

Florida, Caribbean,
Bahamas
K to Algebra1

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

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PART A. PREPARING FOR THE JOURNEY

- In this **Exploration of Mathematics Content and Teaching Methodology** we will use UMathX, a learning environment for K to 10. UMathX is the 10th version of “Understanding Math”.
- **UMathX** is a journey, guided by your planning, where learners are encouraged to think through concepts, choose strategies and articulate ideas towards **constructing their understanding**.
- Information flows from **short term to long term memory** through the vehicle, “**Understanding**”.
- The power of learning is invested in the student. Questioning is the key to learning. **Understanding** is achieved by association.



Grappling is
'Productive
Struggling'



The UMathX journey can take many paths.

Frameworks give ideas for UMathX implementation.

For information and resources visit our website at www.umathx.com

Watch the video “UMathX - What is It?” at umathx.com/videos

Build it
Draw it
Talk it
Write it
OWN it!

Before beginning this journey, discuss the many possible learning environments.

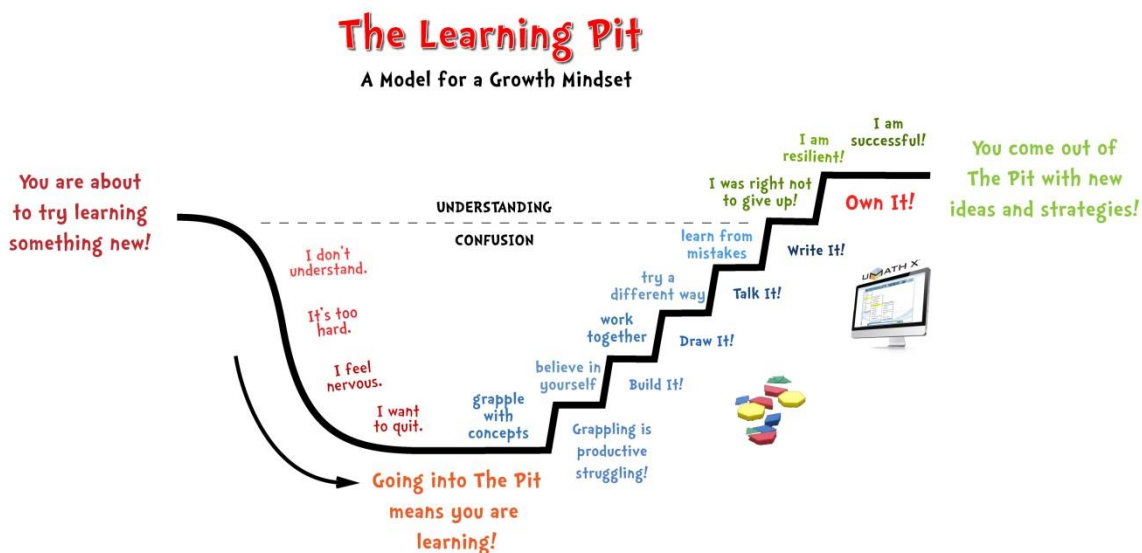
Show me another way...
Reflect and Connect
What would you do if...?
Why did you... ?



UMathX is a Browser Based Learning System, which makes learning of math a **visual** and **manipulative** experience, giving students an **advantage in the acquisition of and love for mathematics**.

PART A continued
PREPARING FOR
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.
- “UMathX Content and Teaching Methodology are Exceptional” (LSU Master Teachers) but at WWW.UMathX.com we are unique in GOING ABOVE & BEYOND for our clients by giving ONGOING SUPPORT for 2018-19 through Model Lessons and WEBINARS to help our Teachers and Students.

"Join us for a free webinar!"



webinar
series with UMathX

Register at: info@umathx.com

TOWARDS
UNDERSTANDING
how to use
UMathX
as a
tool
for learning

PART B. BEGINNING THE JOURNEY

- UMathX creates an environment of Exploration within Journeys in Mathematics.
- Enter the URL www.umathx.com/preview into the address box of any browser.
Enter the Username **that you have been given for this UMathX session.**
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 “Florida Standards CURRICULUM Menu”.**
Follow this path in order:
 1. **Grade 3**, then **MAFS.3.NF > 01**.
Click (arrow up)(double arrow up).
 2. Select **Florida Standards**.
 3. Click .. **Grade 3 > MAFS.3.NF > 01 > 03 > b**
You have now reached suggested lessons to fit **MAFS.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 **MAFS.3.NF.01.03b**.
Lessons are in order that we recommend that they be taught.

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

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**, **MAFS.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 **Florida Standards CURRICULUM Menu**.
Follow the path to **MAFS8.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

PLAN A LESSON:

OPTION 1

1ST **CONTENT MENU**

2ND **FRAMEWORK**

OPTION 2

1ST **CURRICULUM menu**

2ND **LESSON PATHS**

3RD **FRAMEWORKS**

- **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 Florida Standards.
First .. Follow the steps within the version of the **FLORIDA STATE STANDARDS** curriculum.
Third .. Click on the **FRAMEWORKS** button for appropriate frameworks if they exist. Print.

