, 'change' rather than narrower seasonal topics such as Hallowe'en, pumpkins, or snowflakes)
> - ongoing debate and point of view (e.g., nature versus nurture, conservation versus development, acceptable margin of error, place-based knowledge)
> - paradox (e.g., freedom must have limits, leave home to find oneself, equity may demand affirmative action)
> - theory (e.g., evolution via natural selection)
> - underlying assumption (e.g., texts have meaning, texts reflect privilege, markets are rational, the arts should entertain)
> - recurring question (e.g., 'Is that fair?' 'How do we know?' 'Can we verify or prove it?')
> - understanding or principle (e.g., form follows function, the reader has to question the text to understand it, correlation does not ensure causality).
>
> A big idea can manifest itself in various formats – as a word, a phrase, a sentence, or a question.
>
> (Adapted from Wiggins & McTighe, 2005, pp. 67-70)

Big Ideas Evoke Questions for Deeper Understanding

Big ideas evoke inquiry questions. These questions are important in developing a deep understanding of the discipline or unit of study within the discipline. They do not have obvious answers and they foster high-order thinking. They invite genuine inquiry. According to Clifford and Marinucci (2008), inquiry happens in ecological spaces where complex, hidden connections already exist or are created through the ways in which the questions are taken up by a particular group of students in a particular time.

It is important to develop questions that are evoked by student interests and sense of wonder and have potential for rich and deep learning. These questions are used to initiate and guide inquiries that lead to deep understandings about topics, problems, ideas, challenges, issues, concepts, and areas of study.

Effective questions for deeper understanding:

- cause genuine and relevant inquiry into the key ideas and core content
- provide for thoughtful, lively discussion, sustained inquiry, and new understanding as well as more questions
- require students to consider alternatives, weigh evidence, support their ideas, and justify their answers
- stimulate vital, ongoing rethinking of ideas, assumptions, or prior lessons
- spark meaningful connections with prior learning, personal experiences, and ways of knowing
- naturally recur, creating opportunities for transfer to other situations and subjects.

(Adapted from Wiggins & McTighe, 2005, p. 110)

The process of constructing questions for deeper understanding can help students grasp the important disciplinary ideas and conceptual connections that are situated at the core of a particular curricular focus or context. Effective questions for deeper understanding are the key to initiating and guiding students' investigations and critical thinking, problem solving, and reflection on students' own learning. These broad questions lead to more specific questions that can provide a framework, purpose, and direction for the learning activities in a lesson, or series of lessons, and help students connect what they are learning to their experiences and life beyond school.

Constructing Understanding Through Inquiry
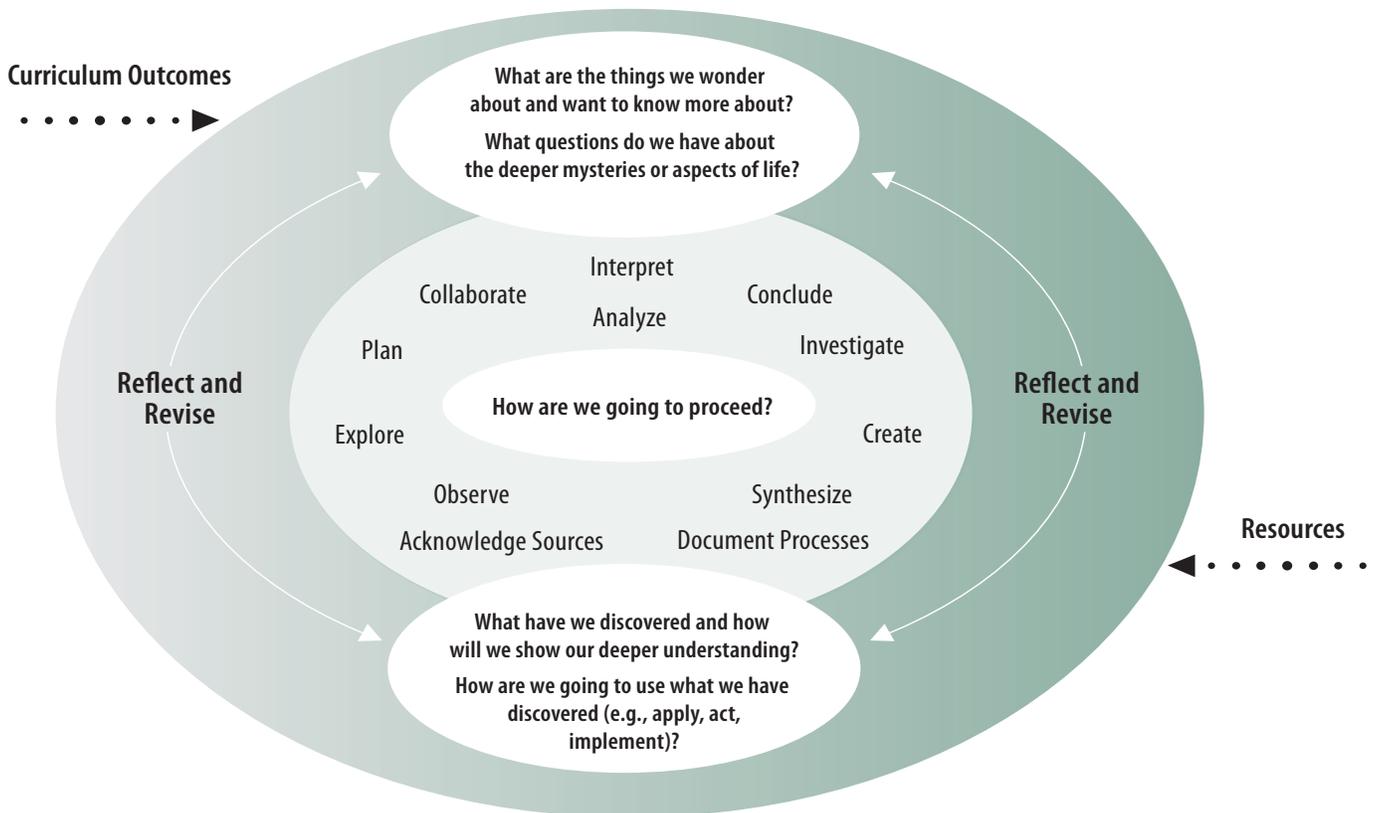
Identifying the Big Ideas (continued)

Discussion questions for professional learning

1. What are some of the big ideas for a selected area of study at a specific grade level?

2. What are some inquiry questions that students might ask about these big ideas?

3. How could these big ideas and questions invite higher-level thinking?

4. How could I support students in developing their own questions in a selected topic within an area of study?

5. How does my current instructional practice support student inquiry in this area of study?

6. What additional instructional practices and resources would support student inquiry in this area of study?

7. How does my current practice support the notion that each area of study is a dynamic and evolving way of knowing the world?

