

M2Studio User Guide: Teacher Edition

(2024.09)

M2Studio is a learning environment for secondary students to learn mathematical modeling. In this document, we describe the features that support students in creating, testing, and communicating their mathematical models. Additionally, there are pages at the end to describe the functionalities for teachers. The user guide for students can be found [here](#).

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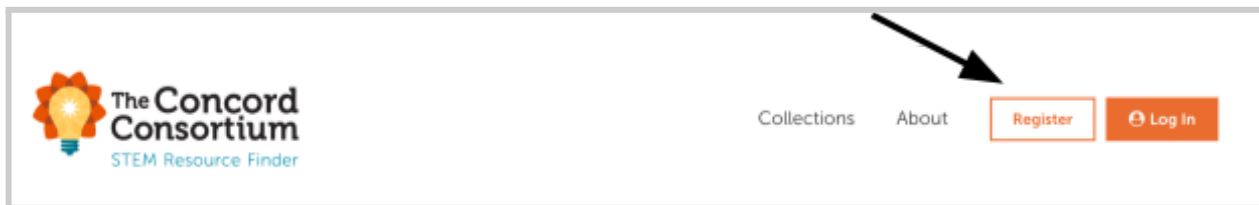
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Access a student account

If a student has never used these materials before, they will need to create a student account. If they already have a student account, skip to the “Log in to an existing account” section.

How to create a new student account

1. Go to the website **learn.concord.org**
2. Click on [**Register**], in the upper right corner.



3. Click on [I am a **Student**].



4. Choose a *sign in* method:
 - a. *Method 1:* Use your Google or Schoology account
 - b. *Method 2:* Complete the fields to create a new account. It will look like this:

A screenshot of the account creation form. It contains four input fields: 'FIRST NAME' with the text 'Testing', 'LAST NAME' with the text 'McTesterson', 'PASSWORD' with masked characters '.....', and 'CONFIRM PASSWORD' with masked characters '.....'. Each field has a light green background. At the bottom right of the form is an orange button labeled 'Next'.

- Find the class. The teacher has already created a Class Word. Enter that word to link the student account to the class.

CLASS WORD

Class Word (not case sensitive)

- Click on **Register**.
- If the student created a new account just now, they will now see a new student username, which has been automatically generated and cannot be modified. Make sure the students remember their username!! Otherwise skip to Step 9.

Success! Your username is

tmctesterson

- Use the new username and password to log into the account.

Success! Your username is

tmctesterson

Use your new account to sign in below.

USERNAME

tmctesterson

PASSWORD

.....

Log In!

- Once a student is logged in, they should see your class's name and your teacher name in a gray bar, with a list of activities below it.

Classes and Offerings

Class Name	Teacher Name
------------	--------------



Activity: **ACTIVITY NAME 1**

Run

Not yet started

You haven't started this yet.

Activity: **ACTIVITY NAME 2**

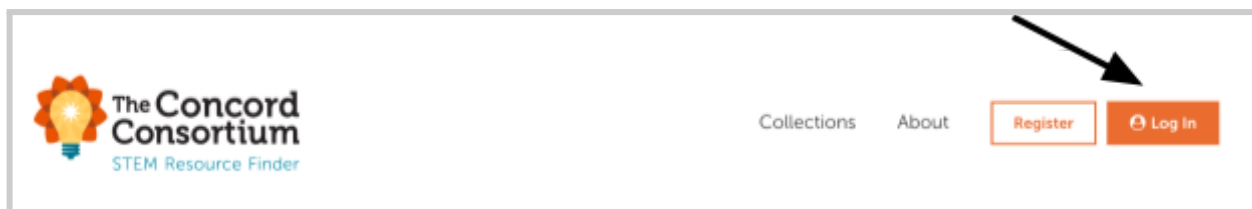
Run

Not yet started

You haven't started this yet.


Log into an existing student account


1. Go to learn.concord.org
2. Click on “Log In” in the upper right corner.



3. Choose a sign in method:
 - a. Method 1: Google or Schoology account

Sign in with:

 Google

 Schoology

- b. Method 2: Enter the username and password

USERNAME


PASSWORD

4. Click “Log In!”

Log In!

5. Once a student is logged in, they should see your class’s name and your teacher name in a gray bar, with a list of activities below it.

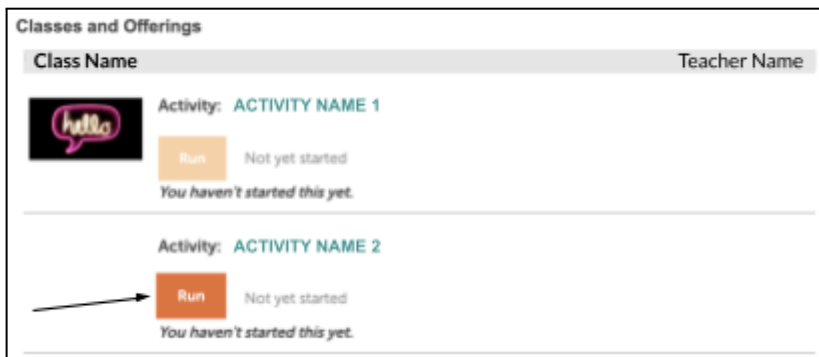
Classes and Offerings

Class Name	Teacher Name
 Activity: ACTIVITY NAME 1	
<div>Run</div> Not yet started <i>You haven't started this yet.</i>	
<hr/>	
Activity: ACTIVITY NAME 2	
<div>Run</div> Not yet started <i>You haven't started this yet.</i>	

Launch an activity

The teacher should tell the students the name of the activity to launch. See “Assign an Activity” in the teacher section of this guide.

1. The student should find that lesson in the list and click “Run”.



Note: Students can only launch activities that have a dark orange “Run” button. If the button is a faded color, that means the activity has been set to “inactive.”

2. Students may be asked to join a group. They can join an existing group or create a new one. Otherwise, skip this step and move onto Step 3.

Join Group


Welcome Student 1
Please create your group

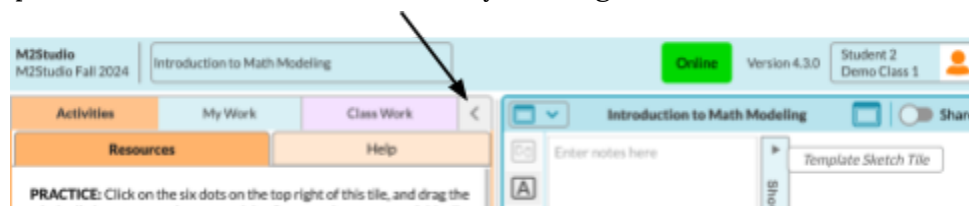
Group 1 ▼

Create Group

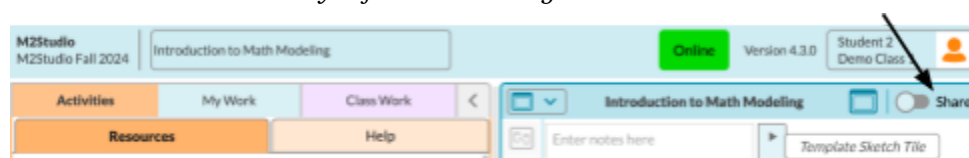
3. Students should now see a screen that looks something like this:



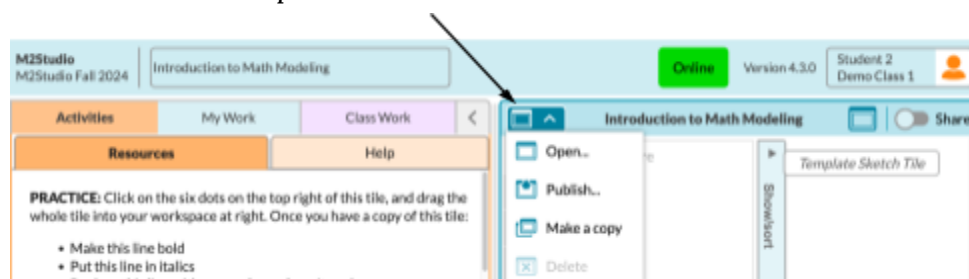
4. On the left half of the screen, there are all the learning resources, and on the right half is the workspace. For now, close the left side by clicking the  button.



