MARIAN SMALL

Grades 1–8 (BC) Edition

PLANNING FOR UNDERSTANDING AND PERFORMANCE WITH MATH UP CLASSROOM

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"We want you not only to feel free to make decisions but to feel encouraged to make them. MathUP is a resource that you are using to help your students learn, and you need to make the decisions about the best way to use it for your students."

- Choosing a Path
- Making Decisions
- How to set up your path ...

HOW DO I PLAN MY MATH PROGRAM USING MATHUP?

MathUP includes tools and resources to help you plan each year, each topic, and each lesson.

1 YEAR

You can choose one of the suggested paths to organize MathUP topics or create your own customized path.

2 TOPIC

Topic Planning pages provide you with the support you need to plan the entire topic.

3 LESSON

Lesson Planning pages provide you with tools and resources to help you plan each three-part lesson.

PLANNING A PATH

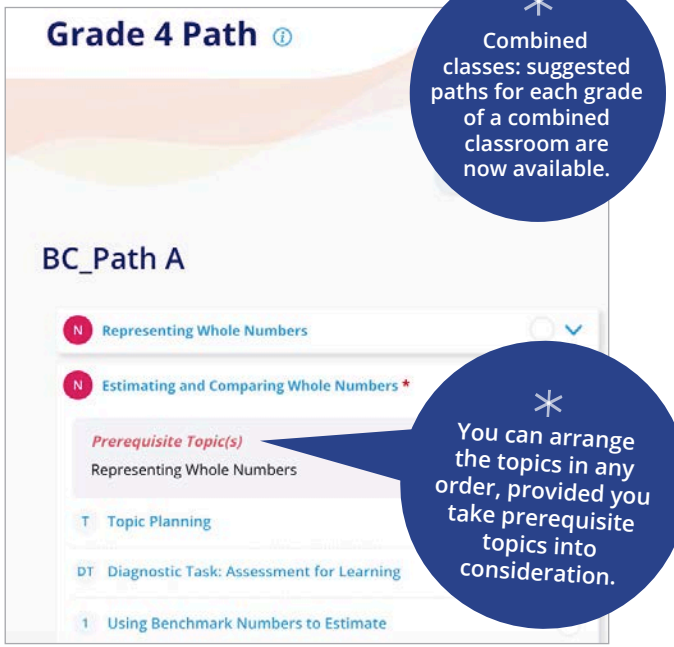
MathUP organizes learning opportunities into topics. You can choose one of the suggested paths or plan your own. The suggested paths do the following:

- ensure that students meet new concepts in an order that makes sense developmentally
- provide opportunities to consolidate learning and reinforce connections among strands

TIP

You can mark a lesson you have taught as complete by checking it off in the topic drop-down menu. This will ensure your path is kept up to date on your Dashboard.

To clear/reset your previous topic and lesson progress, click on your name on the top navigation bar, click on Account, scroll down to My Progress, click on Reset My Topic and Lesson Progress.



PLANNING A TOPIC

"Seeing what students should know and where they are going will help you better understand the approaches that are suggested throughout the topic."

- Essential Understandings
- Pacing
- How to use the Topic Planning page ...
- How to navigate a topic ...

TOPIC PLANNING

The Topic Planning page provides all the information you need for planning at a glance.

Information, resources, and links specific to the topic include the following:

- Table of Contents
- Essential Understandings
- BC Learning Standards
- Going Back ... Going Forward
- Assessment in This Topic
- Learning Goals
- Sum It UP
- Materials & Tools
- Additional Activities

You can see how many instructional days you might spend on the topic.

Marian Small describes the key mathematical ideas in a video on each Topic Planning page.

Each topic is correlated to essential understandings and specific BC Learning Standards to help you plan.

TIP

You can use the Going Back ... Going Forward section on every Topic Planning page to access links to topics and lessons across three grade levels (the grades before and after your selected grade). The related topics across three grades focus on the same essential understandings. This helps you to manage differentiation and combined grades.

Prerequisite topics are also identified.

