

Australia

The “U” in UMathX is ... “UNDERSTANDING”

ADVISORY TEAM



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PART A. UNDERSTANDING THE JOURNEY

- **UMathX** is a journey guided by your planning where students are encouraged to think through concepts, choose strategies, articulate ideas towards constructing understanding.
- **This Journey** is focused on you as the professional who will be challenged to create a rich environment which leads to the understanding of math concepts through the implementation of UMathX.
- **UMathX** is a full service K to Algebra1 learning environment, supporting a **growth mindset** within a **learning pit** encouraging students and teachers to **grapple** with concepts.



Grappling is
'Productive
Struggling'



Show me another way...
Reflect and Connect
What would you do if...?
Why did you... ?

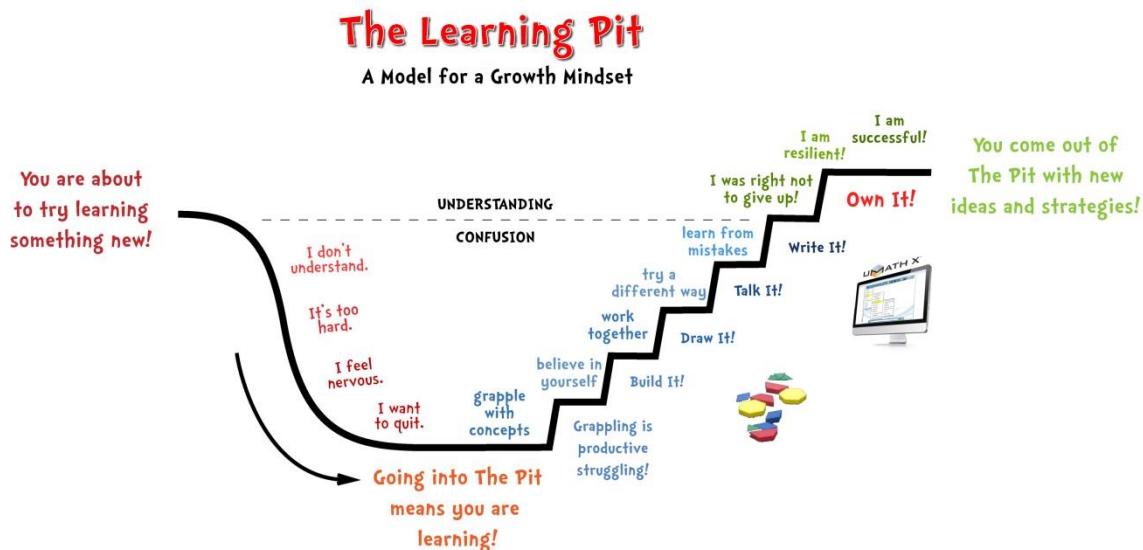


We appreciate professional advice from our advisory team.

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PART A continued
UNDERSTANDING
THE
JOURNEY

- REMEMBER to play the video: UMathX–What is it? at www.umathx.com > Media > Videos
- UMathX transforms a “Valley of Despair” into productive struggling in a “learning pit”.



- Play the video <http://www.jamesnottingham.co.uk/learning-pit> followed by a discussion.
 - The Learning Environment:
As a former district mathematics leader, I promoted the district-wide purchase and use of previous versions of this system due to modeling, strategies and visual connections. Dr M.K. Texas
- Our teachers have used it extensively with parents, teachers and students. UMath X is perfect to support research and instruction to teacher candidates. S.C. TDSB Toronto*
- “UMathX helps students gain conceptual understanding better than any other program. Content and Teaching Methodology are exceptional.” Master Teachers, Faculties of Education*
- I still believe that the UMathX system is by far the most effective learning tool for mathematics that I have seen!” JS - Australia*

TOWARDS
UNDERSTANDING
how to use
UMathX
as a
tool
for learning**PART B. BEGINNING THE JOURNEY**

- UMathX creates an environment of Exploration for Students and thus for Journeys in Mathematics.
 - Enter the URL www.umathx.com/preview into the address box of any browser.
Enter the Generic Username: **count**
Enter the Generic Password: **umathx**
- There exist 4 Login Types: student, teacher, principal, supervisor
- The Main Menu appears.
- The Main Menu is the jump off point for both PLANNING and STUDENT USE.



LET'S EXPLORE THE CONTENT MENU ...