5. **If the teacher instructs**, students can turn the “Share” toggle to on. This will allow group mates to see each others’ work. Note: *In the image below, the share toggle is switched to off. Group work share is not currently a function being used in the M2Studio lesson.*

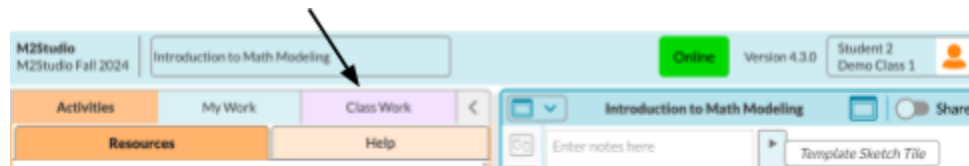


6. If you want a student to share their model with the whole class, the student can open the menu and select “Publish” to publish their work to the class.



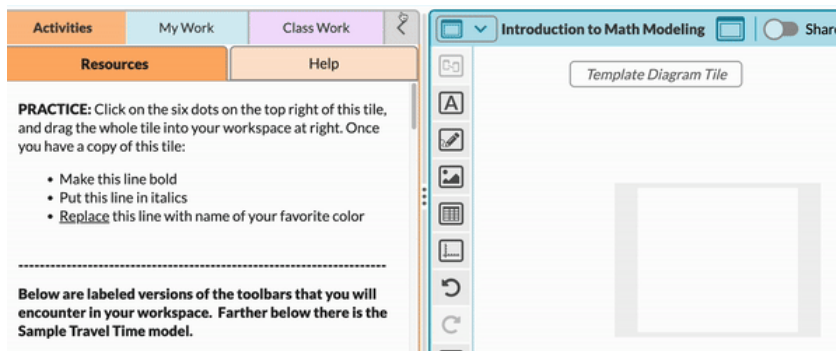
All students will now be able to see what that workspace looked like at the moment the student clicked the button. If a student makes changes to their document after this point, it will **not** be reflected in the class view.

7. Students can view the work of any classmate who published their work to the class by clicking on the “Class Work” tab.

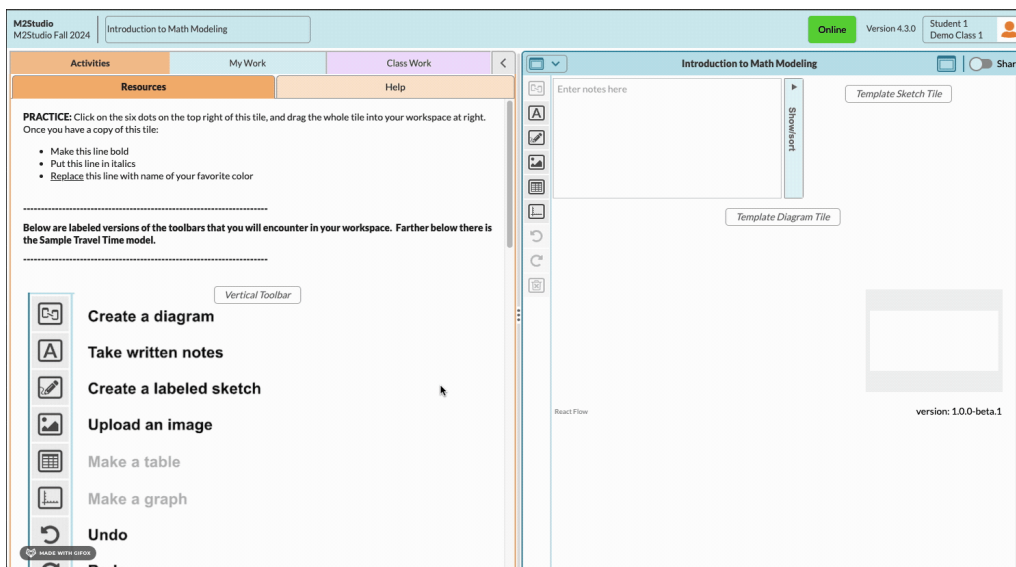


Expand and shrink your views

If you want more space to work, you may opt to hide the resources (left) side of your screen. You also may want to view the resources tab when it contains important information or questions. Click on the X or the sidebar to toggle between views.

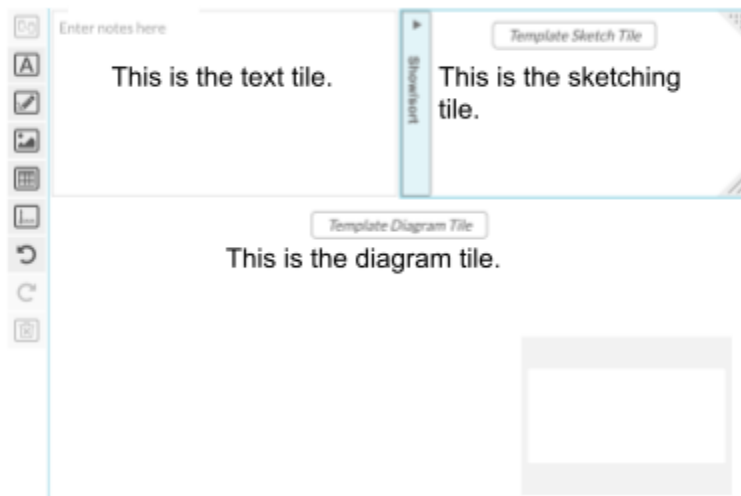


Alternatively, you can use the arrows to open or hide either side of your screen.



Exploring your workspace

M2Studio has a writing tool, a sketching tool, and modeling tool, often referred to as the text tile, sketching tile, and diagram tile because they look like tiles. The workspace may start with at least one of each tile. Each tile has its own toolbar. You can access the toolbar by clicking in the tile, and the toolbar will appear just below the tile.



Text tile

In the text tile, you can take notes, format your notes, and create variable chips. See *more about variable chips in the **Variable Chips** section.*



Sketch tile

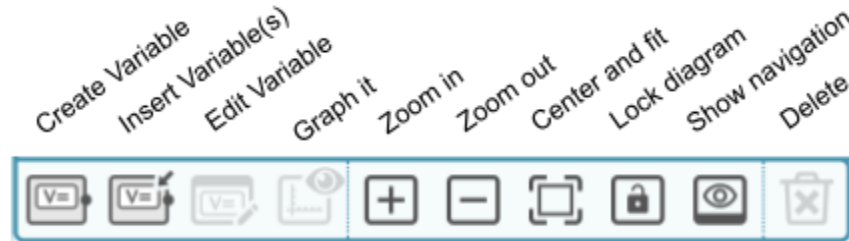
In the sketch tile, you can use the tools to create sketches. You can also upload images into this tile. You can label your sketches using the variable chips. See *more about variable chips in the **Variable Chips** section.*



To move items in your sketching tile, click on the **Select** button first.
You cannot copy and paste within the sketching tile.

Diagram tile

In this tile, you can connect variable cards and create expressions to build and revise your model. See more about variable cards in the **Variable Cards** section. See more about expressions in the **Expressions** section.