PLANNING A LESSON

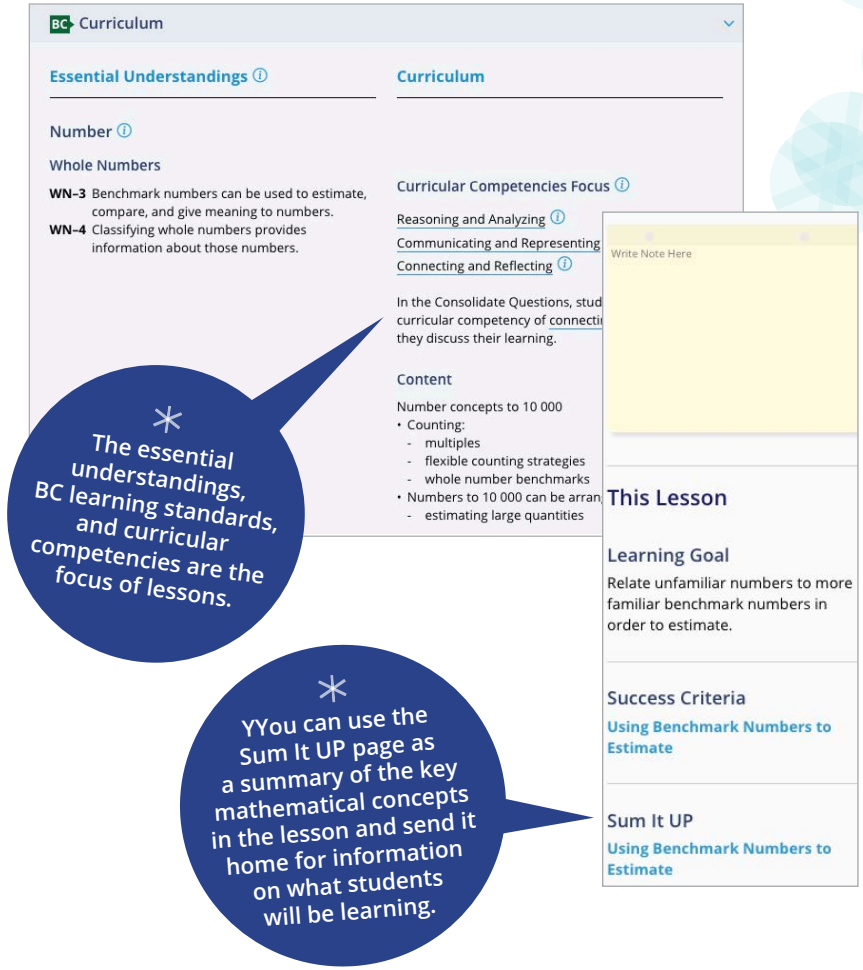
"Essential understandings help teachers determine the important ideas to bring out in a lesson."

- Three-Part Lessons
- How to navigate a three-part lesson in Grades 1 and 2 ...
- How to navigate a three-part lesson in Grades 3 to 8 ...

LESSON PLANNING

The Lesson Planning page provides the detailed information you need to plan for understanding and performance in each lesson, including the following:

- The Learning Goal
- Essential Understandings
- BC Learning Standards
- Assessment in This Lesson
- A link to the Sum It UP page
- A link to the Success Criteria page
- Materials & Tools
- A link to Games and Puzzles (Grades K–8)
- A link to Supporting Activities (Grades 1 and 2)



PLANNING A LESSON

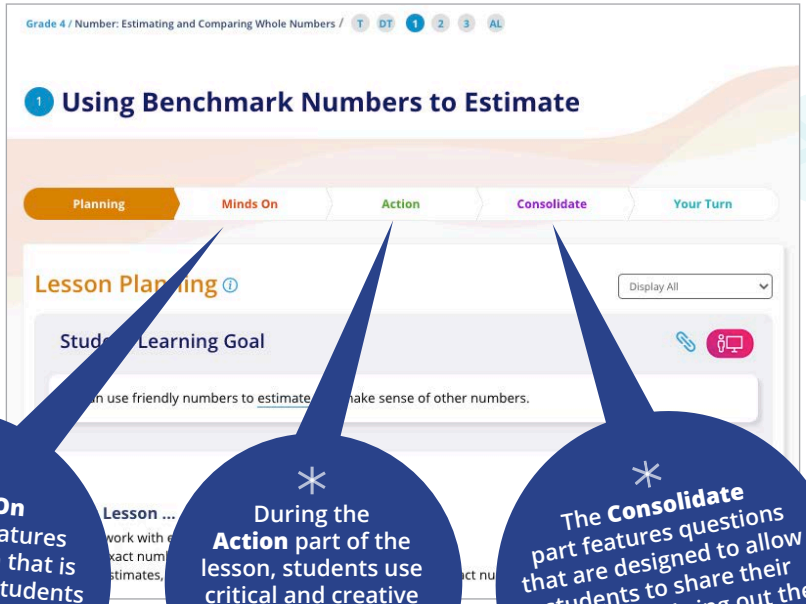
"Three-part lessons encourage students to be active and engaged mathematical thinkers and problem solvers."