ELEMENTARY Example:

<PROCEED> IS ...

the way that UMathX controls the pace.

It ensures attention to tasks and separates the pieces of the concept being built.

- Select “**CONTENT Menu**”.
Follow this path in order:

1. **Fractions > Equivalent Fractions > Pattern Blocks**. Click on (arrow up)(arrow right)(arrow left)(double arrow up) **Content Menu** .. **Fractions > Equivalent Fractions > Pattern Blocks > Hexagon1** to work through lesson, Hexagon1

2. Double click on “**This is one Whole Hexagon**” on the first page to have the line read and highlighted. When <proceed> appears on the bottom right, click on it. Key in “1”, then press <enter>. Key in “2” then press <enter>. Now click on <proceed>. Enter a number ... try the number .. “2” .. three times before entering the correct answer. **NOTE- Encourage students to risk. A mistake is an opportunity to learn.**

3. Click on the 2nd icon at the top of the screen, **MENU**.

Now navigate to **Hexagon1** and complete the lesson.

A blue screen with two options – **GO BACK** .. or .. **CONTINUE**, marks the end of a lesson. Return to the **Main Menu**.

- Select “**CONTENT Menu**” and again follow the path below in order:

Content Menu..**Fractions > Equivalent Fractions > Pattern Blocks >**

The green pencil beside “**Hexagon1**” indicates that a corresponding printable framework is available. Click on pencil.

Option 1: After printing it, follow the lesson outline on the framework.

Option 2: Earlier (above) you followed the lesson “**Hexagon1**” within UMathX.

Return to the **Main Menu**.

- Select “**CONTENT Menu**”. and follow the path below in order:

Fractions > The Meaning of Fractions > Introduction... Think, Write, Say.

The green pencil beside “**Circles**” indicates that a corresponding printable framework is available. Click on the pencil.

Option 1: After printing it, follow the lesson outline on the framework.

Option 2: Follow the lesson “**Circles**” within UMathX.

Return to the **Main Menu**.

LET'S EXPLORE THE CURRICULUM MENU ...

ELEMENTARY Example:

- Select the “**Common Core CURRICULUM Menu**”.
Follow this path in order:

1. **Grade 3**, then **3.NF > 01**.

Click (arrow up)(double arrow up).

2. Select **Common Core**.

3. Click .. **Grade 3 > 3.NF > 01 > 03 > b**

You have now reached suggested lessons to fit **3.NF.01.03b**

4. You now have 2 choices – Tab 1 – “**Lessons**” and Tab 2 – “**Frameworks**”

5. Select **Lessons**.

You are at lessons selected from the **Content Menu** for **3.NF.01.03b**.
Lessons are in order that we recommend that they be taught.

**THREE PART
MODEL LESSONS
(FRAMEWORKS)**

are meant to:

1. Tie on-screen knowledge to concrete expression off-computer.
2. Provide support for RTI & STEAM models.

6. Double Click the 3rd lesson- **Fractions > Equivalent Fractions > Pattern Blocks > Hexagon1 (Remember this?)**
Do a few <proceeds> into the lesson.

7. Exit the lesson by clicking on the 2nd icon at the top of the screen, **MENU**.
You are returned to the **Selection Menu** within the **Curriculum Selection, 3.NF.01.03b**, ready for another choice.

8. Click on tab “**Frameworks**”.
You see **tiered 3 part model printable lessons** which give ideas on **implementing UMathX**.

9. Double-Click on ... **Equivalent Fractions -1.pdf**.
Note the 3 part lesson. It can be printed in color or in black and white double sided to save on paper.
This can be given to a student or a pair of students as a plan for implementation of UMathX.
Note that the instructions to the student(s) direct them within the **Content Menu**.

10. Return to **UMathX**, by moving the mouse to the top of the screen and click on the **X** for **Equivalent Fractions -1.pdf**.

- Select “**Help Me Get Started**” on the **Main Menu**. “**UMathX Videos**” will appear.
Select and play the video, “**Frameworks for Learning**”

UMathX can be used in a wide variety of learning environments.
Frameworks save much time by providing lessons and lesson ideas ready to be used.