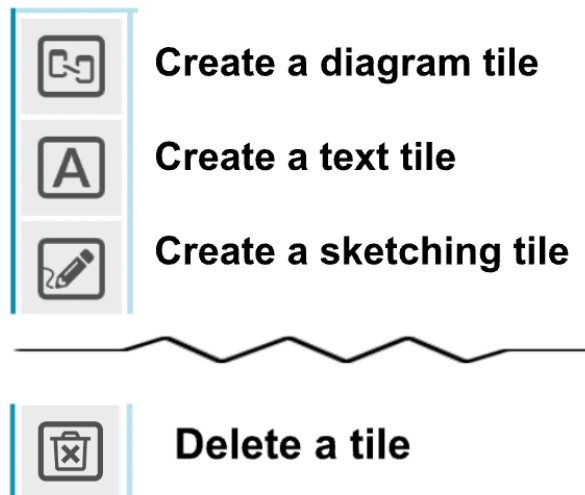
When you want to share your full model with your classmates, click on the Center and fit button before publishing.

If you cannot find a variable card in your tile, you can look around in the navigation pane.

Note: If you still cannot find the card, it may be hiding directly behind another card.

Creating additional tiles

You can create more tiles by clicking on their corresponding buttons in the vertical toolbar. You can also delete a tile from your workspace. Be careful: Deleting a tile CANNOT be undone.

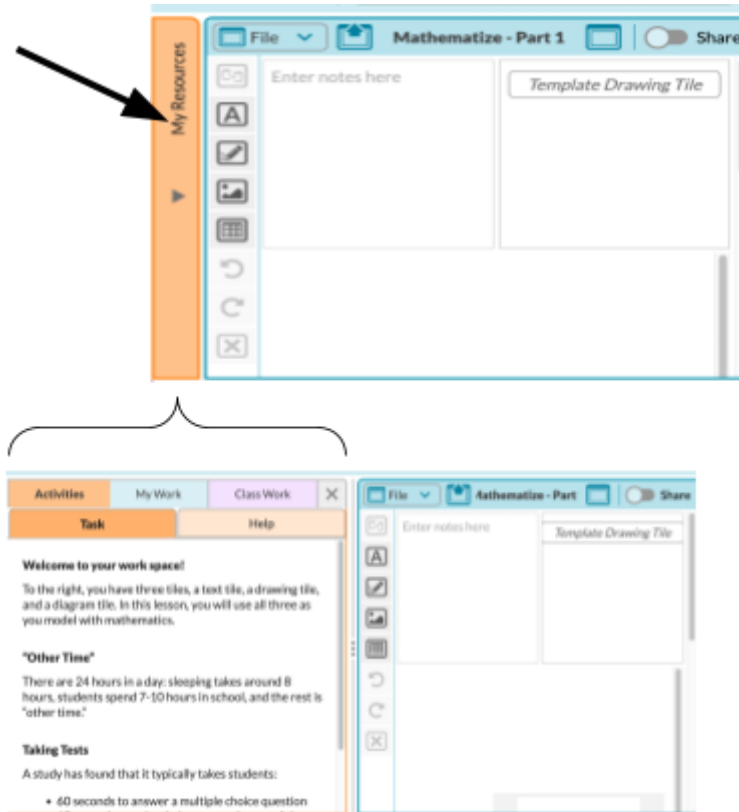


Note: You can only have one diagram tile in your workspace.

Dragging tiles from left to right

There may be important information or questions in the Resources section. You **cannot** edit tiles that are on the left, but you can drag them into your workspace for you to edit.

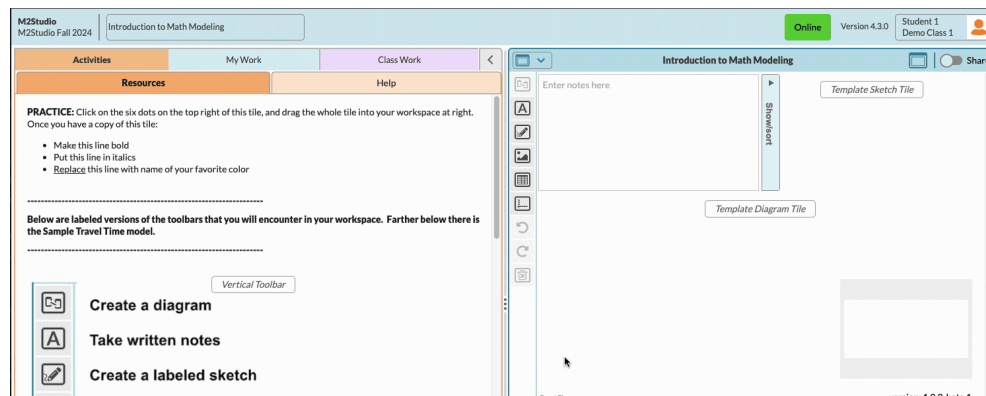
1. If you have closed the left side, you can reopen it by clicking on the orange “Resources” tab.



2. Then select the orange tab that contains the information you want. For example, imagine that you want the “Other Time” information from the “Task” tab, as shown in the image above.
3. As you hover your mouse over the information in the tab, the tile outlines will appear, as well as six dots in the top right corner of the tile.



4. Click on the six dots and drag the tile into your workspace on the right. A new copy of the tile will now appear in your workspace.






5. You can now edit this tile in your workspace however you like.

Creating, using, and connecting variables

The word “variable” has different meanings in different contexts. In Algebra, a variable is a quantity that can change or unknown value. In programming, a variable is a memory location for storing and updating information. In M2Studio, as the diagrammatic programming tool is designed to support Algebraic thinking, the word “variable” carries both meanings. M2Studio uses “Variable Cards” and “Variable Chips.” As the word variable is being used with the programming definition, as a place to store information, the cards and chips can be used both for mathematical variables and parameters.


Create variables

To create a variable, click the  on any tile toolbar to open the Variable Editor dialog, as shown below.

- Variable Name
 - The variable name cannot have spaces. For multi-word names, you can either capitalize each word (VariableName) or use underscores between words (Variable_name).
 - Names should be informative, but short, as you will need them for creating expressions and don't want to have to keep writing excessively long names. While typically variables in algebra are single letters (such as "x"), we recommend creating short, but meaningful names so that you can quickly identify what each variable means without creating a separate key.
 - Names should only include letters and underscores. Other characters may cause issues.
 - Variable names are case sensitive.
- Notes
 - This is your space to record any important information about this variable. It can be a longer name, where you learned about it, what the range should be, or anything else you will want to remember.
- Icon
 - There are two possible icons in the top right corner of your screen. These change automatically based on how the variable is used in your diagram tile.
 -  This variable can be used in an expression.
 -  This variable is calculated based on another variable.
- Expression/Calculation
 - These are not editable in the dialog box. To change an expression, you will do so on the variable card in the diagram tile.
- Unit
 - See the section on *Units*.
- Value
 - This is a numerical value
 - Do not include spaces
 - Do not include commas
 - See the section on *Value* for more details

Edit a variable

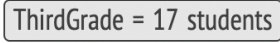

If you want to change any of the information about a variable, you may do so by selecting the

variable and then clicking on the  button in the toolbar. This will re-open the dialog box that you viewed when creating the variable.

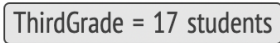

Variable chips and variable cards

Once you create your variable, it will appear in the tile from which you opened the Variable Editor dialog.

In the text tile - variable chip

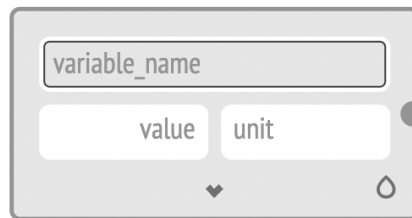
- The variable chip will look something like this:  , with the name written first, followed by an equal sign, your given value, and then the units. If you did not include all three pieces of information, the chip will contain only the information you provided.
- The chip will appear in the place where you last left your cursor in the tile.
- To move the chip within the tile:
 1. Put your cursor to the right of the chip
 2. Hold the shift key and use the left arrow to highlight the chip
 3. “Cut” the chip using either Cmd-X or Control-X.
 4. Navigate the cursor to where you want the chip to appear
 5. Click either Cmd-V or Control-V
- If text was highlighted before you clicked on the  , a copy of that text will be automatically placed into your Notes field.