8. How does my current practice support the notion that knowledge can be contested?

Professional learning activities

Facilitators:

- Ensure that renewed curriculum documents for each area of study are available.
- Select one or more of the above-mentioned discussion questions.

Participants:

- Review grade specific outcomes and identify one or more big ideas that students will be addressing during the year.
- Predict some questions for deeper understanding that students might consider throughout their inquiry.

Reflection/Extension

- Select one or more outcomes and design a unit of study around the big ideas considering potential inquiry questions.
- What more do I need to learn about supporting student inquiry in this area of study?

Outcomes

The learning expected of students in Saskatchewan is defined by high level curriculum outcomes for each grade. As Saskatchewan students achieve the grade-specific outcomes identified in curricula, they will deepen their understanding of each area of study as a living field of knowledge.

Outcomes define what a student is expected to know and be able to do at the end of the grade or Secondary Level course. Therefore, all curriculum outcomes are required. Indicators clarify the breadth and depth of each outcome.

> Outcomes attempt to show the world of mathematics (or arts education or science, etc.) as a living, breathing, contested, human discipline … and needs our intelligence and our work (adapted from Friesen, Clifford, & Jardine, 2006, p. 22).

Outcomes were developed based on current research to ensure coherence and rigour within each area of study while attaining complementarity across the areas of study within each grade level. Following are four disciplinary examples of characteristics of effective outcomes:

- are considered by most experts in the discipline a high priority for attaining deep understanding
- represent thinking or behaving like a subject discipline expert within the subject discipline
- require creation using different types and levels of knowledge including factual, conceptual, procedural, and metacognitive (i.e., addresses competency and not just content coverage)
- are expansive enough to encourage and require various ways of knowing and worldviews.

(Galileo Network/Saskatchewan Ministry of Education, 2009)

Indicators are examples of ways that students might be asked to demonstrate achievement of an outcome. They serve as examples of the type of evidence that teachers would accept to determine the extent to which students have achieved the desired learning results. The set of indicators provided in the curriculum for an outcome:

- provides the intent (depth and breadth) of the outcome
- tells the story, or creates a picture, of the outcome
- defines the level and types of knowledge intended by the outcome
- is not a checklist or prioritized list of instructional activities or prescribed assessment items.

When teachers are planning for instruction, they must be aware of the set of indicators to understand fully the breadth and depth of the outcome. Based on this understanding of the outcome, teachers may develop their own indicators that are responsive to their students' interests, lives, and prior learning. These teacher-developed indicators must maintain the intent of the outcome.

Saskatchewan outcomes require that students develop a combination of **factual, conceptual, procedural,** and **metacognitive** knowledge. Bloom's influential learning taxonomy of knowledge and cognitive process dimensions has been revised and expanded since it was first developed in 1956. The most recent revision process involved some of Bloom's former colleagues and representatives of three groups including "cognitive psychologists, curriculum theorists and instructional researchers, and testing and assessment specialists" (Anderson & Krathwohl, 2001, p. xxviii). The revised taxonomy (Figure 2) recognizes the different types of knowledge (the knowledge dimension) and the processes that students use as they learn (the cognitive process dimension).

The Knowledge Dimension	The Cognitive Process Dimension					
	Remembering *(lower level thinking)*	**Understanding**	**Applying**	**Analyzing**	**Evaluating**	**Creating** *(higher level thinking)*
Factual Knowledge (essential facts, terms, details, or elements)						
Conceptual Knowledge (principles, generalizations, theories, models)						
Procedural Knowledge (methods of inquiry, skills, techniques, strategies)						
Metacognitive Knowledge (awareness of own thinking and processes)						

Figure 2. Bloom's Revised Taxonomy Table (Anderson & Krathwohl, 2001, pp. 67-68)

Visualizing the Desired Results

As Wiggins and McTighe (2005) observe in *Understanding by Design*, "... in the best designs, form follows function. In other words, all the methods and materials we use are shaped by a clear conception of the vision of desired results" (p. 14). The vision or visualization of the desired results (i.e., outcomes) is a key to teachers developing a deep understanding of the intent of each outcome. For example, when reading an outcome, it is important to determine the type of knowledge required by the outcome (i.e., factual, conceptual, procedural, metacognitive, or a combination).

As teachers reflect deeply and collaborate with each other to identify the types of knowledge required by the outcomes, they will be better able to visualize what the achievement of each outcome will look, sound, and feel like in the classroom. Clear visualization of the desired results (i.e., evidence of achievement of outcomes) assists teachers in planning learning experiences that engage students in higher level thinking and learning.

When determining the **intent** of curriculum outcomes and indicators, teachers need to look at the nouns to determine what is being learned, and the verbs to determine the cognitive process dimension. Note that some verbs fit into more than one dimension of the cognitive process (Figure 3). Several educational researchers provide examples of verbs related to each cognitive process dimension. Following is one example adapted from Anderson and Krathwohl (2001).

