
***Chapter 5: Curriculum Integration in the
Multilevel Classroom***

CHAPTER 5: CURRICULUM INTEGRATION IN THE MULTILEVEL CLASSROOM

Integration across Subject Areas and Grades

Successful multilevel programming integrates curricula across subject areas and grades. Research shows that students learn best when learning is connected (Jensen, *Teaching*; Vygotsky). This does not mean, however, that all curricula are integrated all the time. *Curricular Connections* (Manitoba Education and Training) outlines expectations and provides examples of various models of integration.

Students exploring the world in authentic ways will naturally call on learning associated with different subject areas. Curriculum integration allows students to develop a whole picture of the topics they explore, without artificial divisions into subject areas. Integrated themes, units, or projects based on topics in social studies, science, and health education, for example, provide purposeful contexts for learning and practising language arts and mathematics skills. They allow teachers to use time more efficiently, taking advantage of overlaps between subject areas and avoiding fragmenting the day into separate periods. To attempt to deliver distinct and separate curricula based on subject areas and grades would be a daunting task for any teacher, and would overlook the benefits multilevel learning offers.

Teachers in multilevel classrooms can approach curricula in various ways, such as the following:

- Set curriculum-based goals early in the school year in collaboration with students.
- Integrate big ideas from various curricula to make learning meaningful and to use time effectively and efficiently.
- Aim for in-depth learning and development of higher-order thinking skills, such as analysis, comparison, and synthesis, rather than addressing a great deal of content superficially.
- Analyze Early and Middle Years curricula and devise developmental continua.
- Shape curricular instruction based on ongoing observation and assessment.
- Use interdisciplinary themes to provide structure and a base for common discourse. Learning is differentiated when students embark on different application and extension tasks, based on their learning needs and interests.

- Use specific focused instruction and find ways for students to practise and apply new skills in the context of thematic projects or performances.
- Rotate content-based curricula, particularly in science and social studies, or use parts of each to complement student inquiry. In a Grades 5 and 6 multilevel classroom, for example, the class may explore topics from the Grade 5 Science curriculum one year, and from the Grade 6 Science curriculum the next.
- Recognize that teaching students how to learn is integral to every curriculum, and instruct students in the skills of independent learning.
- Target learning outcomes from various curricula for assessing processes, performances, demonstrations, and/or products.

Suggestions for integrating various subject areas in the multilevel classroom follow, along with resource suggestions.

**Integrating
English
Language Arts**

The structure of Manitoba's Curriculum Framework of Outcomes documents supports multilevel instruction in English language arts. In planning big ideas in English language arts, teachers use the five general learning outcomes (GLOs), which are the same for all grades. Students learn to listen, speak, read, write, view, and represent to

1. explore thoughts, ideas, feelings, and experiences
2. comprehend and respond personally and critically to oral, literary, and media texts
3. manage ideas and information
4. enhance the clarity and artistry of communication
5. celebrate and build community

Specific learning outcomes, when read across the grades, set up a continuum of literacy learning for teacher reference. (See Appendix D in the Early and Middle Years English language arts Curriculum Framework of Outcomes documents.) For summative assessment and evaluation, teachers target the specific learning outcomes, addressing the same outcomes (knowledge, skills and strategies, and attitudes) across all grades, with gradually increasing expectations for each grade. For example, developmental continua in reading and writing cluster specific learning outcomes along the continuum of literacy learning in order to facilitate the management of multiple learning outcomes and to support authentic assessment.

The Foundation for Implementation documents also support learning and teaching in the multilevel classroom. A wide variety of strategies for instruction and assessment are similar across many grades; however, the expectations for assessment become more sophisticated along the continuum of literacy learning. The instructional and assessment strategies also show that the English language arts learning outcomes are generally not targeted or assessed in isolation, but are clustered for instructional purposes and for creating performances, demonstrations, and/or products. Most strategies in these documents are appropriate for multilevel classrooms. In using and adapting these strategies, teachers endeavour to keep them as open-ended as possible to meet a variety of learning styles and needs.

In the study of English language arts, students learn literacy skills at different times and in different ways. Classroom learning reflects “everyday” experiences where students learn to choose and use appropriate materials for authentic purposes.