**LET’S EXPLORE
CONTENT MENU &
CURRICULUM
MENU ...**SECONDARY
Example:

- Select “**CONTENT Menu**”.
Follow this path in order:
Graphing > Linear Relations > The Elastic Example
Note the **green pencil icon** beside the lesson, “**Setup Equations**”. Click on it to display the **framework**.
Option 1: After printing it, follow the lesson outline on the **framework**.
Option 2: Follow the lesson “**Setup Equations**” within UMathX.
Return to the **Main Menu**.

- Select the **Common Core CURRICULUM Menu**.
Follow the path to **8.F.02.04**
Click on tab “**Lessons**”.
Double Click the lesson- **Graphing > Linear Relations > The Elastic Example > Setup Equations**
Click on the tab “**Frameworks**”.
Note **tiered 3 part lessons, Linear Relations – Elastic -1, -2, -3** for a suggestion to implement **UMathX**.

**MODEL LESSONS
(FRAMEWORKS)**

Framework Role:

Model Lessons

Implement:

RTI


STEM

The **FRAMEWORK**
offers another way to
use **UMathX**

It saves the teacher
time and effort.

- Find a “**Framework**” in 4 Possible Ways:
 1. In the **Content Menu**, a **green pencil** beside a lesson name indicates that a corresponding printable **framework** is available.
 2. In the **Selection Menu**, within a **Curriculum Menu**, the appropriate framework is available.
 3. In the **Main Menu**, select “**View a Framework**”
 4. **Navigate to .. www.umathx.com/frameworks**

Each Framework: .. is on 1 double sided printable page in color or in black and white
.. has 3 parts: **Get Started**
Working At It
Reflect and Connect

UMATH X
Framework for Learning:  **Equivalent Fractions - 3**

Leader's Name:
Co-Leader's Name: Instructor's Initials:


Getting Started:
In **UMATH X** follow the Content Menu path:
Fractions > The Meaning of Fractions > Introduction...Think, Write, Say > Circles
As you work through the lesson, **Circles**, complete the corresponding notes below.

We Think:
The circle on the dreamcatcher is cut into equal parts.
 of the equal parts of the circle are green.

We Write:
← Number of equal parts shaded green
← Total number of equal parts

We Say:
 out of equal parts is green.
 of the shape is green.

Working In It:
In **UMATH X** follow the Content Menu path:
Fractions > Equivalent Fractions > Introduction

UMATH X
Framework for Learning:  **Ratio Tables – Introduction - 1**

Leader's Name:
Co-Leader's Name: Instructor's Initials:

Getting Started:
Log into **UMathX**
From the **Content Menu**, follow the path below:
Fractions > Section 7: Ratios and Proportions > Ratio Table
Select and complete the Lesson: **Introduction 2**
As you work through the **Introduction 2**, complete the table and corresponding notes below.

| | |
|-------------------------|--|
| cups of ginger ale | |
| cups of cranberry juice | |

Method 2: Compare given ratio to new ratio to determine how many groups then .

Discuss the method used to complete the table and Record a summary of your discussion in the space provided below.

PLAN A LESSON:**OPTION 1**1ST **CONTENT MENU**2ND **FRAMEWORK****OPTION 2**1ST **CURRICULUM
menu**2ND **LESSON PATHS**3RD **FRAMEWORKS****POSSIBLE PATHS
in planning a
LESSON>>>>>>****One possibility is
below:**1ST **CURRICULUM
menu (red)**2ND **MODEL LESSONS
menu (blue)**3RD **CONTENT
menu (blue)**

- **PLANNING a LESSON – OPTION 1** – Choose from lessons scaffolded within the **Content Menu**.
First .. Select the **Content Menu**. Choose the path to a particular lesson or set of lessons.
Example: Place Value>Identify Place Value Patterns(to 1000)>D>Expanded Notation
Second .. Note a green pencil icon beside .. 1) Expanded Notation
This indicates that a corresponding framework is available.
Click on the framework and print it, possibly 1 for every 2 or 3 students in the group.
- **PLANNING a LESSON – OPTION 2** – This is likely the option if you work in a version of CCSS.
First .. Follow the steps within the version of the **COMMON CORE CURRICULUM** menu.
Second .. Click on the **LESSON** button to make appropriate lessons available.
Third .. Click on the **FRAMEWORKS** button for appropriate frameworks if they exist. Print.