- And the Point Is ...
- Consolidating a Lesson
- How to project and share content with students ...
- BC Curricular Competencies

LESSON PLANNING

Each three-part lesson includes a Minds On, Action, and Consolidate part followed by a Your Turn part of the lesson.

Lessons are set up in the same way and feature lesson content, sample solutions, and professional learning support from Marian Small.



The **Minds On** Activity often features an open question that is meant to engage students and activate their prior knowledge to help prepare them for the lesson.

During the **Action** part of the lesson, students use critical and creative thinking skills to solve a problem co-operatively.

The **Consolidate** part features questions that are designed to allow students to share their learning and bring out the main ideas of the lesson through reflection and discussion.

TIP

In the video *Three-Part Lessons*, Marian Small shares some thoughts about how much time you might want to spend on each part of a lesson.

"In addition to practising skills, students need to practise problem solving and mathematical thinking. In MathUP, Brain Benders, Wonder Tasks, Cross-Strand Tasks, Number Talks, Supporting Activities, and Games and Puzzles provide opportunities for this practice."

Practise

How to navigate the Activities section ...

PLANNING FOR ADDITIONAL PRACTICE AND PROBLEM SOLVING

MathUP provides many opportunities for additional practice and problem solving.

BRAIN BENDERS
(Grades 2–8)

Brain Benders are engaging open questions that promote mathematical thinking and reasoning and allow students to apply what they have learned.

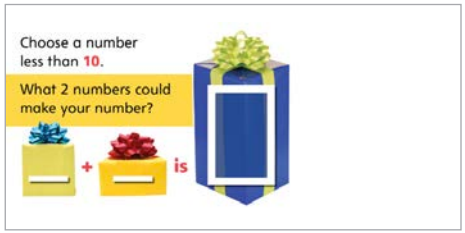
WONDER TASKS
(Grades 1–3 & Grades 7–8)

Wonder Tasks provide opportunities for students to share their strategies and mathematical thinking and to make connections among mathematical ideas.

TIP Brain Benders, Wonder Tasks, and Number Talks can be used at any time during the year as they are not specifically related to a topic or lesson.

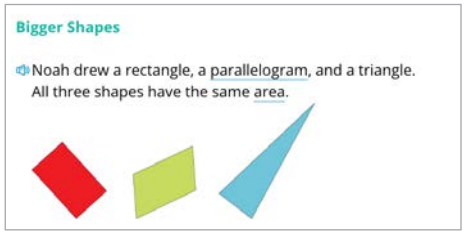
NUMBER TALKS
(Grades K–8)

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



CROSS-STRAND TASKS
(Grades 3–8)

Cross-Strand Tasks provide opportunities for students to revisit and build connections among concepts from at least two different strands.



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Games and Puzzles

Supporting Activities

PLANNING FOR ADDITIONAL PRACTICE AND PROBLEM SOLVING

HANDS-ON GAMES AND PUZZLES
(Grades K–8)

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
(Grades K–8)

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

SUPPORTING ACTIVITIES
(Grades 1 and 2)

Supporting activities and games provide opportunities for assessment for learning, reteaching, practice, application, communication, reasoning, and problem solving.

Assessment for Learning Activities
These informal activities provide opportunities for you to gather additional information about what students know and are able to do.

Reteaching Activities
Some students benefit from more direct guidance. These activities offer an opportunity to provide that guidance to a small group.

Teacher-Led Activities
These activities help to reinforce the key concepts and skills in the lesson. Some of these activities include suggestions for reading books relating to math.

Independent Activities
These varied activities include reinforcement, explorations, and games. They can be completed by students working individually or in pairs. Some of these activities are ideal for use at centres.

"As a teacher, your focus should always be on gathering assessment for learning information to help inform and modify your instructional plans."

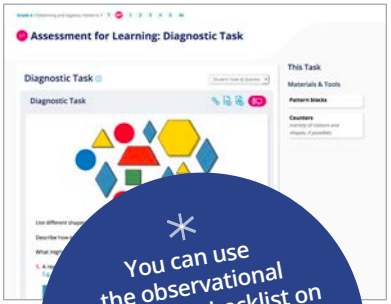
- Assessment in MathUP
- How to navigate the Assessment of Learning section ...
- BC Curricular Competencies

PLANNING
FOR ASSESSMENT

MathUP provides a variety of tools to help you plan for formative and summative assessment.

FORMATIVE ASSESSMENT
Assessment for Learning

Ongoing assessment for learning opportunities allow you to collect data about student learning. You can use the data to plan for and adapt instruction to meet student needs.