All learning involves using language, so the English language arts curriculum can be integrated naturally into all classroom learning experiences. In the process of conducting inquiries in science or social studies, for example, students learn the language skills of questioning, locating sources, and managing information, as well as developing their content reading skills and vocabulary. In conjunction with reading and producing expository texts, students may read and create aesthetic texts that allow them to explore the affective aspects of inquiry topics and to express their own response to what they are learning.

Multilevel classrooms offer many authentic opportunities for mutually beneficial partnerships in making meaning. Competent students may consolidate their skills by acting as editors for students who require support. Older students, for example, may benefit from being paired with younger students as book buddies, modelling reading skills. Younger students may form an appreciative audience for the texts produced by older classmates. Collaboration and community building (GLO 5) happen naturally in the multilevel classroom.

As in all classrooms, teachers in multilevel classrooms attempt to balance whole-group, small-group, and individual learning experiences, using a workshop format. Multilevel classrooms provide many opportunities for learners to interact in a social context that helps them develop proficient literacy skills for lifelong learning. Language arts learning is a natural by-product of all communication in the classroom.

Suggested Resources

For more information about teaching and integrating English language arts in the multilevel learning community, see the following resources:

- Baker, T. "Strategic Planning: Recognizing Patterns for Reading Instruction." *Primary Voices* 10.4 (2002): 16-22.
- Bingham, Anne A., Peggy Dorta, Molly McClaskey, and Justine O'Keefe. *Exploring the Multiage Classroom*. York, ME: Stenhouse Publishers, 1995. Ch. 6, 7, 10.
- Bodrova, E., and D. Leong. *Tools of the Mind: The Vygotskian Approach to Early Childhood Education*. Upper Saddle River, NJ: Prentice-Hall, Inc., 1996.
- Bouchard, D. *The Gift of Reading*. Victoria, BC: Orca Publishers, 2001.
- Goodman, Y. *Valuing Language Study: Inquiry into Language for Elementary and Middle Schools*. Urbana, IL: National Council of Teachers of English, 2003.
- Harwayne, S. *Writing through Childhood: Rethinking Process and Product*. Portsmouth, NH: Heinemann, 2001.
- Lauritzen, C., and M. Jaeger. *Integrating Learning through Theory: The Narrative Curriculum*. Boston, MA: Dalmar Publishers, 1997.
- Manitoba Education and Training. *Curricular Connections: Elements of Integration in the Classroom*. Winnipeg, MB: Manitoba Education and Training, 1997.
- . *Grades 5 to 8 English Language Arts: A Foundation for Implementation*. Winnipeg, MB: Manitoba Education and Training, 1998.
- . *Grades 5 to 8 English Language Arts: Manitoba Curriculum Framework of Outcomes and Grade 6 Standards*. Winnipeg, MB: Manitoba Education and Training, 1996.
- . *Kindergarten to Grade 4 English Language Arts: A Foundation for Implementation*. Winnipeg, MB: Manitoba Education and Training, 1996.
- . *Kindergarten to Grade 4 English Language Arts: Manitoba Curriculum Framework of Outcomes and Grade 3 Standards*. Winnipeg, MB: Manitoba Education and Training, 1996.

---. *Success for All Learners: A Handbook on Differentiating Instruction: A Resource for Kindergarten to Senior 4 Schools*. Winnipeg, MB: Manitoba Education and Training, 1996.

Manitoba Education and Youth. Curriculum website:
<<http://www.edu.gov.mb.ca/ks4/cur/>>.

McLaughlin, M., and M. Allen. *Guided Comprehension: A Teaching Model for Grades 3-8*. Newark, DE: International Reading Association, 2002.

Ostrow, J. *A Room with a Different View: A Practical Framework for Learning in a Multi-Age Classroom*. Markham, ON: Pembroke Publishers Limited, 1995.

Politano, Colleen, and Joy Paquin. *Brain-Based Learning with Class*. Winnipeg, MB: Portage and Main Press, 2000.

Robb, L. *Teaching Reading in Social Studies, Science, and Math: Practical Ways to Weave Comprehension Strategies into Your Content Area Teaching*. New York, NY: Scholastic, 2003.

