



A new kindergarten resource that provides just-in-time professional learning support for teachers while satisfying the curriculum requirements of an inquiry-based approach, designed to build on strong mathematical foundations.



I really hope that you enjoy the balance that I have tried to build between ensuring kindergarten curriculum requirements are met, while honouring inquiry and play-based learning. I see great value in starting early to have children not just "do math" but also think about math and view the world through a math lens. By establishing this approach in K, it will be easier to continue that approach and build coherence among grades.

Being close to some kindergarten-aged children myself has helped me see what brings out their natural curiosity. I have used my observations to help build mathematics learning around appropriate contexts. My focus is on bringing out big ideas in math, helping students notice and name important concepts, and providing lots of models for responding to what students might say or do.

I hope that you'll find useful entry points for you, and I am sure you will find useful entry points for your students.

Marian Small

### **Professional Learning — Right When You Need It**

Short videos of Marian are woven throughout the resource and embedded right where you need them, with many notes that provide support on key topics:

- building content and pedagogical knowledge
- strategies for responding to student inquiry
- provoking and extending learning
- differentiating instruction
- assessment



#### **The Next Best Thing to Having Marian** in the Classroom With You Every Day

Key features such as "And the Point Is," "Probing and Extending," "What You Could Do If," and "Providing Feedback" accompany all student materials, helping teachers make thoughtful decisions and get the most out of their students' learning.

#### **Probing and Extending**

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- You could ask questions such as these of a small group to probe, challenge, and extend students' thinking How many houses do you see? How many animals do you see?
- Is there 1 of anything? · What are all the things you see that you can count?

#### What Could You Do If ...

Students only count the houses. You could ... Reinforce the idea that the counting is correct, if it is. Then ask whether they think it might make se to count the animals or not.

#### adents just count everything and get a big total.

You could ... Ask what they counted. For example, if students say they counted 18, ask 18 whats. Help students realize that when you count, it's important to know what exactly you counted.

#### Providing Feedback: Responding to What Students Do or Say

- You can gain insight into what students are thinking by asking questions based on what they do or say. Here are some examples:
- If students count a big dog using two numbers but use only one number to count a small dog, you could ask, How many fingers do you have on one hand? Did you count the little finger differently from the big one? If students say, "I only said 3 when I was counting the houses," you could respond by saying,
- Let's count all the dogs together. What do you hear?
  [By doing this, you can help students see that you say 3 "along the way" when you count amounts higher than 3 as well as when counting exactly 3.]

#### **A Solid Foundation**

The kindergarten math curriculum is approached with attention to the same **Essential Understandings** that students will meet in the primary grades. This helps teachers see what to emphasize in the curriculum to build the most solid foundations possible in both skill development and conceptual understanding.

#### **Guiding the Inquiry Process**

All topics in MathUP Classroom Kindergarten feature both Sample Inquiries and Planned Activities to help teachers address curriculum requirements in a play-based environment. Support is provided to help teachers:

- confidently respond to student inquiries and questions
- assess through observation and conversation, with ideas for good probing and extending questions to ask and what to observe
- get the most learning possible out of student inquiries, including many activities easily adaptable to alternative student inquiry interests

#### 9 Set 2: Planned Activities

Activity 5: The Number Path 👻



What number is Maya standing on?

#### Coherence

All of the lessons in MathUP Classroom, from K–8, are written by Marian Small, giving the resource coherence among and within grade levels. This makes learning easier on students, both in their current grade and as they transition to the next grade, and easier on parents, who will be comfortable with the consistency.

#### Differentiation

Careful attention has been made to allow for multiple entry points for students throughout MathUP Classroom Kindergarten. Differentiation support is available in many activities, inquiries, and assessments in MathUP to support both students who need more support and those who need an additional challenge.

#### **Flexible Implementation**

MathUP Classroom Kindergarten is designed for digital and in-person learning environments, so the resource can also work seamlessly in both and in hybrid environments.

## **Engaging Student Materials That Address the Entire Curriculum**

#### **Sample Inquiries**

In each topic, Sample Inquiries are provided to suggest some ways teachers might respond to student-initiated inquiries. Suggested provocations are provided to facilitate student inquiry.



#### **Planned Activities**

In each topic, activities are provided that suggest planned experiences to ensure that curriculum expectations emerge in a natural context. Variations of each activity are suggested so that similar activities can be repeated regularly throughout the kindergarten year(s).

#### Number Talks

A bank of Number Talks support the development of conceptual understanding and flexibility in thinking about numbers and operations.



There are 5 maracas and 2 baskets.



How many maracas could you put in each basket?





#### **Contributing Authors:**

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#### **MathUP Storytime Books**

MathUP Storytime books can be used to promote inquiry, introduce mathematical concepts, and encourage the sharing of ideas. They support the sample inquiries and planned activities in MathUP and can also be shared at other times.





#### **Wonder Tasks**

Wonder Tasks (three-act video tasks) provide inquiry-based learning opportunities for students to share their strategies and mathematical thinking and to make connections among mathematical ideas.

#### **Games and Puzzles**

Hands-on games and puzzles help students develop computational fluency and mathematical thinking skills and foster self-confidence in and a positive attitude toward math.

Digital games allow students to practise what they have learned in an engaging, interactive environment.







#### **MathUP Posters**

MathUP Posters can be used to promote inquiry, introduce mathematical concepts, and encourage the sharing of ideas. They support the sample inquiries and planned activities in MathUP and can also be shared at other times.



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## MARIAN SMALL

## **OPEN QUESTIONS** FOR THE THREE-PART LESSON

You'll be surprised how far you can go just by asking the right questions.







### Use these resources on their own or with MathUP!