Some Examples for PLACE VALUE within the Common Core Curriculum2.NBT.01.01a – Place Value>Identify Place Value Patterns(to 1000)>D>Expanded Notation
(Place Value to 1000 – Expanded Notation)

2.NBT.01.03 –Place Value>Identify Place Value Patterns(To 100)>C>Pictures To Numbers #2

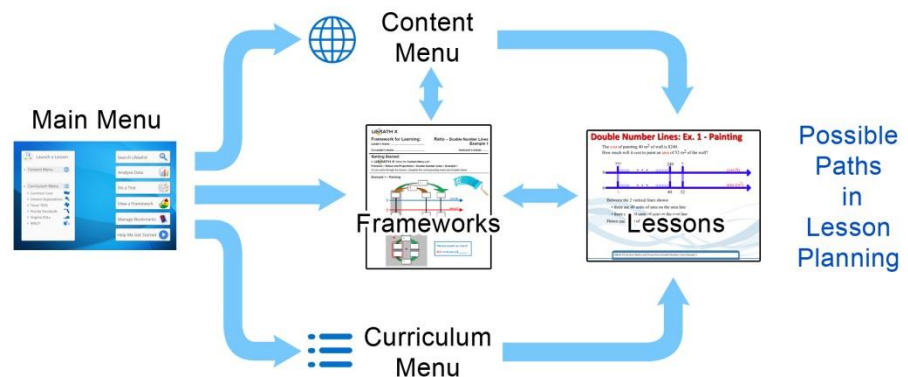
2.NBT.01.03--Place Value>Identify Place Value Patterns(To 100)>C>Tens & Ones To Pictures #2

2.NBT.01.03--Place Value>Identify Place Value Patterns(To 100)>C>Numbers To Pictures #2

2.NBT.01.03--Place Value>Identify Place Value Patterns(To 100)>C>2 Digit Numbers – Different Ways
(Place Value – 2 Digit Numbers-Different Ways)

2.NBT.01.03- Whole Numbers & Integers>The Meaning Of Whole Numbers>Seeing Number> To Hundreds>Ex1

2.NBT.01.03- Whole Numbers & Integers>The Meaning Of Whole Numbers>Expanded Notation To 999>Ex 1

3.NBT.01.01- Whole Numbers & Integers>The Meaning Of Whole Numbers>Rounding Large Numbers>Concepts
(Rounding Large Numbers – To Nearest Ten – Concept 1, Concept 2, Example 1, Example 2)3.NBT.01.01- Whole Numbers & Integers>The Meaning Of Whole Numbers>Rounding Large Numbers>Concepts
(Rounding Large Numbers – To Nearest Hundred – Concept 3, Example 3)
(Rounding Large Numbers – To Nearest 10, 100 And 1000)4.NBT.01.01- Whole Numbers & Integers>The Meaning Of Whole Numbers>Place Value To 999,999>Neighbors
(Place Value To 999,999 – Neighbors)4.NBT.01.01- Whole Numbers & Integers>The Meaning Of Whole Numbers>Expanded Notation>To 999> Ex1
(Expanded Notation – To 999)4.NBT.01.01- Whole Numbers & Integers>The Meaning Of Whole Numbers>Expanded Notation>To 9999> Ex 1
(Expanded Notation – To 9999)4.NBT.01.01- Whole Numbers & Integers>The Meaning Whole Numbers>Expanded Notation>Write As Numerals
(Expanded Notation – Write As Numerals)

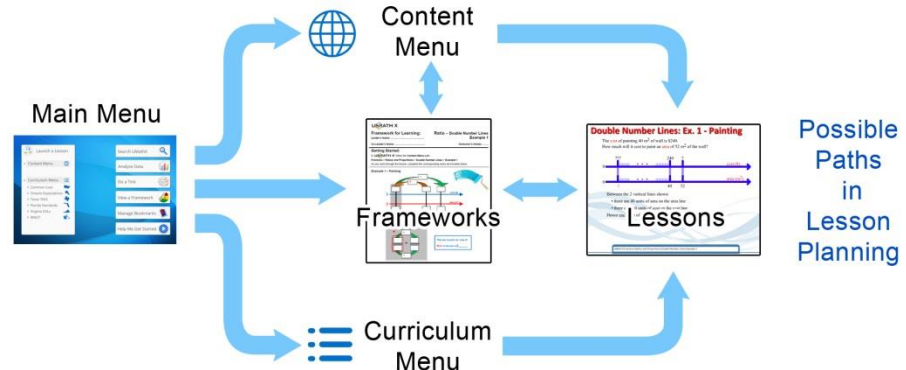
Etc Etc

5.NBT.01.01 - Whole Numbers & Integers>The Meaning Of Whole Numbers>Place Value To 999,999>Neighbors
(Place Value To 999,999 – Neighbors)5.NBT.01.03a- Fractions> Intro To Dec> Ones, Tenths, Hundredths, Thousandths>Dec To Thousandths> Ex1, Ex2
(Decimals To Thousandths)