In the sketching tile - variable chip

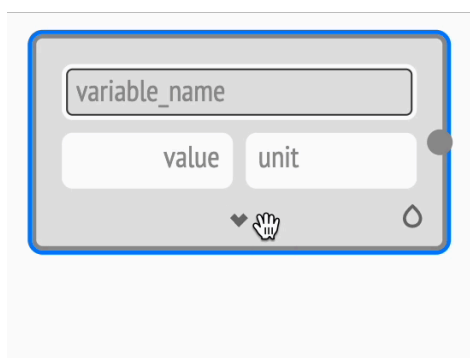
- The variable chip will look something like this:  , with the name written first, followed by an equal sign, your given value, and then the units. If you did not include all three pieces of information, the chip will contain only the information you provided.
- The chip will appear somewhere in your sketching tile.
- To move the chip within the tile:
 - Click on the  button in the sketching toolbar
 - Click on the chip
 - Drag it to the location where you want it
- If you cannot find a chip, it may be hiding behind another in your tile.

In the diagram tile - variable card

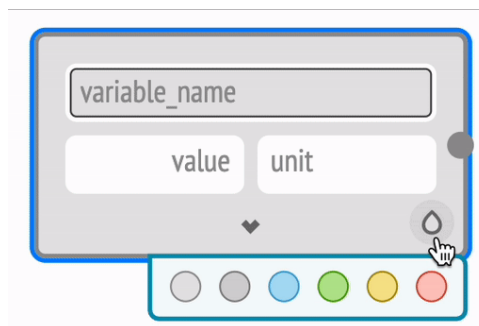
- The variable will appear as a CARD, not a chip, and look something like this:



- On this card, you can directly edit the variable name, value, or unit. Be warned that editing on the card will also update everywhere else this variable is used.
- If you click on the down arrow, you can open the notes field. You can also directly edit the notes on the card.




- You can change the color of the card by clicking on the water droplet icon at the bottom right of the card, which will open your color choices.

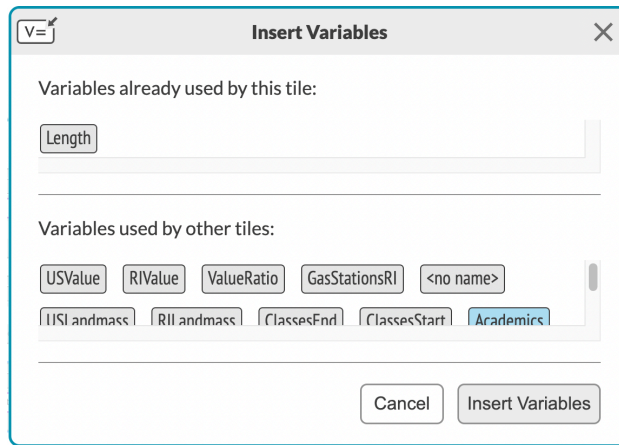


Changing the color of the card will also cause all chips for this variable to also change color.


Reuse variables

You can use the same variable in multiple tiles. Once you have created it in one tile, you may

insert it into another using the  button on the toolbar. This will open a dialog box that looks something like this:



- At the top, you can see the list of variables that are already in the tile.
- Below, you can see all the other variables that you have created elsewhere.
- How many times may a variable exist in a tile?
 - In the text and drawing tiles, you may insert the same variable chip in a tile as many times as you want.
 - In the diagram tile, each variable card may only appear once.


You may also edit a variable in any tile where it exists, even if it was created elsewhere. Simply click on the variable chip or card and then select the  button in that tile's toolbar. This will reopen the dialog box and allow you to make changes to the variable's information.

Note: Changing the information about a variable will change it everywhere that variable exists.

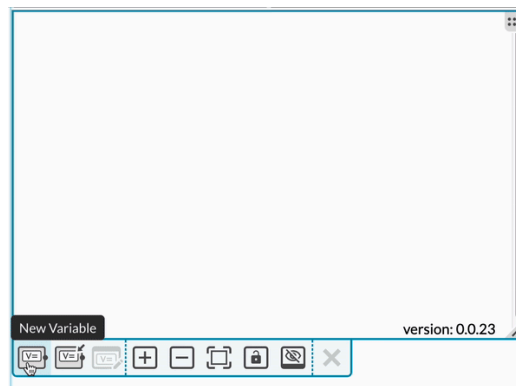
Create relationships

In the diagram tile, you can connect variables with arrows and an expression.

Step 1: Create a new variable card.

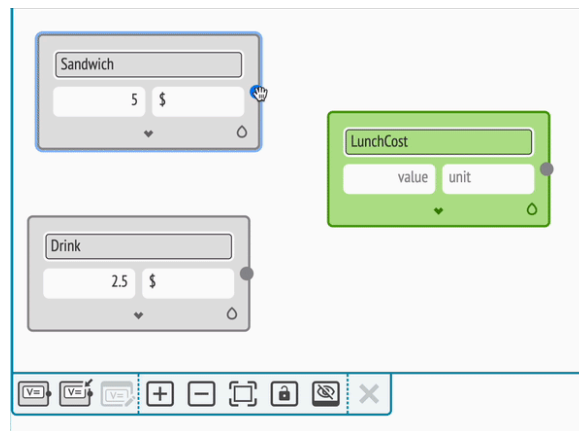
Option 1: Click on the  button to open the dialog box, give it a name, and then click save.

Option 2: Click and drag from the  button to place a card directly into your diagram tile, like this:

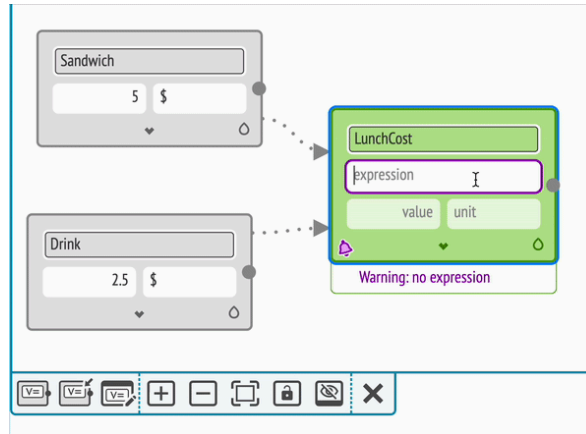


and then give the variable card a name.

Step 2: Draw arrows from the other variables that you feel contribute to this new variable. You do this by clicking on the circle at the right side of a card and dragging it to the middle of your new variable card. This will create a dotted arrow between the cards, and create a new field in your variable card, like this:



Step 3: In the new expression field, type in an expression to relate the variables. Use the variable names and operators. If your expression is valid, it will automatically calculate and provide units. Otherwise, M2Studio will ask you a clarifying question in purple text below the card.



For every connected variable that is used in the expression, the arrow will convert from a dotted to a solid line.

Mathematical Operations in Expressions

M2Studio allows you to use addition, subtraction, multiplication, division, and exponentiation, as well as grouping in your expressions. You are free to put spaces between variables and the operations, or to put them directly next to each other. For example, you can either write “Sandwich+Drink” or “Sandwich + Drink”.

Addition. Use the + symbol to indicate addition.