Remembering	Understanding	Applying	Analyzing	Evaluating	Creating
(lower level thinking) ←					→ *(higher level thinking)*
Retrieving, recognizing, and recalling relevant knowledge from long-term memory.	Constructing meaning from oral, written, and graphic messages through interpreting, exemplifying, classifying, summarizing, inferring, comparing, and explaining.	Carrying out or using a procedure through executing or implementing.	Breaking material into constituent parts, determining how the parts relate to one another and to an overall structure or purpose through differentiating, organizing, and attributing.	Making judgements based on criteria and standards through checking and critiquing.	Putting elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure through generating, planning, or producing.
verbs such as: recall list name identify repeat quote label recognize ...	verbs such as: discuss interpret classify summarize infer compare explain ...	verbs such as: execute implement use perform practise demonstrate apply ...	verbs such as: analyze organize attribute categorize investigate experiment distinguish examine ...	verbs such as: check assess estimate rank justify argue evaluate critique ...	verbs such as: construct design create improvise invent compose generate plan produce ...

Figure 3. Cognitive Process Dimension Verbs

Outcomes (continued)

Discussion questions for professional learning

1. What is the intent of an outcome?
2. Select one or more outcomes. What type of knowledge is required by each outcome (i.e., factual, conceptual, procedural, metacognitive, or a combination)? How do the verbs in the outcomes and indicators inform planning and assessment?
3. How do the indicators help me understand the intent of this outcome?
4. What types of evidence might demonstrate that students have achieved a particular outcome?
5. What types of instructional and assessment strategies lend themselves to students acquiring the different types of knowledge?

Professional learning activities

Facilitators:

- Provide the renewed curriculum documents and a copy of Bloom's Revised Taxonomy (Figure 2) and the Cognitive Process Dimension Verbs (Figure 3).

Participants:

- Discuss question #1.
- Select an outcome from an area of study. Discuss question #2 and question #4.
- Select an outcome without reading the indicators. Create your own list of learning tasks and assessments for the outcome. Ask yourself, "What would I be looking for in order to know that the student had a deep understanding (breadth and depth) of that outcome?"
- Compare own tasks and assessments to curriculum indicators considering questions such as:
  – "How does my list of learning tasks and assessments compare with the indicators that are provided in the curriculum?"
  – Do the two sets address the same content and processes? Is anything missing or extraneous?
  – Do the two sets address the same cognitive processes and types of knowledge in Bloom's revised taxonomy?
- Discuss how the indicators inform the intent of the outcomes.
- Using Bloom's Revised Taxonomy Table (Figure 2) and Cognitive Process Dimension Verbs (Figure 3), decide where each outcome, or parts of each outcome, would be assigned on the table.

Reflection/Extension

- How does knowledge of this outcome affect my understanding of the area of study and vice versa?
- How does knowledge of this outcome affect my students' understanding of the area of study and vice versa?
- How does this outcome contribute to articulating the particular discipline as a living field of knowledge?
- Select or write an indicator for an outcome and classify according to Bloom's revised taxonomy.

Assessment and Evaluation

Assessment and evaluation are integral components of the teaching-learning cycle. Effectively planned assessment and evaluation promotes learning, builds confidence, and develops students' understanding of themselves as learners. Effectively planned assessment and evaluation also improves and guides future instruction and learning.

Assessment is the act of gathering information on an ongoing basis in order to understand individual students' learning and needs.

Evaluation is the culminating act of interpreting the information gathered through relevant and appropriate assessments for the purpose of making decisions or judgements, often at reporting time.

Assessment and evaluation are continuous activities that are planned for and derived from curriculum outcomes and consistent with the instructional learning strategies. The depth and breadth of each outcome, as defined by the indicators, informs teachers of the skills, processes, and understandings that should be assessed.

Effective and authentic assessment and evaluation involves:

- designing performance tasks that align with curricular outcomes
- involving students in determining how their learning will be demonstrated
- planning for the three phases of assessment and evaluation indicated in Figure 4 below.

Phases of Assessment and Evaluation	Purpose	Also Called
Assessment *for* learning (before)	To determine students' prior knowledge and skills.	Diagnostic assessment
Assessment *for* and *as* learning (during)	To determine the next steps in learning	Formative assessment
Assessment *of* learning (after)	To judge what students have learned based on data obtained through several recent and varied assessment techniques.	Summative assessment and evaluation

Figure 4. Assessment and Evaluation Phases

There is a close relationship among outcomes, instructional approaches, learning activities, assessment, and evaluation. Refer to curriculum documents and online support materials for information specific to each area of study. Assessments need to be reflective of the cognitive processes and level(s) of knowledge indicated by the outcome. An authentic assessment will only collect data at the level for which it is designed.

Assessment and Evaluation (continued)

Discussion questions for professional learning

1. What evidence will demonstrate that students have achieved deep understanding in this outcome?
2. What assessment techniques best align with this outcome?
3. What do I imagine my students doing in order to achieve this outcome and demonstrate their understanding through the assessments that I design?
4. How can I ensure that I have aligned the assessment and evaluation to the outcome?

Professional learning activities

Facilitators:

- Ensure that renewed curriculum documents for each area of study are available.
- Ask each group or participant to select a different area of study, ensuring that all areas of study are represented.

Participants:

- Review one (or more) grade specific outcome(s) and the related indicators in an area of study and answer one or more of the discussion questions.
- Develop an assessment task reflecting both the cognitive processes and levels of knowledge appropriate for the outcome along with any tools needed to accompany the task (e.g., rubric, anecdotal observation form).
    - Reflect upon and adjust, if necessary, the assessment task through the lenses of the Broad Areas of Learning, Cross-curricular Competencies, and the K-12 aim and goals of the area of study.
    - Plan for instruction to support student success in achieving the outcome and demonstrating evidence of achievement through the assessment task.

Reflection/Extension

- What techniques in my current repertoire will support assessment of this outcome?
- What additional data would I like to collect related to an outcome? If I'm not sure how to gather this data, how can I learn about other assessment techniques that I could use?
- How might I assess and evaluate student learning of multiple outcomes?

Planning with a Focus on the Outcomes

After teachers have attained a thorough understanding of the intent of the outcomes and considered the types of evidence that might demonstrate student achievement of these outcomes, they can begin planning to ensure that the outcomes, assessment, and activities are aligned. The following three phases of planning provide teachers with a planning framework.