Etc Etc

**OPTION 2
ADDITIONAL
EXAMPLES**

- 2.NBT.02.05** – Operations>14) Add 2 Digit...Concretely-> C (**Add 2 Digit Numbers-Concretely-With Regrouping**)
2.NBT.02.07 – Operations> 23) Subt 3 Digit Numbers.. Concretely> D (**Subtraction With Regrouping #3**)
3.NF.01.01 – Fractions> The Meaning of Fract> Intro...Think, Write, Say> Circles(**Fraction Intro- Pattern Blocks-1**)
4.NBT.02.05 -Whole#&Int>Mult&DivofWhole Nu>Multby2DigitMult>Part Prod-Area>Ex 1(**Mult 2 digit.PP24x37**)
 - Whole # & Int> Mult & Div of Whole Num> Mult by 2 Digit Mult> Partial Prod-Area> Ex 4–Without Blocks
5.NF.02.04a – Fractions> Multiplying Fractions> Developing the Rule> Ex. 3 (**Multiply Proper Fractions -1**)
6.NS.02.03 - Fract> Mult & Division of Dec> Mult by Partial Products Area>Ex 1(**Mult Dec by Partial Prod 2.4 x 3.7**)



- 6.RP.01.03b** –Fractions >Ratios & Proportions>Ratio,Tape Diagram>Introduction (**Ratios & Proportions - Tape**)
 And ... Fractions>Ratios & Proportions > Ratio Table> Introduction 1& 2 (**Ratio – Ratio Tables_Intro-2**)
7.G.02.06- Meas& Geom> Per & Area of Poly> Areas of Poly>Polyg to Simple Shapes> Ex 1(**Polygons Broken -1**)
7.RP.01.03 – Fractions> Ratios and Proportions> Proportions> Ex 3 Marbles(**Estimation U Proportions**)
8.F.02.05-Graphing>Read & Sketch Graphs>Graphs Without Scale> Ex 7, 9, 11 (**Graphs Without – Creating -1**)
8.EE.02.05 – Graphing > Slope of a Line > Slope > Steepness Factor(**Slope In the Real World**)
8.F.02.04 – Graphing> Eq Str Line > Word Prob-Applic>Walker>(**Slope & Line –Walk in Real World-1**)
A.CED.01.01 – Graphing> Quadratic Functions> Max Cage Area>Trial & Error to Summary(**Quad-Max Cage-1**)
A.CED.01.02 – Algebra> Patterns, Patterns, Patterns>Patterns to Formulas> Ex. 4 (**Patterns with Toothpicks**)
(Challenge) – Algebra>Patterns, Patterns, Patterns> Sum of Seq –Geom – Real Life(**Sum of Geom Seq**)

TEST ACCESS:
Main Menu (first page)
Activity Window

TEST TYPES:
Common Core Test
Content Test
Custom Test

PART C. REFLECTING ON THE JOURNEY

- ACCESS:** Main Menu .. Click on “Do a Test”  or Activity Window .. Click on the  icon



- TYPES:** **Common Core Tests** – coverage within curriculum for a specific grade (example **5.NF**)
Content Tests cover items within a certain content area across grade levels
Custom Tests are generated by the teacher by choosing any specific content.

DATA ANALYSIS
Lessons & Tests
Growth
Usage

For more information
on Data Analysis,
we welcome you to
contact us.

Select “**Analyze Data**” in the Main Menu. The “**Data Module**” requires data by students. The full version allows students to do lessons and tests with results recorded into perpetuity. A teacher or student can then check student data .. **tests, lessons, usage, growth and more.**

After a student has created data, the teacher of that student could do the following:

- Select “**Analyze Data**”. Select “**Test Data**”. Select a class or a student, a test category and a test. Click on a specific vertical, then horizontal bar. Click on a question that was answered incorrectly.
2 choices. 1 - see results. 2 - launch an appropriate lesson.