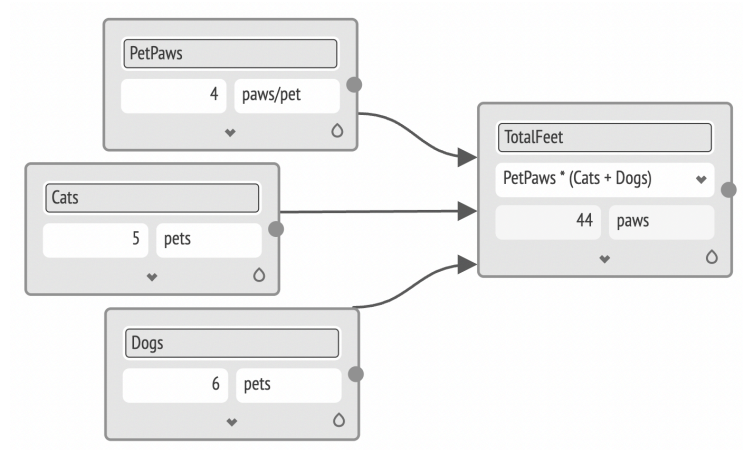
Subtraction. Use the - symbol to indicate subtraction

Multiplication. Use the * symbol to indicate multiplication. Do not use the \times and do not use implicit multiplication. In the current version of M2Studio, the symbol * is used as the multiplication sign, so there won't be confusion with the letter x. Although the current version supports implicit multiplication (e.g., “2y” means “2 times y”), we do not recommend using it because the expression may not look clear when the variable names are long. Additionally, in our next version, we will likely disable implicit multiplication. Lastly, the dot symbol used as the multiplication sign in Algebra is not available in M2Studio.

Division. Use the / symbol to indicate division.

Exponentiation. Use the ^ to indicate exponents. In other words, if you want “cats²”, you should write “cats^2”.

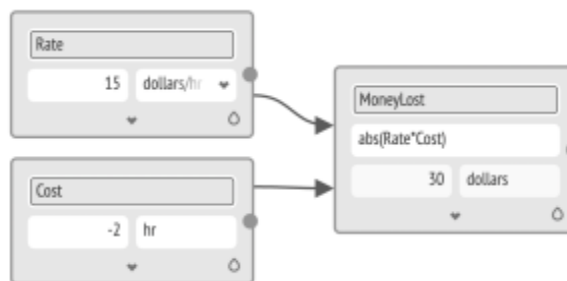
Grouping. M2Studio uses only rounded parentheses to indicate grouping. For example, if you want to create an expression to calculation how many total paws there are given two types of pets:



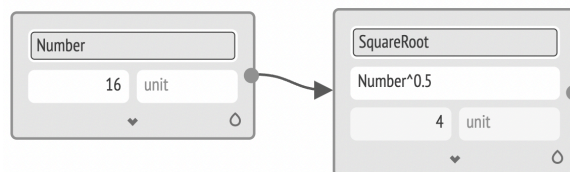
Special Operations

In addition to the operations mentioned above, there are a few bonus functions that you can use in your expressions.

Absolute value. Use `abs()` to get the absolute value of a number or expression. For example:




Square root. There is no square root function currently in M2Studio. However, you can use the fact that taking the square root is the same as raising a value to the 0.5 to get around this limitation.





Rounding, Ceiling, Floor. These additional functions are still in progress. They should be fully functional in the next iteration of development.


Alerts

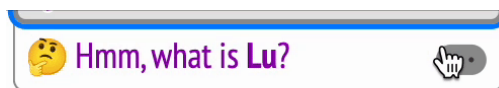
Sometimes M2Studio will not understand your expression and will alert you to the issue or ask you a clarifying question.

 **Hmm, what is [...]**? If M2Studio asks you this, it means it cannot find the variable that you are including in your expression. Double check that you have spelled your variable name the exact same way you did before, and that you have connected it with an arrow to this card.

 **Um, still working?** M2Studio will ask you this if it is unsure about your expression. Read it over carefully to make sure you have all the operators and variables arranged exactly as you intended.

 **Oh, unit trouble?** M2Studio will ask you this when it cannot automatically calculate your expression for you. If this happens, check that your units are typed exactly as they should be on all cards connected to this expression. Also double check that if your expression includes addition or subtraction, you are only trying to add or subtract like terms.

You can also click the  next to the alert to open additional information about the issue:



Note: Once you expand an alert, it will stay expanded until it is resolved.

M2Studio only shows one alert on a card at a time, even if it does not understand multiple things about your expression. Once the first issue has been resolved, it will give the next one.

Values

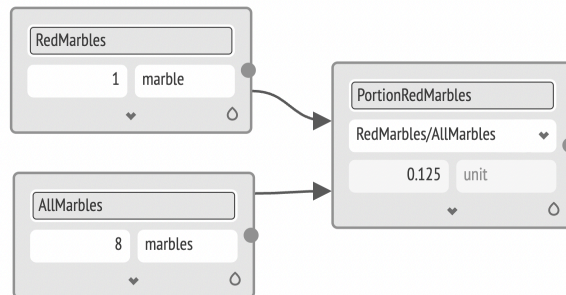
When creating a variable, you will want to decide if it will be used in an expression, or be created from an expression. When a variable is created with an expression, the value will be automatically calculated for you, if possible. Any number you have written in the value field before creating the expression will be overwritten.

Rules about entering values:

- Only use numbers or decimals
- Do not include commas
- M2Studio is not currently capable of understanding fractions or percentages
 - Fractions
 - Option 1: Manually convert a fraction to its decimal form



- Option 2: Create cards for both the numerator and denominator and then create an expression to calculate your fraction as a decimal

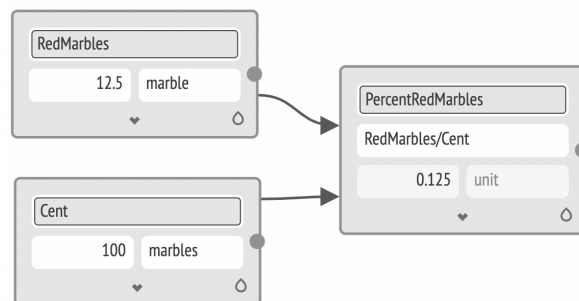


○ Percentages

- Option 1: Manually convert the percentage to its decimal form



- Option 2: Use variable cards to convert the percentage to its decimal form



Use of very long values

For very long values, you can use “E” or “e+” to signify scientific notation. For example, if you want to write the value 5000, you can either type in 5000 directly, or if you want scientific notation, which would be 5×10^3 , you can write 5E3 or 5e+3 in the value field. For values with few digits, M2Studio will instantly write 5E3 or 5e+3 as 5000. For values with more digits, the scientific notation will remain. If you write an extremely long value, it may also convert it to scientific notation to save space.

Units

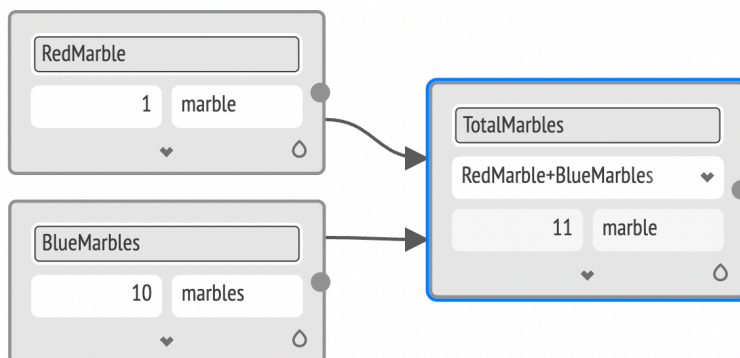
When you create a variable, you often will need to include a unit with your value. You have two options for units; user-defined units and standard units.

User-defined units

You are welcome to create any unit you wish for units, such that it makes sense in your situation. For example, if you have a modeling problem about marbles in a bag, you may wish to use “marble” or “marbles” as your unit of measurement.

Singular/Plural Units

M2Studio can identify singular and plural versions of a user-defined unit as the same unit. Therefore, “marble” and “marbles” will be treated as the same unit and allow you to add as if they are like terms. The output unit of your expression will be in the unit of the card you connected to the output card first.