Short, K., J. Harste, and C. Burke. *Creating Classrooms for Authors and Inquirers*. 2nd ed. Portsmouth, NH: Heinemann, 1996.

Smith, A., and A. Davies. *Wordsmithing: A Spelling Program for Grades 3-8*. Winnipeg, MB: Peguis Publishers, 1996.

Vygotsky, L.S. *Mind in Society: The Development of Higher Psychological Processes*. Cambridge, MA: Harvard University Press, 1978.

Integrating Mathematics

In an active classroom, mathematics instruction is approached in the same spirit as language arts or science instruction—as a means of satisfying curiosity about the world. “Mathematics is a science of pattern and order” (MSEB *et al.* 31). Just as the goal of science is to make sense of things, so the goal of mathematics is to find and analyze mathematical patterns and make meaning of them.

From Kindergarten to Senior 4, students in Manitoba use seven critical processes to build their understanding of mathematics and to support lifelong learning:

- Communication—showing learning orally, through diagrams, and in writing.
- Connections—making connections among everyday situations, other subject areas, and mathematics concepts.

- Estimation/mental mathematics—developing understanding of numbers and quantities.
- Problem solving—investigating problems, including those with multiple solutions.
- Reasoning—justifying thinking.
- Technology—using technology to enhance problem solving and encourage discovery of number patterns.
- Visualization—drawing on mental images to clarify concepts.

Manitoba's mathematics curriculum encourages the development of numeracy through four strands:

- Patterns and Relations
- Shape and Space
- Statistics and Probability
- Number

Manitoba's Curriculum Framework of Outcomes documents support multilevel instruction by showing how mathematics concepts develop across the grades. Teachers will find them useful in the preliminary planning for instruction before consulting the Foundation for Implementation documents for detailed ideas about using manipulatives, strategies, and performances for instruction and assessment to help learners achieve the learning outcomes.

Current research emphasizes the importance of teaching mathematics in a connected manner to increase student understanding (Askew *et al.*). Rather than teaching strand by strand or topic by topic, teachers provide learning opportunities that make connections among concepts such as measurement, geometry, numbers, and patterns. It is essential that mathematics skills be built in the context of meaningful experiences. Measurement and graphing, for example, are important tools for students engaged in interdisciplinary inquiries.

Those not familiar with multilevel classrooms may assume that teachers will rely on mathematics textbooks and workbooks to manage teaching students with a range of developmental needs. In fact, many opportunities occur in the multilevel classroom for students to work at authentic tasks with their classmates in order to construct meaning by using manipulatives and writing about their experiences. Students may be grouped according to their learning needs rather than their age as they interact with peers to talk about and explain mathematical ideas.

Even in multilevel classrooms, teachers create a separate time slot for mathematics that does not fit into thematic inquiries. In fact, a mathematics workshop is an ideal learning context for the problem solving and investigations expected in the mathematics curriculum. By planning rich, open-ended learning tasks with connections to the school and community, teachers encourage students at different levels of understanding to work together as they construct new meanings.

In the multilevel classroom, teachers may use a whole-class setting to introduce the workshop and to foster the development of concepts and big ideas. To activate learning, for example, the workshop could begin with a mental mathematics task in which all students are asked to show how they could mentally calculate the sum of two numbers and to share their strategy with a peer. Students at an earlier stage of development may explain their strategy using manipulatives, while others may use the relationships between numbers. Next, the teacher may introduce a concept or problem-solving strategy using a variety of manipulatives for exploring and connecting understanding. Through ongoing observation teachers guide students into rich, open-ended tasks. Learning centres that support concrete, pictorial, and symbolic stages of learning are effective ways for students to consolidate and extend learning, and to meet each learner's developmental needs. While students are engaged in open-ended tasks, the teacher is forming flexible groups for mini-lessons. Teachers may also guide students in creating authentic performance tasks to apply new learning and they may base assessment expectations on the learners' developmental level(s) as well as the appropriate learning outcomes. Mathematics workshops may close with sharing, self-assessment, and reflection. (For more information about the workshop format, see Chapter 4.)

Teachers find that learning mathematics is relevant for students when they make connections to other subject areas and everyday living. Opportunities to integrate mathematics with content areas and the classroom community are natural connections in multilevel classrooms.