Phases of Planning	Reflective Questions
1. Identify outcomes and big ideas	What types of knowledge are required by the outcome? What key facts, concepts, processes, and other knowledge do students need to construct in this area of study? What are the big ideas that students will be exploring? What questions will engage students in exploring the big ideas? What learning context(s) will enable students to attain these outcomes in a meaningful way?
2. Identify evidence of learning	What types of evidence will demonstrate that students have achieved the outcome(s)? What am I looking for and what might I observe? What assessments for learning will help determine students' needs? What assessments will I use during the learning process? Is there an opportunity to support students' metacognitive development through Assessment as Learning? What assessments of learning will I use to determine the extent to which students have achieved the outcomes?
3. Create units, lessons, and activities	Which instructional strategies will be most useful and align with the outcomes? How will I sequence the activities and lessons to help students achieve the outcomes? How will I adjust plans if assessments indicate unpredicted or undesired results? What range of resources might best support students in achieving the outcomes? How will I adapt instructional materials, methods, and/or the learning environment to ensure all students achieve the outcomes?

Figure 5. Phases of Planning

Curriculum outcomes are not to be adapted. When addressing the Adaptive Dimension, teachers are responsible for adapting instructional materials, methods, and environment in order to assist all students in demonstrating achievement of the outcomes.

Planning with a Focus on the Outcomes (continued)

Discussion questions for professional learning

1. What types of knowledge are required by this outcome(s)?
2. What are the big ideas inherent in, or associated with, this outcome or cluster of outcomes?
3. What types of evidence will demonstrate that students have achieved this outcome(s)?
4. How will I know the degree to which students are demonstrating achievement of this outcome or cluster of outcomes?
5. How will I engage students in ways that will lead to deep understanding of this outcome or cluster of outcomes?

Professional learning activities

Facilitators:

- Ensure that renewed curriculum documents for each area of study are available.
- Distribute copies of Phases of Planning (Figure 5).
- Ask each group or participant to select outcomes from one or more areas of study to begin planning.

Participants:

- Review one or more grade specific outcomes in an area of study and answer the discussion questions.
- Begin to outline a unit using the three phases of planning.
- Share reflections on this planning process including the Reflective Questions in Phases of Planning.

Reflection/Extension

- Based on initial planning and reflection, what are the next steps for unit development?

Reflecting on the Conceptual Foundations

In a coherent curriculum, the various component parts are interconnected. This interconnectedness provides a wholeness to the curriculum. Wholeness refers to the fact that the curriculum is developed with a vision that is larger than the sum of its parts. Broad Areas of Learning, Cross-curricular Competencies, and the aim, goals, outcomes, instruction, and assessment and evaluation for each area of study work in concert to ensure that the vision of the curriculum is realized.

Discussion questions for professional learning groups

1. How are the grade-level outcomes informed and impacted by the area of study K-12 aim, goals, Cross-curricular Competencies, Broad Areas of Learning, and inquiry?

2. In my planning, what are the shortcomings of focusing only on the parts, and neglecting the big picture?

3. In what ways can I help students deepen their understanding and engage in learning with a spirit of inquiry?

Professional learning activities

Facilitators:

- Guide participants through a discussion to review their conceptualization of renewed curricula developed through previous professional learning discussions.
- Provide assorted paper, glue, tape, coloured pens, wires, found objects, scissors, and other construction materials.

Participants:

- Discuss the interdependence of the various component parts of the Saskatchewan curriculum.
- Construct a model, map, or graphic depiction of the relationships among the various parts of the whole.

Reflection/Extension

- Periodically review and reflect upon the conceptual model, map, or graphic created above and see what new adjustments might be made (or perhaps develop a new visual organizer).
- Regularly review updates and initiatives to inform conceptual understanding of Saskatchewan curricula.

Next Steps

A thorough and coherent understanding of a curriculum requires extensive reflection and application. Educators need to be provided with multiple opportunities to revisit the topics included in this support document. The following provides participants with the opportunity to reflect on and plan for next steps.

Discussion questions for professional learning groups

1. What are the possible next steps to take when back in the classroom, in the school, and in local professional learning groups?

2. How will I plan for students' deep understanding and achievement of outcomes within meaningful contexts (versus a series of isolated facts and skills)?

Professional learning activities

Facilitators:

- Lead participants through reflection and discussion about next steps.

Participants:

- Identify priorities for next steps to achieve effective implementation of renewed curricula (e.g., reviewing outcomes, considering assessments, planning instruction, and accessing resources).

Reflection/Extension

- For a particular area of study at a specific grade, map the outcomes to Bloom's Revised Taxonomy Table (Figure 2).
- Based on the group discussion, how has my thinking changed with regard to the question being discussed?
- Design a learning plan based on some of the outcomes for an area of study.
- Design a year plan based on the outcomes for one or more areas of study.
- Discuss the year plan with administrators to highlight how outcomes will be achieved and how the plan reflects the foundations and interconnectedness of renewed curricula.

Appendix A: Broad Areas of Learning

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Note to Reader: The Broad Areas of Learning reflect the desired attributes for Saskatchewan's PreK-12 students. The descriptions below show the knowledge (factual, conceptual, procedural, metacognitive) that students will achieve throughout their PreK-12 schooling career.

Sense of Self, Community, and Place[*]

(Related to the following Goals of Education: Understanding and Relating to Others, Self Concept Development, and Spiritual Development)

Students possess a positive sense of identity and understand how it is shaped through interactions within natural and constructed environments. They are able to nurture meaningful relationships and appreciate diverse beliefs, languages, and practices from the First Peoples of Saskatchewan and from the diversity of cultures in our province. Through these relationships, students demonstrate empathy and a deep understanding of self, others, and the influence of place on identity. In striving to balance their intellectual, emotional, physical, and spiritual dimensions, students' sense of self, community, and place is strengthened.