While adding an “s” to a noun often creates the plural form, this is not always the case. M2Studio also knows and uses many common irregular plural versions of singular units.

Pronouns

Singular	Plural
I	we
me	us
he	they
she	they
them	them
myself	ourselves
yourself	yourselves
itself	themselves
herself	themselves
himself	themselves
themselves	themselves

Verbs & Parts of Speech

Singular	Plural
is	are
was	were
has	have
this	these
that	those

Words ending in a consonant + “o” → consonant + “oes”

Example: echo → echoes

Words ending in “us” → “era”

Example: genus → genera

Words ending “ma” → “mata”

Example: dogma → dogmata

Other common irregulars

Singular	Plural
ox	oxen
die	dice
yes	yeses
foot	feet
goose	geese
tooth	teeth
quiz	quizzes
human	humans
person	people
proof	proofs
thief	thieves
passerby	passersby
fish	fish

Standard Units

There are several standard units that M2Studio already “knows.” In the table below, these units are listed by type. When using these units in your diagrams, you can either write out the full name, if written below, or use the abbreviations provided. You can also use common prefixes, such as “milli” to modify a metric unit, such as meter → millimeter.

Dimension	Units
Length	meter (m) inch (in) foot (ft) yard (yd) mile (mi)
Surface area	m ² → Use this for square meter sqin → Use this for square inch sqft → Use this for square foot sqyd → Use this for square yard sqmi → Use this for square mile acre hectare
Volume	m ³ → Use this for cubic meter litre (l, L, lt, liter)

	cc → Use this for cubic centimeter cuin → Use this for cubic inch cuft → Use this for cubic foot cuyd → Use this for cubic yard teaspoon tablespoon
Liquid volume	fluidounce (floz) cup (cp) pint (pt) quart (qt) gallon (gal)
Angles	rad (radian) deg (degree)
Time	second (s, secs, seconds) minute (min, mins, minutes) hour (h, hr, hrs, hours) day (days) week (weeks) month (months) year (years) decade (decades) century (centuries) millennium (millennia)
Mass	gram (g) tonne ton ounce (oz) poundmass (lbm, lb, lbs)
Temperature	kelvin (K) celsius (degC) fahrenheit (degF)

Using standard units

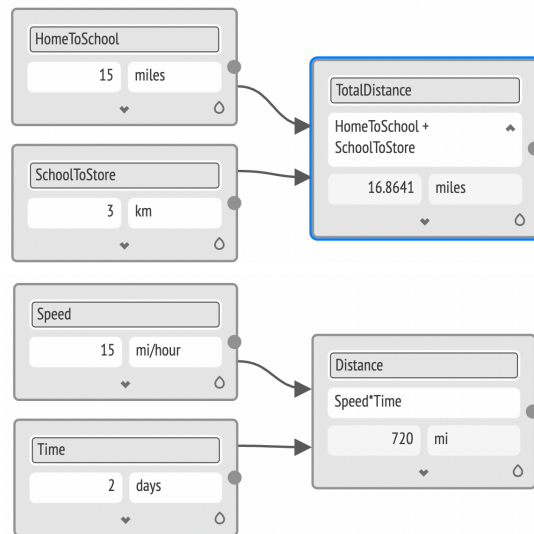
- Avoid using the standard units in your variable names.
- Make sure you use the standard units spelled exactly as they are shown above, and avoid creating your own versions of these standard units

Compound units

For compound units, such as “miles per gallon” use the division symbol and place no spaces between the units. For example if you want “miles per gallon”, you should write “miles/gallon”.

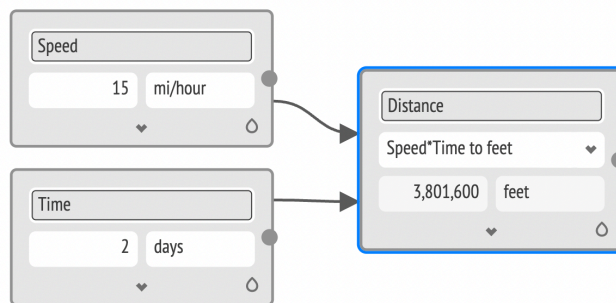
Unit combinations and conversions

If you are using the standard units, M2Studio allows you complete operations connecting variables of different units along the same dimension. For example, you may create an expression that combines two distances, where one was in miles and the other in kilometers, or calculates distance using time in different values. The answer will commonly be presented using the unit of the variable that was first connected to the output with an arrow, although sometimes M2Studio chooses an alternative unit along the same dimension.



Choosing the output unit with the “to” function

If you desire that your output be in a different unit in the same dimension, you can use the “to” function in your expression. At the end of your expression, simply type “to [unit]”, and if this is a valid conversion, M2Studio will calculate your value using this unit instead.



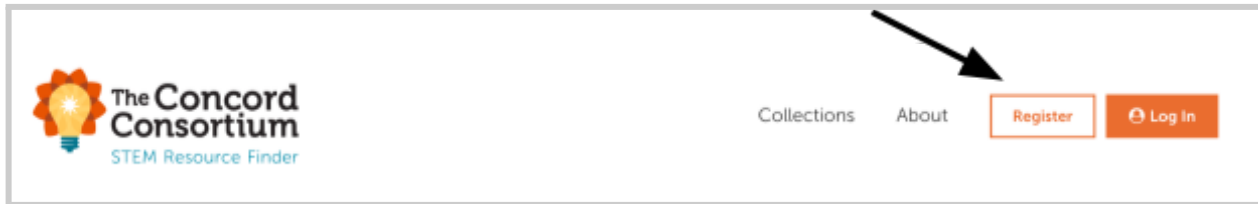
Special Features for Teachers

In addition to accessing all the student features, the teachers can do even more.

Create a teacher account

If you do not have a teacher account yet:

1. Go to learn.concord.org
2. Click “Register” in the upper right corner.



3. Click “I am a **Teacher**.”



4. Choose a sign in method:
 - a. Method 1 (*save for your student account*): Google or Schoology account. If you use this method, click your preference and then jump to step 6.



- b. Method 2: Complete the fields to create a new account.

FIRST NAME	LAST NAME
<input type="text" value="Tester"/>	<input type="text" value="McTeacher"/>
PASSWORD	
<input type="password" value="*****"/>	
CONFIRM PASSWORD	
<input type="password" value="*****"/>	
<input type="button" value="Next"/>	

5. Complete all fields for verification.

Register as a Teacher for the STEM Resource Finder

USERNAME

TesterMcTeacher

EMAIL

mteacher_T@school.org

☐ Send me updates about educational technology resources.

COUNTRY

United States

ZIP CODE

12345

SCHOOL

School / Institution

[I can't find my school in the list.](#)

By clicking Register!, you agree to our [privacy policy](#).

Register!

6. Go to your email to find the verification.

Register as a Teacher for the STEM Resource Finder

Thanks for signing up!

We're sending you an email with your activation code.
Click the "Confirm Account" link in the email to complete the process.

7. Click on **Confirm Account**.



STEM Resource Finder
to Tester



Welcome, Tester!

Thanks for creating an account on the STEM Resource Finder.

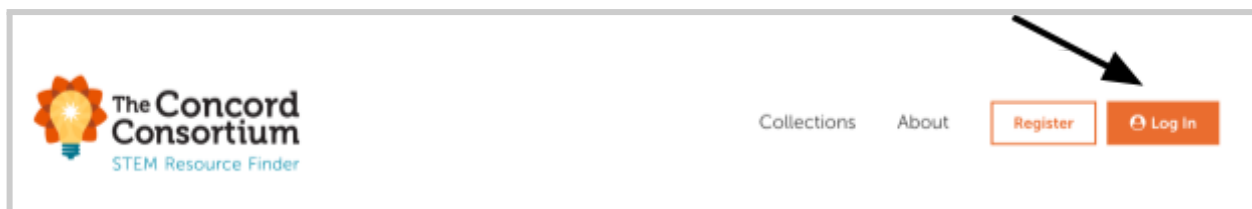
To complete your registration, click the button below.