You can use the observational assessment checklist on each Topic Planning page to collect assessment data. You can also download a modifiable version of the checklist.

FORMATIVE ASSESSMENT
Assessment as Learning

Assessment as learning opportunities encourage students to monitor and reflect on their learning.

Success Criteria in every Consolidate section, Performance Task, and Cross-Strand Task help students focus on essential understandings.

SUMMATIVE ASSESSMENT
Assessment of Learning

The Assessment of Learning section at the end of each topic includes a variety of tools to help you plan for evaluation and reporting.

The Assessment of Learning section includes the following:

- Observational assessment suggestions to collect data for both assessment for and of learning
- A modifiable Curricular Competencies for Assessment document
- Skill and Concept Questions
- A Parallel Assessment section for differentiating the Skill and Concept Questions (for many topics)
- A Performance Task that provides opportunities for students to demonstrate their learning in a topic (for many topics)
- A rubric that accompanies each Performance Task

TIP You can gather additional information by observing students as they work on the Your Turn Questions, Supporting Activities, Games and Puzzles, Brain Benders, Wonder Tasks, Number Talks, and Cross-Strand Tasks.

PLANNING
FOR DIFFERENTIATION

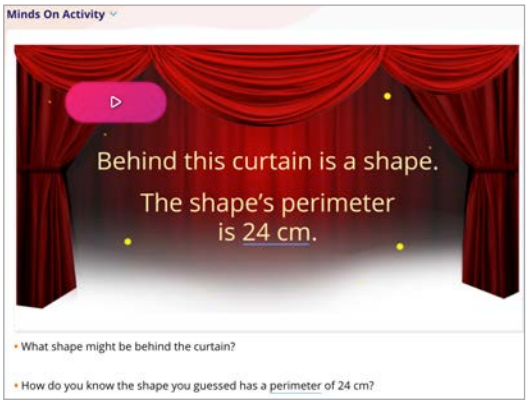
"Two of the most pragmatic ways to differentiate instruction are the use of open questions, which can be attacked at different levels, and parallel tasks, in which concepts focus on the same idea but at different levels."

- Differentiating Instruction
- Open Questions
- Parallel Tasks
- What Could You Do If ...

MathUP provides a variety of opportunities in each topic and lesson to help you plan for adapting instruction to meet your students' needs.

OPEN QUESTIONS

Open questions allow students with a wide range of abilities to respond to the same question in different ways.

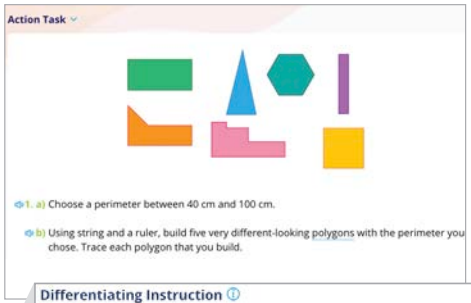


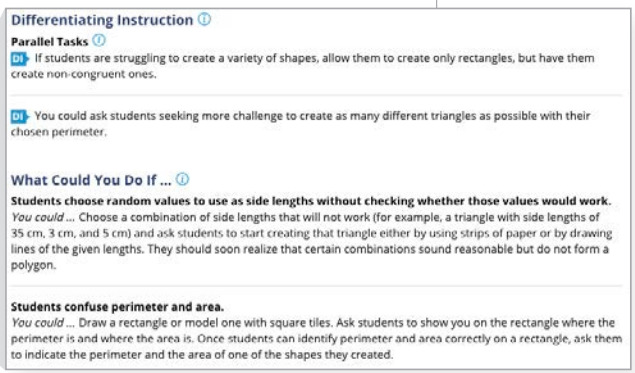
STRATEGY

You can adapt open questions and create additional parallel tasks by focusing on essential understandings rather than the details of specific tasks. For example, when the main idea is about place value, tasks can be adapted so that students are working with either three-digit or four-digit numbers.

PARALLEL TASKS AND
What could you do if ...

Parallel Tasks focus on the same learning as the Action Task but with different levels of complexity. Most Action Tasks include suggested parallel tasks for students who can handle it.





✳ Parallel tasks are suitable for individuals or groups.

PLANNING FOR COMBINED GRADES

"The approach to related topics in different grades is similar enough to allow you to dip back with some students while moving on with others."

Essential understandings

Going Back ... Going Forward

COMBINED GRADES PATHS

To set up your math program for each grade of a combined grade class, you can choose one of the pre-organized suggested paths. This path is intended to make it easier for you to teach related topics across multiple grades at the same time.