Lifelong Learners

(Related to the following Goals of Education: Basic Skills, Lifelong Learning, Positive Lifestyle)

Students are curious, observant, and reflective as they imagine, explore, and construct knowledge. They demonstrate the understandings, abilities, and dispositions necessary to learn from subject discipline studies, cultural experiences, and other ways of knowing the world. Such ways of knowing support students' appreciation of Indigenous worldviews and learning about, with, and from others. Students are able to engage in inquiry and collaborate in learning experiences that address the needs and interests of self and others. Through this engagement, students demonstrate a passion for lifelong learning.

Engaged Citizens

(Related to the following Goals of Education: Career and Consumer Decisions, Membership in Society, and Growing with Change)

Students demonstrate confidence, courage, and commitment in shaping positive change for the benefit of all. They contribute to the environmental, social, and economic sustainability of local and global communities. Their informed life, career, and consumer decisions support positive actions that recognize a broader relationship with, and responsibility for, natural and constructed environments. Along with this responsibility, students recognize and respect the mutual benefits of Charter, Treaty, and other constitutional rights and relationships. Through this recognition, students advocate for self and others, and act for the common good as engaged citizens.

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[*]   A sense of place is a geographic concept that attempts to define our human relationship with the environment and knowledge derived from this relationship.

Appendix B: Cross-curricular Competencies

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Although described separately, the cross-curricular competencies (i.e., Thinking, Identity and Interdependence, Literacies, and Social Responsibility) are interrelated. They are intended to embrace the Common Essential Learnings and support student achievement of subject area outcomes and, ultimately, the provincial Goals of Education (as expressed through the Broad Areas of Learning).

These competencies are addressed through all areas of study and through school and classroom routines, relationships, and environments. Such inclusive, culturally diverse, resource-rich environments include increasingly networked, technology-rich classrooms.

Each cross-curricular competency has three K-12 goals:

- Goals to develop Thinking are:
  - Think and learn contextually
  - Think and learn creatively
  - Think and learn critically.

- Goals to develop Identity and Interdependence are:
  - Understand, value, and care for oneself (intellectually, emotionally, physically, spiritually)
  - Understand, value, and care for others
  - Understand and value social, economic, and environmental interdependence and sustainability.

- Goals to develop Literacies are:
  - Construct knowledge related to various literacies
  - Explore and interpret the world using various literacies
  - Express understanding and communicate meaning using various literacies.

- Goals to develop Social Responsibility are:
  - Use moral reasoning processes
  - Engage in communitarian thinking[*] and dialogue
  - Take social action.

These interrelated K-12 goals express the breadth of each competency. The outcomes listed below each goal show what students will know, understand, and be able to do related to a particular goal. Such knowledge (factual, conceptual, procedural, metacognitive) can be demonstrated in developmentally appropriate ways. Embedded within these four competencies is the effective use of technology for teaching and learning. Similarly, foundational to both the Broad Areas of Learning and the Cross-curricular Competencies are Indigenous epistemologies.

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[*] Communitarian thinking is the ability to "think with" others, learn from others, and support the thinking of others. For further information, see the Renewed Objectives for the CELs of Critical and Creative Thinking and Personal and Social Development (2008).

Cross-curricular Competencies (continued)

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Developing Thinking

(Related to CEL of Critical and Creative Thinking)

Constructing knowledge (i.e., factual, conceptual, procedural, and metacognitive) is how people come to know and understand the world around them. Deep understanding develops through thinking and learning contextually, creatively, and critically in a variety of situations, both independently and with others.

K-12 Goal: Think and learn contextually

- Apply prior knowledge, experiences, and the ideas of self and others in new contexts
- Analyze connections or relationships within and/or among ideas, experiences, or natural and constructed objects
- Recognize that a context is a complex whole made of parts
- Analyze a particular context for the ways that parts influence each other and create the whole
- Explore norms*, concepts, situations, and experiences from several perspectives, theoretical frameworks, and worldviews.

K-12 Goal: Think and learn creatively

- Show curiosity and interest in the world, new experiences, materials, and puzzling or surprising events
- Experiment with ideas, hypotheses, educated guesses, and intuitive thoughts
- Explore complex systems and issues using a variety of approaches such as models, simulations, movement, self-reflection, and inquiry
- Create or re-design objects, designs, models, patterns, relationships, or ideas by adding, changing, removing, combining, and separating elements
- Imagine and create central images or metaphors for subject area content or cross-disciplinary ideas.

K-12 Goal: Think and learn critically

- Analyze and critique objects, events, experiences, ideas, theories, expressions, situations, and other phenomena
- Distinguish among facts, opinions, beliefs, and preferences
- Apply various criteria to assess ideas, evidence, arguments, motives, and actions
- Apply, evaluate, and respond to differing strategies for solving problems and making decisions
- Analyze factors that influence self and others' assumptions and abilities to think deeply, clearly, and fairly.

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*   Norms can include unexamined privilege (i.e., unearned rights/entitlements/immunity/exemptions associated with being "normal") which creates a power imbalance gained by birth, social position, or concession and provides a particular context.

                                                         Saskatchewan Ministry of Education 2010

Cross-curricular Competencies (continued)

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Developing Identity and Interdependence

(Related to CELs of Personal and Social Development and Technological Literacy)

Identity develops as an individual interacts with others and the environment, and learns from various life experiences. The development of a positive self-concept, the ability to live in harmony with others, and the capacity and aptitude to make responsible decisions about the natural and constructed world supports the concept of interdependence. The focus within this competency is to foster personal reflection and growth, care for others, and the ability to contribute to a sustainable future.

K-12 Goal: Understand, value, and care for oneself (intellectually, emotionally, physically, spiritually)

- Recognize that cultural and linguistic backgrounds, norms, and experiences influence identity, beliefs, values, and behaviours
- Develop skills, understandings, and confidence to make conscious choices that contribute to the development of a healthy, positive self-identity
- Analyze family, community, and societal influences on the development of identity and the privileges (recognized and unrecognized) which that may or may not entail
- Demonstrate self-reliance, self-regulation, and the ability to act with integrity
- Develop personal commitment and the capacity to advocate for self.