Suggested Resources

For more information about teaching and integrating mathematics in the multilevel learning community, see the following resources:

- Askew, Janice, *et al.* *Effective Teachers of Numeracy: Final Report (Feb. 1997)*. London, UK: School of Education, King's College, 1997.
- Banks, Janet Claudil. *Essential Learnings of Mathematics*. Edmonds, WA: CATS Publications, 1996.
- Barratta-Lorton, Mary. *Mathematics Their Way*. Don Mills, ON: Addison-Wesley, 1995.
- Barratta-Lorton, Robert. *Math: A Way of Thinking*. Don Mills, ON: Addison-Wesley, 1997.
- Burns, Marilyn. *About Teaching Mathematics: A K-8 Resource*. 2nd ed. Sausalito, CA: Math Solutions, 2002.
- . *Mathematics: Teaching for Understanding, Grades K-6: Parts 1-3*. Three Videocassettes and a Teacher Discussion Guide. White Plains, NY: Cuisenaire Company of America, 1992.
- Kroner, Lou. *In the Balance: Algebra and Logic Puzzles, Grades 4-6*. Mountainview, CA: Creative Publications, 1997.
- Labinowicz, Ed. *The Piaget Primer: Thinking, Learning, Teaching*. Don Mills, ON: Addison-Wesley, 1980.
- Manitoba Education and Training. *Grades 5 to 8 Mathematics: A Foundation for Implementation*. Winnipeg, MB: Manitoba Education and Training, 1997.
- . *Grades 5 to 8 Mathematics: Manitoba Curriculum Framework of Outcomes and Grade 6 Standards*. Winnipeg, MB: Manitoba Education and Training, 1996.
- . *K-4 Mathematics: Manitoba Curriculum Framework of Outcomes and Grade 3 Standards*. Winnipeg, MB: Manitoba Education and Training, 1995.
- . *Kindergarten to Grade 4 Mathematics: A Foundation for Implementation*. Winnipeg, MB: Manitoba Education and Training, 1996.
- . *Kindergarten to Grade 4 Mathematics: Classroom-Based Assessment*. Winnipeg, MB: Manitoba Education and Training, 2000.

Manitoba Education and Youth. Curriculum website:
<<http://www.edu.gov.mb.ca/ks4/cur/>>.

Manitoba Education, Training and Youth. *Grades 5 to 8 Mathematics: Classroom-Based Assessment*. Winnipeg, MB: Manitoba Education, Training and Youth, 2001.

Mathematical Sciences Education Board (MSEB), *et al.* *Everybody Counts: A Report to the Nation on the Future of Mathematics Education*. Washington, DC: National Academy Press, 1989.

Van de Walle, John A. *Elementary and Middle Years Mathematics: Teaching Developmentally*. Don Mills, ON: Addison Wesley Longman Inc., 2001.

Integrating Science

In the Kindergarten to Senior 4 science classroom, students are actively engaged in “doing” science and developing related skills and attitudes, as well as extending their understanding of science concepts. In addition, they make links between science and daily life and appreciate both the power and limitations of science.

Manitoba’s science curriculum fosters the development of scientifically literate students through five foundation areas:

- A. Nature of Science and Technology
- B. Science, Technology, Society, and the Environment
- C. Scientific and Technological Skills and Attitudes
- D. Essential Science Knowledge
- E. Unifying Concepts

Specific learning outcomes incorporating these foundation areas are identified for each grade. Grade-level learning outcomes are organized into four thematic clusters, reflecting the following disciplines:

- Life Science
- Physical Science
- Earth Science
- Space Science

The thematic cluster charts provided with the Curriculum Framework of Outcomes documents allow teachers to see an overview of the topics for each grade to facilitate planning.

Each grade also contains an Overall Skills and Attitudes cluster referred to as Cluster 0. This cluster can be used as a skills and attitudes continuum across the grades, similar to the continuum of literacy learning in the English language arts curriculum. With its emphasis on the two major processes of science (Scientific Inquiry and the Design Process), Cluster 0 allows for learning that is based on hands-on investigation. Because the thematic content is not specified in Cluster 0, possibilities for curriculum integration are numerous—for example, guiding a class through the Cluster 0 Design Process learning outcomes to engage in interdisciplinary inquiry.

