

Making Thinking and Learning Visible **Numeracy Through the Day**



Full-Day Early Learning-Kindergarten
Video Viewing Guide

How to Use the Viewing Guide

The video, *Making Thinking and Learning Visible: Numeracy Through the Day* can be watched in its entirety or in segments. The accompanying questions are intended to provoke thinking and discussion before, during and after viewing.

The Viewing Guide is designed for differentiated audiences and includes reflective questions for Educators (e.g., Full-Day Early Learning–Kindergarten (FDELK) teams, child care staff, family resource centre staff, other primary teachers), administrators (e.g., principals, child care supervisors) and parents. Administrators and other system leaders have a vital role to play in all aspects of the implementation of FDELK. Engaging administrators and system leaders in reflective discussion will provide educator teams with support in designing programs and learning environments that promote the development of concepts and skills in mathematics.

Engaging parents in early learning provides valuable insights and observations that build bridges and relationships between community, home, and school. Insights, perspectives, and shared understanding about the numeracy learning that takes place in various contexts throughout the day will ultimately benefit the children.

Numeracy Through the Day

Math can be seamlessly integrated into children’s ongoing play and activities. But this usually requires a knowledgeable adult who creates a supportive environment and provides challenges, suggestions, tasks and language.

(Samara & Clements, Building Blocks, 2009, p. 332-333)

Thinking and learning happen and are made visible in many different contexts in a FDELK classroom. When planning for effective learning experiences in mathematics, the educator team should include a balance of the following elements: activating prior knowledge, engaging in the mathematics, reflecting on the process, and celebrating children’s learning.

Team members can begin a learning experience by encouraging children to use their prior knowledge to solve a problem. By observing how the children proceed, the team gains insight into what the children already know, and can plan further learning experiences to ensure that the children will have the necessary tools to develop an understanding of the concept being investigated from the FDELK document.

There are multiple opportunities for engaging in mathematics throughout the day. In this video, you will see several examples of the various contexts for mathematics learning that teams have planned, repeating, removing, and rethinking practices and strategies based on assessment information and the learning expectations in the FDELK document.

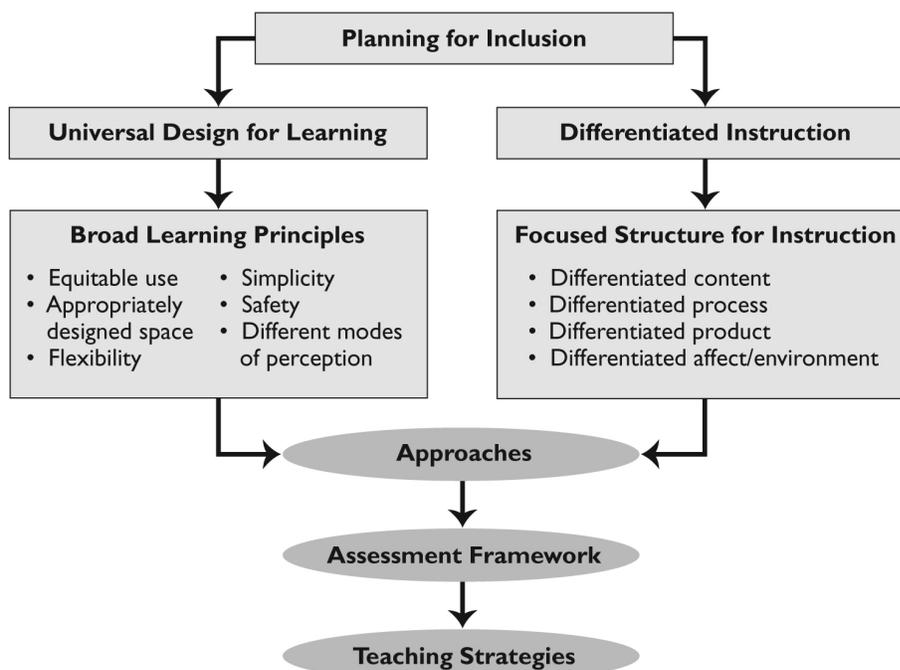
Universal Design for Learning (UDL) and Differentiated Instruction

The following information on UDL is taken from *Learning for All: A Guide to Effective Instruction and Assessment for All Students, Kindergarten to Grade 12*, Ministry of Education, Ontario, 2011, p.11-20. http://www.ontariodirectors.ca/L4All/L4A_en_downloads/LearningforAll%20K-12%20draft%20J.pdf

UDL was inspired by work in architecture on the planning of buildings with a view to accessibility for people with physical disabilities (Turnbull et al., 2002). Architects observed that the added improvements facilitated access for all users, not just people with physical disabilities. An access ramp, for instance, provides a person using a wheelchair with easier access to a building, but it also makes it easier for a parent with a child's stroller, a cyclist, or someone using a walker.

This notion soon found its way into education. Instruction that both responds to the characteristics of a diverse group of students and is precisely tailored to the unique strengths and needs of each student can be achieved using the principles and guidelines associated with three instructional approaches:

- Universal Design for Learning (UDL)
- differentiated instruction, and
- the tiered approach to prevention and intervention



Used in combination, *UDL* and *differentiated instruction* enable educators to respond effectively to the strengths and needs of all students. UDL provides educators with broad principles for planning instruction for a diverse group of students, whereas differentiated instruction allows them to address specific skills and difficulties (Raynal & Rieunier, 1998). The two approaches overlap, sharing certain goals and strategies, such as providing a range of instructional strategies, resources, activities, and assessment tools in order to meet the different strengths, needs, readiness, and learning styles or preferences of the students in a class.