K-12 Goal: Understand, value, and care for others

- Demonstrate openmindedness[*] toward, and respect for, all
- Learn about various peoples and cultures
- Recognize and respect that people have values and worldviews that may or may not align with one's own values and beliefs
- Value the personal abilities and interests that enable individuals to make positive contributions to society
- Advocate for the well-being of others.

K-12 Goal: Understand and value social, economic, and environmental interdependence and sustainability[**]

- Examine the influence of worldviews on one's understanding of interdependence in the natural and constructed world
- Evaluate how sustainable development depends on the effective and complex interaction of social, environmental, and economic factors
- Analyze how one's thinking, choices, and behaviours affect living and non-living things, now and in the future
- Investigate the potential of individual and group actions and contributions to sustainable development
- Demonstrate a commitment to behaviours that contribute to the well-being of the society, environment, and economy – locally, nationally, and globally.

[*] Openmindedness refers to a mind that is open to new ideas, and free from prejudice or bias in order to develop an "ethical space" (Ermine).

[**] Sustainability refers to making informed decisions for the benefit of ourselves and others, now and for the future, and to act upon those decisions for social, economic, and environmental well-being.

Cross-curricular Competencies (continued)

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Developing Literacies

(Related to CELs of Communication, Numeracy, Technological Literacy, and Independent Learning)

Literacies provide many ways to interpret the world and express understanding of it. Being literate involves applying interrelated knowledge, skills, and strategies to learn and communicate with others. Communication in a globalized world is increasingly multimodal. Communication and meaning making, therefore, require the use and understanding of multiple modes of representation. Each area of study develops disciplinary literacies (e.g., scientific, economic, physical, health, linguistic, numeric, aesthetic, technological, cultural) and requires the understanding and application of multiple literacies (i.e., the ability to understand, critically evaluate, and communicate in multiple meaning making systems) in order for students to participate fully in a constantly changing world.

K-12 Goal: Construct knowledge related to various literacies

- Acknowledge the importance of multiple literacies in everyday life
- Understand that literacies can involve words, images, numbers, sounds, movements, and other representations and that these can have different interpretations and meanings
- Examine the interrelationships between literacies and knowledge, culture, and values
- Evaluate the ideas and information found in a variety of sources (e.g., people, databases, natural and constructed environments)
- Access and use appropriate technologies to investigate ideas and deepen understanding in all areas of study.

K-12 Goal: Explore and interpret the world using various literacies

- Inquire and make sense of ideas and experiences using a variety of strategies, perspectives, resources, and technologies
- Select and critically evaluate information sources and tools (including digital) based on the appropriateness to specific tasks
- Use various literacies to challenge and question understandings and interpretations
- Interpret qualitative and quantitative data (including personally collected data) found in textual, aural, and visual information gathered from various media sources
- Use ideas and technologies in ways that contribute to creating new insight.

K-12 Goal: Express understanding and communicate meaning using various literacies

- Create, compute, and communicate using a variety of materials, strategies, and technologies to express understanding of ideas and experiences
- Respond responsibly and ethically to others using various literacies
- Determine and use the languages, concepts, and processes that are particular to a discipline when developing ideas and presentations
- Communicate ideas, experiences, and information in ways that are inclusive, understandable, and useful to others
- Select and use appropriate technologies in order to communicate effectively and ethically.

Cross-curricular Competencies (continued)

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Developing Social Responsibility

(Related to CELs of Communication, Critical and Creative Thinking, Personal and Social Development, and Independent Learning)

Social responsibility is the ability of people to contribute positively to their physical, social, and cultural environments. It requires an awareness of unique gifts and challenges among individuals and communities and the resulting opportunities that can arise. It also requires participation with others in creating an ethical space[*] to engage in dialogue, address mutual concerns, and accomplish shared goals.

K-12 Goal: Use moral reasoning processes

- Evaluate the possible consequences of a course of action on self, others, and the environment in a particular situation
- Consider the implications of a course of action when applied to other situations
- Apply, consistently, fundamental moral values[**] such as "respect for all"
- Demonstrate a principle-based approach to moral reasoning
- Examine how values and principles have been and continue to be used by persons and cultures to guide conduct and behaviour.

K-12 Goal: Engage in communitarian thinking and dialogue

- Model a balance in speaking, listening, and reflecting
- Ensure that each person has an opportunity to be heard and valued
- Demonstrate courage to express differing perspectives in a constructive manner
- Use consensus-building strategies to work towards shared understanding
- Be sensitive to, and respectful of, diversity and different ways of participating.

K-12 Goal: Take social action

- Demonstrate respect for and commitment to human rights, treaty rights, and environmental sustainability
- Contribute to harmony and conflict resolution in own classroom, school, family, and community
- Provide support in a manner that is respectful of the needs, identity, culture, dignity, and capabilities of all persons
- Support individuals in making contributions toward achieving a goal
- Take responsible action to change perceived inequities or injustice for self and others.

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[*]   An ethical space exists between separate worldviews. In this space, "we can understand one another's knowledge systems" (Ermine, 2006). For further information, see Willie Ermine's work related to ethical space.

[**]   The most basic moral value underlying development of the CEL of Personal and Social Development is that of respect for persons. For further discussion related to fundamental moral values, refer to Understanding the Common Essential Learnings: A Handbook for Teachers (1988, pages 42-49). See also the Renewed Objectives for the CELs of Critical and Creative Thinking and Personal and Social Development (2008).

Appendix C: Aims for Areas of Study

Arts Education

The K-12 aim of arts education curricula is to enable students to understand and value arts expressions throughout life.

Career Education

The aim of career education curricula is to enable all students to develop essential skills and career management competencies to assist them in achieving their potential as they construct their personal life and work career.

English Language Arts

The K-12 aim of English language arts curricula is to help students understand and appreciate language, and to use it confidently and competently in a variety of situations for learning, communication, work, life, and personal satisfaction.