Confirm Account

The Concord Consortium
25 Love Lane
Concord, MA 01742

Log into an existing teacher account

1. Go to learn.concord.org
2. Click on “Log In” in the upper right corner.



3. Choose a sign in method:
 - a. Method 1: Google or Schoology account



- b. Method 2: Enter the username and password

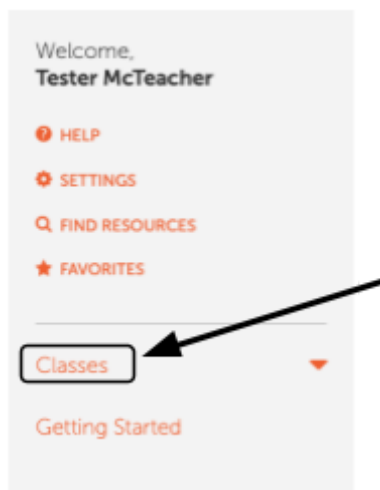
USERNAME

PASSWORD

[Forgot your username or password?](#) [Log In!](#)

Create an online class and setup your class

1. Log in to learn.concord.org using your teacher account.
2. On the left hand side of your screen, click on **Classes**.



3. In the dropdown, select **Add Class** and then complete the required fields.

Class Setup Information

CLASS NAME:

DESCRIPTION:

CLASS WORD:

SCHOOL:

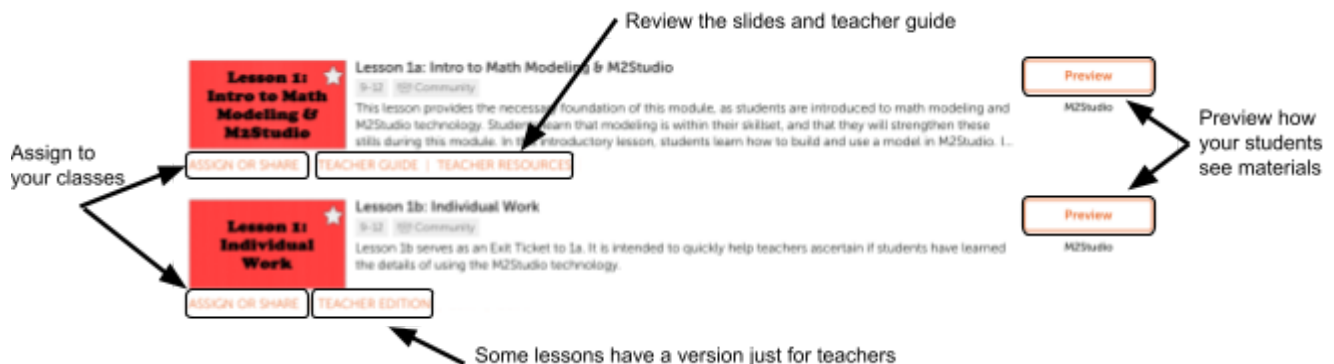
GRADE LEVELS:

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> 8
<input type="checkbox"/> 9	<input type="checkbox"/> 10	<input type="checkbox"/> 11	<input type="checkbox"/> 12
<input type="checkbox"/> HIGHER ED			

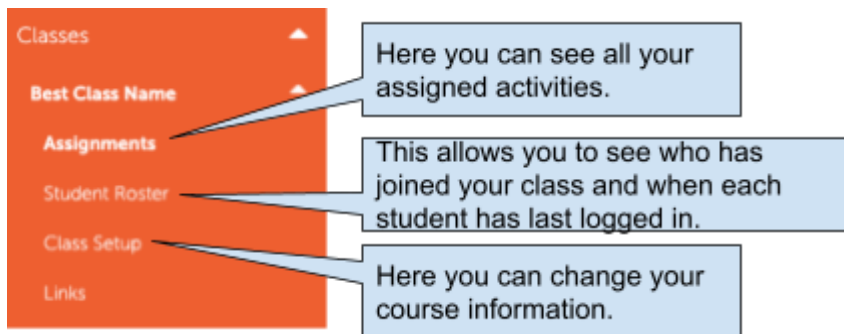
Cancel **Save Changes**

The **CLASS WORD** is a unique word or phrase that students will use to join your class. You will want to select something that is unique to you and your students. If you use something like “Math10” this has likely been used by other teachers already and will not be available. Also, you do not want to use something that is likely similar to what another teacher has used because you do not want your students to accidentally join another teacher’s class.

4. Click **Save Changes**.
5. Go to learn.concord.org/m2studio to find the full suite of materials. From this page, you will be able to assign activities to your class, view the slides, and download the teacher guides.



6. Now when you go to your left panel and click on **Classes**, you will see your list of classes with several options below each one.



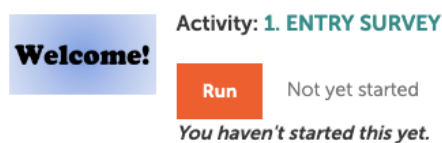
7. Click on **Assignments** and you will see a page like this:

Assignments for Best Class Name [Find More Resources](#)

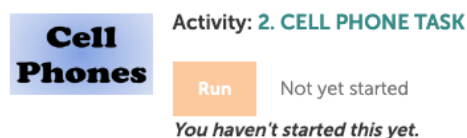
Teacher: Tester McTeacher
Class word: userguideexample

NAME	ACTIVE	LOCKED	
1. Entry Survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	+ SHOW DETAIL
2. Cell Phone Task	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	+ SHOW DETAIL
3a. Introduction to Math Modeling and M2Studio	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	+ SHOW DETAIL
3b. Introduction to Math Modeling - Feedback	<input type="checkbox"/>	<input type="checkbox"/>	+ SHOW DETAIL
4a. Simplify - Part 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	+ SHOW DETAIL

- If an activity is set to **ACTIVE**, it means students can see the activity in their class. It will also have a **Run** button, like this:



- If an activity is **ACTIVE** and set to **LOCKED**, students can see the activity in their list, but the **Run** button is deactivated, like this:



- If an activity is not checked as **ACTIVE**, students cannot see the activity at all. Notice how Activity 3b does not appear in the list for students:

Welcome!

Activity: 1. ENTRY SURVEY

Run

Not yet started

You haven't started this yet.

Cell Phones

Activity: 2. CELL PHONE TASK

Run

Not yet started

You haven't started this yet.

Intro

Activity: 3A. INTRODUCTION TO MATH MODELING AND M2STUDIO

Run

Not yet started

You haven't started this yet.

Simplify Part 1

Activity: 4A. SIMPLIFY - PART 1

Run

Not yet started

You haven't started this yet.

8. If you click on + **Show Detail**, you will see more options.

a. If the activity is a question/answer activity, you may see a screen like this:

NAME	ACTIVE	LOCKED
1. Entry Survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>
- HIDE DETAIL		
Preview	Teacher Edition	Class Dashboard
Report		
Student	Last Run	Status
Avocado, Walter	n/a	Not Started
Bear, Snow	4/17	Started
Watermelon, Walter	4/5	Started

- PREVIEW will open the activity in a new tab as students will see it.
- TEACHER EDITION will open the activity in a new tab with extra information for teachers.
- CLASS DASHBOARD will open a new tab where you can watch student progress. For more information on the dashboard, see its [user guide](#).
- REPORT will open a new tab where you can see compiled student progress.
- You also can see a list of all the students in your class, if they have started the activity, and the date of the last time they opened the activity.

b. If the activity uses the M2Studio technology, you may see a screen like this:

4a. Simplify - Part 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>
- HIDE DETAIL		
Preview	CLUE Teacher Tools	
Student	Last Run	Status
Avocado, Walter	3/29	Started
Bear, Snow	4/20	Started
Watermelon, Walter	4/5	Started

- PREVIEW will open the activity in a new tab as students will see it.
- CLUE Teacher Tools will open the activity in a new tab with extra information for teachers.
- You also can see a list of all the students in your class, if they have started the activity, and the date of the last time they opened the activity.