Some Examples for PLACE VALUE within the FLORIDA STANDARDS Curriculum

MAFS.2.NBT.01.01a – Place Value>Identify Place Value Patterns(to 1000)>D>Expanded Notation
(Place Value to 1000 – Expanded Notation)

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

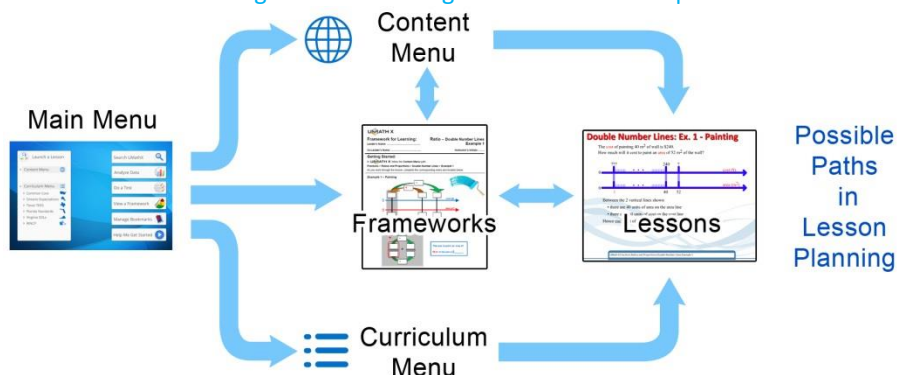
MAFS.2.NBT.01.03–Place Value>Identify Place Value Patterns(To 100)>C>Tens & Ones To Pictures #2

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

MAFS.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)

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

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



MAFS.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)

MAFS.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)

MAFS.4.NBT.01.01- Whole Numbers & Integers>The Meaning Of Whole Numbers>Place Value To 999,999>Neighbors

(Place Value To 999,999 – Neighbors)

MAFS.4.NBT.01.01- Whole Num & Integers>The Meaning Of Whole Num>Expanded Notation>To 999> Ex1
(Expanded Notation – To 999)

MAFS.4.NBT.01.01- Whole Num & Integers>The Meaning Of Whole Num>Expanded Notation>To 9999> Ex 1
(Expanded Notation – To 9999)

MAFS.4.NBT.01.01- Whole Num & Integers>The Meaning Whole Num>Expanded Notation> Write As Numerals
(Expanded Notation – Write As Numerals)

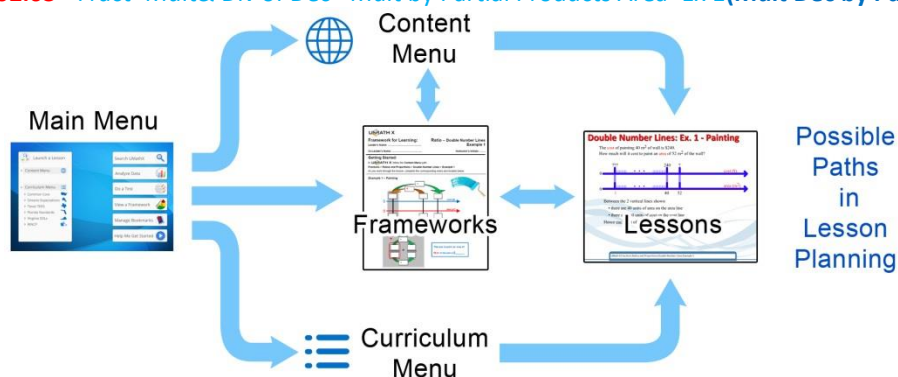
MAFS.5.NBT.01.01 - Whole Num & Integers>The Meaning Of Whole Numbers>Place Value To 999,999>Neighbors
(Place Value To 999,999 – Neighbors)

MAFS.5.NBT.01.03a- Fractions> Intro To Dec> Ones, Tenths, Hundredths,Thousandths>DecToThousandths> Ex1, 2
(Decimals To Thousandths)

OPTION 2
ADDITIONAL
EXAMPLES

Additional Examples within the **FLORIDA STANDARDS** Curriculum

- MAFS.2.NBT.02.05** – Operations > 14) Add 2 Digit... Concretely > C (Add 2 Digit Numbers- Concretely-With Regrouping)
- MAFS.2.NBT.02.07** – Operations > 23) Subt 3 Digit Numbers.. Concretely > D (Subtraction With Regrouping #3)
- MAFS.3.NF.01.01** – Fractions > The Meaning of Fract > Intro... Think, Write, Say > Circles (Fraction Intro- Pattern Blocks-1)
- MAFS.4.NBT.02.05** – Whole # & Int > Mult & Div of Whole Nu > Mult by 2 Digit Mult > 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
- MAFS.5.NF.02.04a** – Fractions > Multiplying Fractions > Developing the Rule > Ex. 3 (Multiply Proper Fractions -1)
- MAFS.6.NS.02.03** - Fract > Mult & Div of Dec > Mult by Partial Products Area > Ex 1 (Mult Dec by Partial Prod 2.4x3.7)



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

- **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, useage, 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.