Health Education

The K-12 aim of health education curricula is to develop confident and competent students who understand, appreciate, and apply health knowledge, skills, and strategies throughout life.

Mathematics

The K-12 aim of mathematics curricula is to help students develop the understandings and abilities necessary to be confident and competent in thinking and working mathematically in their daily activities and ongoing learnings and work experiences. The mathematics program is intended to stimulate the spirit of inquiry within the context of mathematical thinking and reasoning.

Physical Education

The K-12 aim of physical education curricula is to support students in becoming physically educated individuals who have the understandings and skills to engage in movement activity, and the confidence and disposition to live a healthy, active lifestyle.

Practical and Applied Arts

The aim of practical and applied arts curricula is to enable students, through exploration and experience, to demonstrate practical skills and understanding in the context of practical and applied arts.

Science

The K-12 aim of science curricula is to enable students to develop scientific literacy within the context of Euro-Canadian and Indigenous heritages, both of which have developed an empirical and rational knowledge of nature.

Social Studies and Social Sciences

The purpose of Kindergarten to Grade 12 social studies is to help students know and appreciate the past, understand the present, influence the future, and make connections between events and issues of the past, the present, and the future. Further, its purpose is to make students aware that, just as contemporary events have been shaped by actions taken by people in the past, they have the opportunity to shape the future. The ultimate aim is for students who have a sense of themselves as active participants and citizens in an inclusive, culturally diverse, interdependent world.

Appendix D: Goals for Areas of Study

Refer to provincial curriculum documents in each area of study for more detailed explanations of the following K-12 goals.

Arts Education

- Cultural/Historical (CH) - Students will investigate the content and aesthetics of the arts within cultural, historical, and contemporary contexts and understand the connection between the arts and the human experience.
- Critical/Responsive (CR) - Students will respond to artistic expressions of Saskatchewan, Canadian, and International artists using critical thinking, research, creativity, and collaborative inquiry.
- Creative/Productive (CP) - Students will inquire, create, and communicate through dance, drama, music, and visual art.

Career Education

- Change and Growth (CG) - Students will develop career management competencies through an exploration of personal change and growth.
- Connections to Community (CC) - Students will explore the connections between learning and work pathways and their connections to community.
- Life and Work Plan (LW) - Students will engage in inquiry to construct a personal life and work plan.

English Language Arts

- Comprehend and Respond (CR) - Students will extend their abilities to view, listen to, read, comprehend, and respond to a range of contemporary and traditional grade-level texts in a variety of forms (oral, print, and other texts) from First Nations/Métis and other cultures for a variety of purposes including for learning, interest, and enjoyment.
- Compose and Create (CC) - Students will extend their abilities to represent, speak, and write to explore and present thoughts, feelings, and experiences in a variety of forms for a variety of purposes and audiences.
- Assess and Reflect (AR) - Students will assess their own language skills; discuss the skills of effective viewers, representers, listeners, speakers, readers, and writers; and set goals for future improvement.

Health

- Understanding, Skills, and Confidences (USC) - Students will develop the understanding, skills, and confidences necessary to take action to improve health.
- Decision Making (DM) - Students will make informed decisions based on health-related knowledge.
- Apply Decisions (AP) - Students will apply decisions that will improve personal health and/or the health of others.

Mathematics

- Logical Thinking - Through their learning of K-12 mathematics, students will develop and be able to apply mathematical reasoning processes, skills, and strategies to new situations and problems.
- Number Sense - Through their learning of K-12 mathematics, students will develop an understanding of the meaning of, relationships between, properties of, roles of, and representations (including symbolic) of numbers and apply this understanding to new situations and problems.
- Spatial Sense - Through their learning of K-12 mathematics, students will develop an understanding of 2-D shapes and 3-D objects, and the relationships between geometrical shapes and objects and numbers, and apply this understanding to new situations and problems.
- Mathematics as a Human Endeavour - Through their learning of K-12 mathematics, students will develop an understanding of mathematics as a way of knowing the world that all humans are capable of with respect to their personal experiences and needs.

Physical Education

- Active Living - Enjoy and engage in healthy levels of participation in movement activities to support lifelong active living in the context of self, family, and community.
- Skillful Movement - Enhance quality of movement by understanding, developing, and transferring movement concepts, skills, tactics, and strategies to a wide variety of movement activities.
- Relationships - Balance self through safe and respectful personal, social, cultural, and environmental interactions in a wide variety of movement activities.

Science

- Understand the Nature of Science and STSE Interrelationships - Students will develop an understanding of the nature of science and technology, their interrelationships, and their social and environmental contexts, including interrelationships between the natural and constructed world.
- Construct Scientific Knowledge - Students will construct an understanding of concepts, principles, laws, and theories in life science, in physical science, in earth and space science, and in Indigenous Knowledge of nature; and then apply these understandings to interpret, integrate, and extend their knowledge.
- Develop Scientific and Technological Skills - Students will develop the skills required for scientific and technological inquiry, problem solving, and communicating; for working collaboratively; and for making informed decisions.
- Develop Attitudes that Support Scientific Habits of Mind - Students will develop attitudes that support the responsible acquisition and application of scientific, technological, and Indigenous knowledge to the mutual benefit of self, society, and the environment.

Social Studies

- Interactions and Interdependence of Peoples and Cultures (IN) - Students will examine the local, indigenous, and global interactions and interdependence of individuals, societies, cultures, and nations.
- Dynamic Relationships (DR) - Students will analyze the dynamic relationships of people with land, environments, events, and ideas as they have affected the past, shape the present, and influence the future.
- Power and Authority (PA) - Students will investigate the processes and structures of power and authority, and the implications for individuals, communities, and nations.
- Resources and Wealth (RW) - Students will examine various worldviews about the use and distribution of resources and wealth in relation to the needs of individuals, communities, nations, and the natural environment, and contribute to sustainable development.

Appendix E: Questions and Responses

Following are examples of questions that may arise during professional learning discussions. The responses provided are intended to clarify and deepen educators' understanding of outcomes as presented in Saskatchewan curricula.