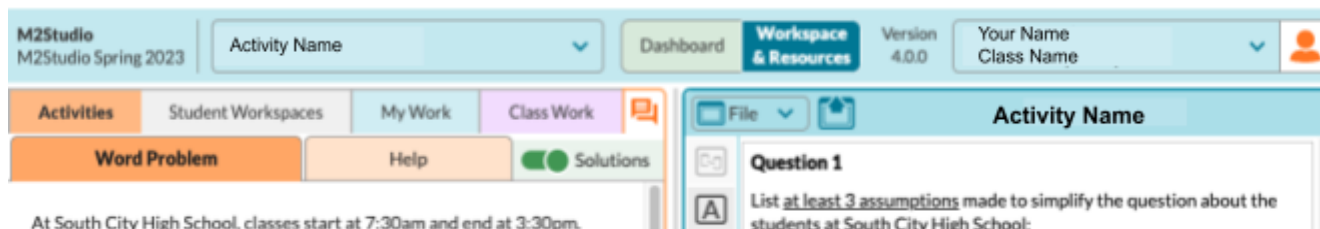
9. Ask your students to create their student accounts and use the CLASS WORD to join your class.
10. If your students forget their usernames, you can access them from your dashboard. If the students forget their passwords, you can reset them, but you cannot see the student created username.

Teacher Features of M2Studio

This section details the special aspects of opening the teacher version via **CLUE (master)** from the portal.

CLUE (master)

When you launch **CLUE (master)** you will see something like this:



Teacher View Overview

Activities

This tab contains all the information students can access for completing the lesson. It may contain several different subtabs.

Help

All M2Studio activities contain a subtab called **Help**. This tab provides notes to students about setting up their variables. It also provides a link to the student user guide.

Student Workspaces

This tab is where you can see your students work in real time. *See more in the Student Workspaces section below.*

My Work

This tab is where you can see any of the extra documents you created.

Class Work

This tab is where you can see any of the recorded instances from when students published their work to the class.



Here is where you can make a copy of your existing workspace or create a fresh one.



The publish button will allow you to publish your current workspace to the class.

Examining Student Workspaces


Here is where you can see what the students are doing in their workspaces. These views update in near real time, so if you stay looking at one student, you can watch them make changes to their workspace.

The screenshot shows a web interface for examining student workspaces. At the top, there is a horizontal bar with a list of student group numbers: 017, 10216, 1570, 1570, 1580, 1596, 1616, 1618, and 1618. Below this bar, the interface is divided into two main sections. The top section is titled "Student Group 1017027" and contains a "Question 1" section with a prompt to list at least 3 assumptions made to simplify the question about the students at South City High School. Below this, there is a "Question 2" section with three parts: 2A. Bold the name of the friend you were assigned to examine. (Options: Friend Y, Friend Z), 2B. How does that Friend's assumptions differ from the other Friend or from the initial solution? (Write your answer here), and 2C. How do those assumptions impact the Friend's final answer? (Write your answer here). Below these questions, there is a "Question 3" section with a prompt to use the [v=] button in the toolbar to create variable chips that your assigned friend could use to build their model. Below this, there is a "Question 4" section with a prompt to compare your variable chips with a partner. At the bottom of the workspace, there is a "Exit Ticket" section with a prompt: What is the purpose for making assumptions when solving a math modeling problem? A small blue square with the letters "SB" is located to the right of the "Exit Ticket" section.

- Across the top, there are numbers. These correspond to the automatically assigned student group numbers. You can click on these to toggle between each student group.
- In the center, you can see the initials of the student(s) working in that group.

If you want to see what a student has done in more detail, click on the little square with their initials and their work will become full size, and the name will change from initials to fully spelled out:

The screenshot shows a web interface for examining student workspaces. At the top, there is a horizontal bar with a list of student group numbers: 017, 10216, 1570, 1570, 1580, 1596, 1616, 1618, and 1618. Below this bar, the interface is divided into two main sections. The top section is titled "Student Group 1017027" and contains a "Question 1" section with a prompt to list at least 3 assumptions made to simplify the question about the students at South City High School. Below this, there is a "Question 2" section with three parts: 2A. Bold the name of the friend you were assigned to examine. (Options: Friend Y, Friend Z), 2B. How does that Friend's assumptions differ from the other Friend or from the initial solution? (Write your answer here), and 2C. How do those assumptions impact the Friend's final answer? (Write your answer here). Below these questions, there is a "Question 3" section with a prompt to use the [v=] button in the toolbar to create variable chips that your assigned friend could use to build their model. Below this, there is a "Question 4" section with a prompt to compare your variable chips with a partner. At the bottom of the workspace, there is a "Exit Ticket" section with a prompt: What is the purpose for making assumptions when solving a math modeling problem? A small blue square with the letters "SB" is located to the right of the "Exit Ticket" section.

- The student's initials move to the top right corner and become the full name that the student uses in the portal.
- A **4-Up** button appears that will allow you to return to the smaller view.
- In the bottom left corner, you will see a  button. If you click on it, it will open a view like this:

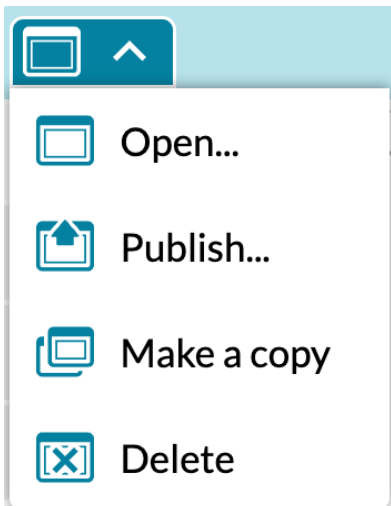


From here, you can playback what the student has done since they opened the activity. You can either click on the play button to watch it, or you can manually scroll through to review their work.

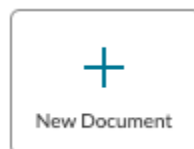
Creating additional workspaces

As the teacher, you may want to “start fresh” so that you can show students how to start working. Warning: While students can also do this, you will **not** be able to see the work they do in their new workspace. Until that development is complete, we strongly recommend that students do not use this feature.

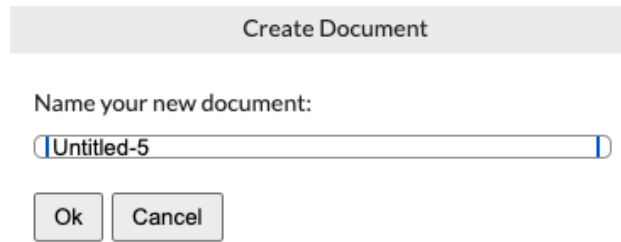
1. Go to the **menu** dropdown and select **Open...**



2. Select **+ New Document**



3. Give your document a name.

A dialog box titled "Create Document" with a light gray header. Below the header, the text "Name your new document:" is followed by a text input field containing "Untitled-5". At the bottom of the dialog are two buttons: "Ok" and "Cancel".

Create Document

Name your new document:

Untitled-5

Ok Cancel

4. Click **OK**. Now you have a fresh template to work from.
5. To return to any of your templates, you can either go to Open again and select your names workspace, or you can use the **My Work** tab. *Note: The original workspace is automatically named with the activity name.*
6. You can publish any of your workspaces to the Class using the publish button. This will share the current instance for your students to view on their computers. If you make any changes to the workspace after publishing, you will need to share it again with the students so that they can see the updates.