The thematic content specifications at each grade do present a challenge for multilevel classroom teachers, however. Teachers closely examine the particular content-specific learning outcomes for the grades within each multilevel classroom to determine the best way to approach thematic content. Some possible approaches are suggested below:

- **Topic rotations:** Multilevel classrooms may explore topics specific for one grade in a particular year and explore another grade's topics the next year. Decisions about what topics to rotate and how to rotate them are made at the school level to ensure that there are no gaps in student learning. A rotation spanning more than three years would require the alignment of learning outcomes to meet students' needs.
- **Thematic clusters:** Multilevel classrooms may explore topics from various grades that relate to each other to form an overall theme. In this way, the learning outcomes from several grades can be addressed at the same time. A Kindergarten to Grade 3 teacher may, for example, create a Living Things theme incorporating the four Life Science clusters (Kindergarten—Trees; Grade 1—Characteristics and Needs of Living Things; Grade 2—Growth and Changes in Animals; and Grade 3—Growth and Changes in Plants).
- **Integrated projects:** Multilevel classrooms may use the science curriculum as a source of themes for interdisciplinary projects. For example, the thematic clusters from science can provide the context for students learning graphing skills in mathematics and communication skills in English language arts.

Topics from the science curriculum are natural choices for integrated thematic units and/or inquiry in the multilevel classroom.

Suggested Resources

For more information about teaching and integrating science in the multilevel learning community, see the following resources:

Chard, S., and M. Flockhart. "Learning in the Park." *Educational Leadership* 60.3 (Nov. 2002): 53-56.

Manitoba Education and Training. *Grades 5 to 8 Science: A Foundation for Implementation*. Winnipeg, MB: Manitoba Education and Training, 2000.

---. *Grades 5 to 8 Science: Manitoba Curriculum Framework of Outcomes*. Winnipeg, MB: Manitoba Education and Training, 2000.

---. *Kindergarten to Grade 4 Science: A Foundation for Implementation*. Winnipeg, MB: Manitoba Education and Training, 1999.

---. *Kindergarten to Grade 4 Science: Manitoba Curriculum Framework of Outcomes*. Winnipeg, MB: Manitoba Education and Training, 1999.

Manitoba Education and Youth. Curriculum website:
<<http://www.edu.gov.mb.ca/ks4/cur/>>.

Integrating Social Studies

The social studies Curriculum Framework of Outcomes documents identify knowledge, values, and skills learning outcomes. They address various aspects of citizenship as a core concept of social studies learning across all grades. Knowledge and values learning outcomes are organized under six general learning outcomes:

- Identity, Culture, and Community
- The Land: Places and People
- Historical Connections
- Global Interdependence
- Power and Authority
- Economics and Resources

Skills learning outcomes are organized in four categories:

- Skills for Active Democratic Citizenship
- Skills for Managing Ideas and Information
- Critical and Creative Thinking Skills
- Communication Skills

With their emphasis on community, collaboration, and inquiry-based projects, multilevel classrooms form a natural context for social studies learning. The day-to-day management of the classroom and student involvement in selecting inquiry topics provide opportunities for students to experience the democratic process and to practise consensus building and collective decision making. Students who work with partners older and younger than they are have opportunities to learn tolerance and empathy for others, consider diverse perspectives and points of view, and develop an experiential understanding of interdependence. Through participation in a stable learning community for several years, students learn the core concept of the social studies curriculum: citizenship.

Like science, social studies offers topics ideal for integrated thematic units and/or inquiry in the multilevel classroom. While content themes differ from one grade to the next, they are related by the core concept of citizenship, the six general learning outcomes, and the four skill areas. Many multilevel classroom teachers choose to cycle the content themes so that students will have explored all themes by the time they leave the multilevel classroom.

Suggested Resources

For more information about teaching and integrating social studies in the multilevel learning community, see the following resources:

Manitoba Education and Youth. *Kindergarten to Grade 4 Social Studies: A Foundation for Implementation*. Winnipeg, MB: Manitoba Education and Youth, in development.