The chart below highlights places in this video where connections to UDL can be seen in the practices of the educator teams. You may wish to read the chapter(s) cited before viewing the video, or as part of your follow-up discussions after viewing.

Time	Topic	Connections to Learning for All (Draft 2009)
19:20	Analysing observations and documentation to inform learning	Chapter 3: Assessment for Learning

Considerations for Viewing

The following considerations are provided to inform and focus your thinking as you view the videos.

Numbers of Children

The groups of children seen in the classrooms may not be representative of the numbers of actual children in the class. Children present in the video had written parental permission to be filmed.

Classroom Space

The space allotted to Kindergarten classes varies from school to school. The classrooms shown represent this variation. The organization of some of the physical environments shown is indicative of the rethinking and removing that has been done.

Resources

The classrooms shown depict a wide variation in resources. The materials and equipment in the classrooms vary based on local contexts and decision making.

Community Partnerships

Many Board teams benefit from community partnerships with organizations such as faculties of education, community colleges, and parent volunteers. Additional adults in the classrooms reflect these partnerships.

Safety

Educators are responsible for ensuring the safety of children, and for encouraging and motivating children to assume responsibility for their own safety and the safety of others. Educators must ensure that children acquire the knowledge and skills needed for safe participation in all learning opportunities both inside the school and in the outdoors. Children must be aware of any required safety procedures and of ways of interacting with each other to ensure that they are not putting themselves or their peers in danger.

Sample Questions for Educator Teams

These sample questions can be used to guide reflection and discussion about numeracy through the day. You may wish to reference *The Full-Day Early Learning–Kindergarten Program (Draft 2010)* (pages 20-21), which focuses on numeracy.

Before viewing the video

What does a classroom environment that supports children’s learning of mathematics look and sound like?

While viewing the video

Notice how educator teams are:

- rethinking existing practices related to mathematics learning and teaching
- intentionally choosing and placing materials to support learning in mathematics
- responding, challenging, and extending children’s thinking about mathematics concepts
- making children’s thinking and learning in mathematics visible

After viewing the video

How was learning differentiated?

How will you differentiate the choice and placement of materials in the mathematical learning environment?

How can classrooms be set up for differentiated instruction?

Sample Questions for Administrators

These sample questions can be used to guide reflection and discussion about numeracy through the day. You may wish to reference *The Full-Day Early Learning-Kindergarten Program (Draft 2010)* (pages 20-21), which focuses on numeracy.

For additional support, administrators can reference resources from the Ministry's Administrators Leadership Development site at: <http://www.edu.gov.on.ca/eng/policyfunding/leadership/principalsWanttoKnow.html>

Before viewing the video

What does a classroom environment that supports children's learning of mathematics look and sound like?

While viewing the video

Notice how educator teams are:

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After viewing the video

How was learning differentiated?

How will your educator team(s) differentiate the choice and placement of materials in the mathematical learning environment?

In what ways can you support your educator team(s) to rethink their learning environment so that it better supports the development of mathematics skills?

How can classrooms be set up for differentiated instruction?

What are the courageous conversations you would facilitate with teams:

- whose practices related to embedding numeracy throughout the day are not aligned with practices presented in the video, (e.g., "Reflecting upon your own practices and those practices in the video, what aspect of your current practices are you going to rethink, repeat, and remove?")?
- whose practices related to embedding numeracy throughout the day are aligned with practices presented in the video, (e.g., "Reflecting upon your own practices and those practices in the video, what aspect of your current practices are you going to rethink?")?

Sample Questions for Parents and Community Members

These sample questions can be used to guide reflection and discussion about numeracy through the day. You may wish to reference *The Full-Day Early Learning–Kindergarten Program (Draft 2010)* (pages 20-21), which focuses on numeracy.

Before viewing the video

What questions do you have about the development of concepts and skills in mathematics?

In your visits to the classroom, what mathematics did you see/not see that surprised you or do you wonder about?

While viewing the video

Note: These elements from the video are not intended to be presented to parents in isolation from a facilitated discussion, as many of the terms may be new to parents. They are intended as a guide for facilitators working with parents.

Notice how educator teams are:

- rethinking existing practices related to mathematics learning and teaching.
- intentionally choosing and placing materials to support learning in mathematics
- responding, challenging, and extending children’s thinking about mathematics concepts
- making children’s thinking and learning in mathematics visible

After viewing the video

What aspects of mathematics learning might be applicable at home as well as at school (e.g., solving problems, using mathematical language)?

Acknowledgements

The Curriculum and Assessment Policy Branch, Ministry of Education, would like to thank the Full-Day Early Learning–Kindergarten teams, the school administrators, the Board Program Leads, the parents/guardians and the Full-Day Kindergarten children in the following Boards and schools, for allowing us to visit and film in their classrooms, and for sharing their learning with others across the province.

Greater Essex County District School Board
Belle River Public School

Halton Catholic District School Board
St. Luke Elementary School

Halton District School Board
Mohawk Gardens Public School

Hamilton-Wentworth Catholic District School Board
St. Lawrence Elementary School

Hamilton-Wentworth District School Board
Prince of Wales Elementary School

Lakehead District School Board
Westmount Public School

Kenora Catholic District School Board
St. Louis School

Near North District School Board
Marshall Park Public School

Ottawa Catholic District School Board
Our Lady of Wisdom School St. Elizabeth School

Peel District School Board
Marvin Heights Public School

Rainbow District School Board
Landsdowne Public School
Princess Anne Public School

Sudbury Catholic District School Board
St. Raphael School

Toronto District School Board
Pape Avenue Junior Public School

Waterloo Region District School Board
Floradale Public School