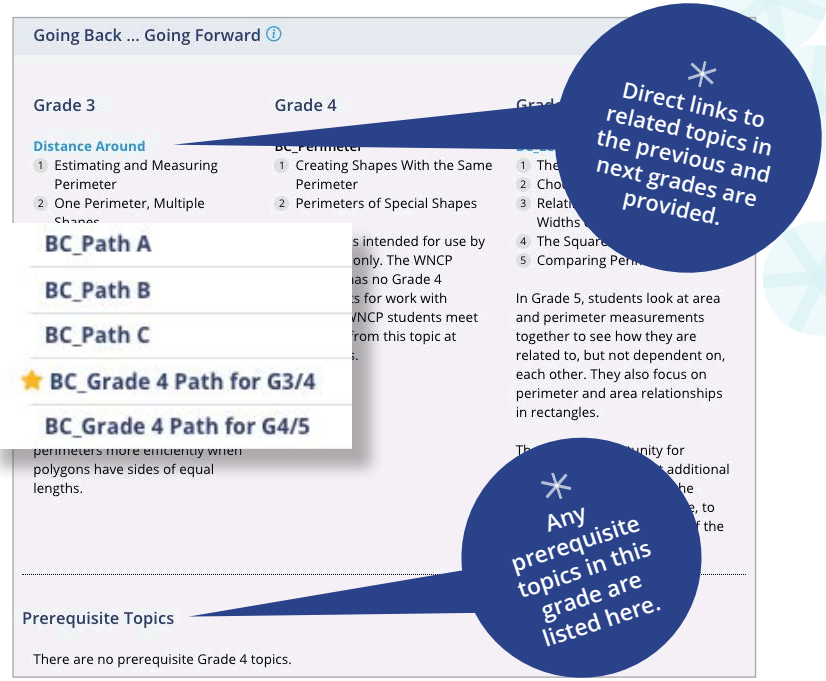
The topics that relate to each other do so because they focus on the same essential understandings.

GOING BACK ... GOING FORWARD

Every Topic Planning page describes key learning across three grades. You can refer to these when planning for differentiation and combined grades.

OPEN QUESTIONS AND PARALLEL TASKS

Open questions and parallel tasks allow students to work toward the same essential understandings at different levels.



STRATEGY

Because every lesson in every grade of MathUP was created around specific essential understandings, you can develop learning opportunities for combined classes by choosing lessons and activities that support the same set of essential understandings. The essential understandings supported by each lesson are listed on the Topic Planning and Lesson Planning pages.

TIP Brain Benders, Wonder Tasks, and Number Talks can be helpful when teaching combined grades.

PLANNING FOR A POSITIVE LEARNING ENVIRONMENT

"You are the key to a positive learning environment in your classroom. Students need to see that their mathematical ideas are valued and that they have a real contribution to make to math discussions."

Making Decisions

MathUP has been designed to help you create a positive learning environment — one in which all students can achieve their full potential.

INCLUSIVE

A positive learning environment is inclusive. It provides support for different learning styles and includes a variety of learning opportunities, assessment tools, and teaching practices to meet students' individual needs.

- Throughout MathUP, great care has been taken to ensure that the contexts for student tasks and images reflect Canada's cultural diversity and are responsive to Indigenous cultures and perspectives.
- Activities are varied in type and complexity to support individual learning styles, interests, abilities, and experiences.
- Every lesson includes suggestions for differentiating instruction and creating parallel tasks.
- Assessment in MathUP is varied, providing several ways for students to demonstrate their learning.

COLLABORATIVE

A positive learning environment recognizes the value of collaboration.

- Tasks throughout each lesson are designed to be completed independently, in pairs, or in small groups.
- Discussions are consolidated in every lesson to encourage students to listen to and learn from one another as they share concepts and strategies.
- Games provide additional opportunities to develop skills in collaboration.

TIP

There are many ways you can use MathUP. As Marian Small explains in the video *Making Decisions*, choice is important not only for students but also for teachers. While MathUP frequently suggests how you might group students or how much time you might allow for an activity, you have the final say in how you use the resource to create and nurture a positive learning environment for your students.

SELF-DIRECTED LEARNING

A positive learning environment promotes the development of independence and self-regulation.

- Every lesson in MathUP includes a Learning Goal and Success Criteria in student-friendly language. Students can use these to develop the skills they need to become independent learners. Success Criteria are also provided for Performance Tasks and Cross-Strand Tasks.
- Many activities include opportunities for student choice.

TIP

You can download the PDF version of the Action Task and Your Turn Questions, or you can customize them using the Microsoft Word or Google Docs version.

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For product and technical support, please contact us at support@mathup.ca.

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