---. *Kindergarten to Grade 8 Social Studies: Manitoba Curriculum Framework of Outcomes*. Winnipeg, MB: Manitoba Education and Youth, 2003.

---. Curriculum website: <<http://www.edu.gov.mb.ca/ks4/cur/>>.

Robb, L. *Teaching Reading in Social Studies, Science, and Math: Practical Ways to Weave Comprehension Strategies into Your Content Area Teaching*. New York, NY: Scholastic, 2003.

**Integrating
Physical
Education/
Health
Education**

The organization of the physical education/health education Curriculum Framework of Outcomes documents supports multilevel learning, as the same topic or theme is often addressed in each grade, with the assessment focus changing across the years.

As with other subject areas, the general learning outcomes identified for physical education/health education are interrelated, cumulative, and interdependent. The five general learning outcomes (GLOs) relate to

1. Movement
2. Fitness Management
3. Safety
4. Personal and Social Management
5. Healthy Lifestyle Practices

Specific learning outcomes are identified for each strand, sub-strand, and theme or topic across the grades. The Scope and Sequence Charts in the curriculum documents provide a useful overview of curricular topics.

In multilevel classrooms, students at all grades may explore the same physical education and health education topics, but teachers will identify different assessment criteria and performance expectations based on the specific learning outcomes for each grade. Learning experiences that promote inclusion (e.g., cooperative/collaborative activities, station activities, individual, dual, or small-group activities) are appropriate for the diverse interests and skill levels of students in multilevel classrooms. It is essential that the equipment in the classroom be of the appropriate type and size to accommodate the skill levels of all students.

Students may play on sports teams with peers through the school or community centre, and may be accustomed to associating physical activity with competition. Physical education classes in a multilevel classroom provide opportunities for students to learn to respect and share with others whose physical skills may not be as well developed as their own.

Physical education and health education activities and topics can also be integrated naturally with other subject areas to promote active learning and student engagement. Multilevel classroom teachers may establish a weekly or monthly health topic or theme and integrate

the content in the other subject areas where applicable. Some curricular connections and integration ideas are suggested below:

- **English language arts:** In the physical education/health education curriculum, GLO 4 (Personal and Social Management) focuses on skills for goal setting, decision making/problem solving, interpersonal relationships, conflict resolution, and stress management. As students learn about themselves, gain a greater understanding of their own and others' emotions, develop positive communication skills, resolve conflicts peacefully, and work cooperatively and collaboratively with others, they are attaining many of the learning outcomes of the English language arts curriculum, particularly those from GLO 1 (Explore thoughts, feelings, ideas, and experiences) and GLO 5 (Celebrate and build community). Many English language arts strategies, such as active listening, summarizing, clarifying, and paraphrasing, are reinforced when discussing health-related topics and/or making healthy decisions.
- **Mathematics:** Mathematics learning experiences can include measuring, recording, and graphing of physical challenges such as how far the students can jump or throw a ball, how many minutes students were active each day, or how many laps or minutes students run in a "fitness bank" run.
- **Science and social studies:** Many physically active games, such as scavenger hunts, tag activities, and relays, can include science concepts (e.g., animal games, solar system theme, force and motion) or social studies knowledge (e.g., communities, multicultural games and dances). Health education connections can be made with science and social studies on topics such as nutrition and substances use and abuse prevention. Accessing and/or making healthy food choices, for example, relates to a Grade 5 Science cluster titled *Maintaining a Healthy Body*, as well as to several GLOs in social studies: *The Land: Places and People and Economics and Resources*. (For an integrated example on nutrition, see page 19 in the Overview of *Kindergarten to Grade 4 Physical Education/Health Education: A Foundation for Implementation*.)

The physical education/health education curriculum is a resource to assist with implementing active learning in the classroom. Once again, the topics and concepts lend themselves well to integrated themes and units of study in the multilevel classroom.

Suggested Resources

For more information about teaching and integrating physical education/health education in the multilevel learning community, see the following resources:

Cone, S.L., and T.P. Cone. "Language Arts and Physical Education: A Natural Connection." *Teaching Elementary Physical Education* (July 2001): 14-17.