1. How are Saskatchewan curriculum outcomes different from U.S. and other academic standards?

Erickson (2002) addresses the relationship between standards and curricula. He asserts that "Academic standards are not a curriculum; they are a framework for designing curriculum. A curriculum is a coherent, teacher-friendly document that reflects the intent of the academic standards" (p. 48).

The curriculum development process in Saskatchewan included scans of international academic standards, a review of educational research, and consultation with critical friends and interjurisdictional organizations. Building on this foundation, curriculum developers worked with provincial reference committees and focus groups to identify and refine a core set of high-level outcomes that reflect the research, big ideas, and central tenets of each discipline.

2. Do outcomes listed in Saskatchewan curricula need to be prioritized using models such as Ainsworth's Power/Priority Standards?

Ainsworth's (2003) Power Standards are prioritized standards that are created through an approach used to distinguish which of the numerous national or state standards are absolutely essential for student success from those that are 'nice to know' (p. 2).

In Saskatchewan, however, the work of prioritizing what is essential for students to know, understand, and be able to do has been achieved through developing concise and cohesive curricula with a core set of high-level grade-specific outcomes and indicators. Each outcome listed in Saskatchewan curricula has, therefore, already been identified as a priority outcome for that grade reflecting knowledge that is factual, conceptual, procedural, and metacognitive. Each outcome is required.

3. How do processes such as "unwrapping" or "unpacking" outcomes apply to Saskatchewan's renewed curricula?

The intent of an "unwrapping" or "unpacking" process is to help teachers deepen their understanding of each outcome in order to plan assessment and instruction. Teachers need to analyze the outcomes and look at the nouns to determine what is being learned, and the verbs to determine the cognitive process dimension (see Figures 2 and 3).

With the core set of outcomes and indicators identified in Saskatchewan's renewed curricula, it is now easier for teachers to determine what students should know, understand, and be able to do. Following analysis of selected outcomes, teachers may utilize graphic organizers and planning templates to focus instruction and assessment and develop lessons. There are numerous ways to represent big ideas, key concepts, and skills on graphic organizers or learning plan templates. It is the process of focusing teachers' attention on the meaning and intent of the outcomes, thinking about the evidence that will demonstrate student achievement of the outcomes, and visualizing how those outcomes can be achieved by students in the classroom, that is a useful task to undertake during professional learning opportunities.

Outcomes must not be rewritten or omitted. It is, however, appropriate to deconstruct an outcome and determine its relationship to student assessment and the overall intent of the curriculum. When teachers identify the main concepts and important processes in each outcome, consider what evidence will demonstrate student achievement of the outcomes, and visualize how students can achieve those outcomes, it is far easier to design and implement the most appropriate assessment and instructional tasks.

4. How can the Adaptive Dimension be used to support students in achieving the outcomes in the renewed curricula?

The Adaptive Dimension is still a necessary component of Core Curriculum. The Adaptive Dimension refers to the concept of making adjustments in instructional materials, methods, and/or the learning environment

to accommodate student diversity in order that the outcomes can be achieved by all students. Because the outcomes define what a student is expected to know, understand, and be able to do at the end of each grade or a specific course of study, all curriculum outcomes are required. They are not to be "tightened", "loosened", or rewritten to represent a different type of thinking or level of Bloom's Taxonomy. Teachers are responsible for adapting instructional materials, methods, and the learning environment in order to assist all students in achieving the outcomes. Underlying the Adaptive Dimension is a belief that:

- all students can learn and achieve as a result of effective teaching
- instruction builds on students' prior knowledge and understanding, and considers interests, learning styles, and cultural backgrounds
- instruction is informed by ongoing assessments of students' strengths and needs
- intentional supplemental instruction is provided when students need additional supports.

5. Do all students need to achieve the outcome at the same level of expectation?

Ideally, all students should achieve the outcomes in an outcome-based curriculum. Some students, for a variety of reasons, may not achieve fully some or all of the intended outcomes whereas other students will fully achieve the outcomes. Teachers will need to report the extent to which each student has achieved the outcomes.

6. Do various Core Curriculum components and initiatives still apply in the renewed curricula for Saskatchewan?

The intent of the various Core Curriculum components and initiatives still applies. The four components – Required Areas of Study, Common Essential Learnings (CELs), Adaptive Dimension, and Locally-determined Options – remain. The Common Essential Learnings (CELs) are reflected in the Cross-curricular Competencies. In addition to these components, Core Curriculum includes the following initiatives that guide the development of teaching materials as well as instruction in the classroom: Resource-based Learning; First Nations, Métis, and Inuit Content, Perspectives, and Ways of Knowing; Gender Equity; Multicultural Education; Career Development; Technology for Teaching and Learning; Instructional Approaches; and Assessment and Evaluation.

7. Our school division focuses on literacy and numeracy. How are these foci reflected in Saskatchewan's renewed curricula?

One of the important Cross-curricular Competencies for all curricula is "Developing Literacies". As this competency is cross-curricular, each area of study is expected to help students develop the knowledge, skills, and strategies associated with various literacies. In this competency, literacies are defined as multi-faceted ways of interpreting and knowing the world and expressing understanding of it.

Often literacies are interpreted very narrowly as only reading, writing, and number sense. In order to be successful in school and in life, students must learn to use and understand multiple modes of representation and symbol systems including the use of words, images, numbers, sounds, movements, and so on. Each area of study develops disciplinary literacies (e.g., scientific, economic, physical, health, linguistic, numeric, aesthetic, technological, and cultural) and requires the understanding and application of multiliteracies (i.e., the ability to understand, critically evaluate, and communicate in multiple meaning-making systems) in order for students to participate fully in a constantly changing world.

All renewed curricula recognize and reflect the important role that languages, communication, numeracy, and the other literacies play in learning and life. Literacy and numeracy, therefore, are not separated from curricula, and are addressed directly through student achievement of the outcomes identified for all areas of study. Students in a globablized world need to develop multiliteracies in order to be effective communicators, to use and evaluate critically multiple meaning-making systems, and to be lifelong learners.

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