Cone, T., P. Werner, S. Cone, and A. Woods. *Interdisciplinary Teaching through Physical Education*. Champaign, IL: Human Kinetics, 1998.

Manitoba Education and Training. *Kindergarten to Senior 4 Physical Education/Health Education: Manitoba Curriculum Framework of Outcomes for Active Healthy Lifestyles*. Winnipeg, MB: Manitoba Education and Training, 2000.

Manitoba Education and Youth. *Grades 5 to 8 Physical Education/Health Education: A Foundation for Implementation*. Winnipeg, MB: Manitoba Education and Youth, 2002.

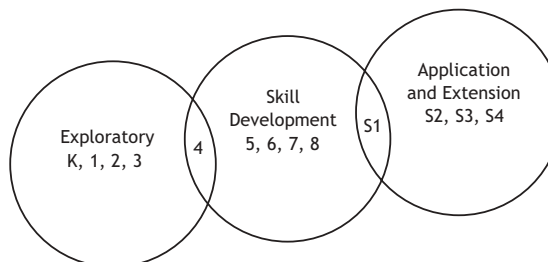
---. Curriculum website: <<http://www.edu.gov.mb.ca/ks4/cur/>>.

Manitoba Education, Training and Youth. *Kindergarten to Grade 4 Physical Education/Health Education: A Foundation for Implementation*. Winnipeg, MB: Manitoba Education, Training and Youth, 2001.

Integrating Information and Communication Technologies

Technology As a Foundation Skill Area (Manitoba Education and Training) contains a continuum of student skills and competencies in information and communication technologies (ICT) from Kindergarten to Senior 4. As the following diagram illustrates, students progress along a continuum of ICT skills and competencies, beginning with the exploratory stage (Kindergarten to Grade 4), followed by the skill development stage (Grade 4 to Senior 1), and finally moving to the application and extension stage (Senior 1 to Senior 4):

Continuum of ICT Skills and Competencies



As with any developmental continuum, these stages provide multilevel classroom teachers with a tool to monitor student growth and to plan for the next steps in learning.

Students in multilevel classrooms may develop an electronic collection or portfolio to document their learning in all subject areas. In this way, technology can be used both as a tool and as an environment for students to acquire and apply their learning. Students may be encouraged to add to and modify their collection as they progress through the developmental continuum of ICT skills and competencies and learning continua in other subject areas.

Suggested Resources

For more information about teaching and integrating information and communication technologies in the multilevel classroom, see the following resources:

Manitoba Education and Training. *Technology As a Foundation Skill Area: A Journey toward Information Technology Literacy*. Winnipeg, MB: Manitoba Education and Training, 1998.

Manitoba Education and Youth. Curriculum website:
<<http://www.edu.gov.mb.ca/ks4/cur/>>.

Planning for Integration through Inquiry

Manitoba's Foundation for Implementation documents serve as valuable "tool boxes" for classroom instruction. Teachers will notice that many of the suggested learning, teaching, and assessment strategies are the same across all disciplines. The large numbers of student learning outcomes are, however, overwhelming for many teachers, and certainly this is the case for multilevel classroom teachers.

Chapter 6 of this resource describes a Guided Planning Model based on the integration of curricula to make meaning through inquiry. It also emphasizes the need to target a manageable number of learning outcomes that will provide students with opportunities to demonstrate their learning through performances, demonstrations, and/or products for summative assessment. The purpose of the Guided Planning Model is to assist teachers in managing multiple curricula and meeting the needs of a wide range of learners through integration, inquiry, and the gradual release of responsibility or the Model of Explicit Instruction for independent learning.

Resources

Jacobs, H. *Mapping the Big Picture: Integrating Curriculum and Assessment K-12*. Alexandria, VA: Association for Supervision and Curriculum Development, 1997.

Jensen, Eric. *Teaching with the Brain in Mind*. Alexandria, VA: Association for Supervision and Curriculum Development, 1998.

Manitoba Education and Training. *Curricular Connections: Elements of Integration in the Classroom*. Winnipeg, MB: Manitoba Education and Training, 1997.

Manitoba Education and Youth. Curriculum website:
<<http://www.edu.gov.mb.ca/ks4/cur/>>.