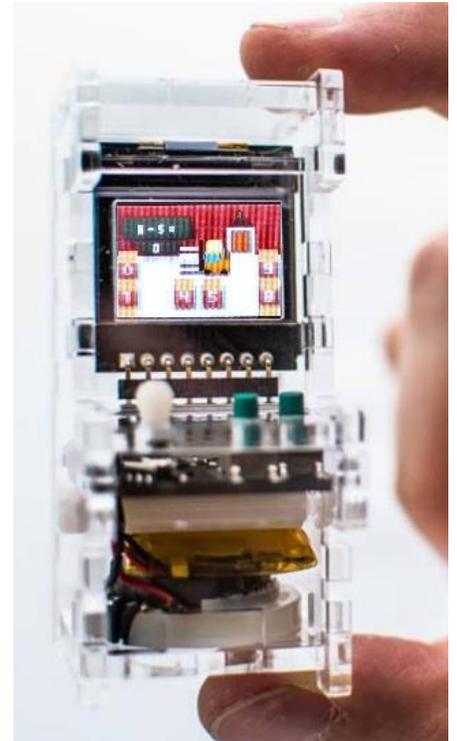
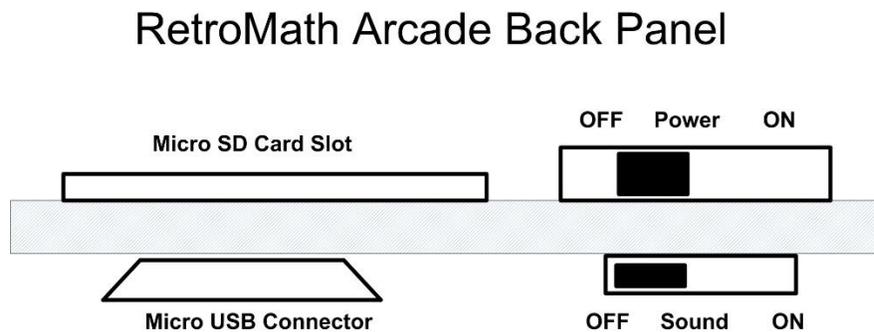


RetroMath Teacher Guide

Read This First...



micro SD Card Slot – This is where you insert the micro SD card with the software. You can remove the micro SD card once a game is selected. See below for more details.

micro USB Connector – Plug a micro USB cable (not included) into this connector to charge the internal battery. A yellow LED will illuminate to indicate charging. The LED will extinguish when charging is complete.

Power ON-OFF Switch – This is the larger switch on top next to the micro SD Card Slot. Slide it left for OFF and right for ON. **MAKE SURE TO KEEP IT OFF WHEN NOT IN USE.**

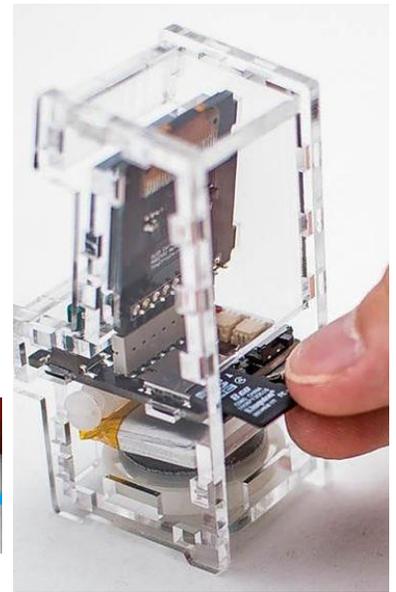
Sound ON-OFF Switch – This is the smaller switch on the bottom next to micro USB connector. Slide it left for no sound (OFF) or right for sound (ON). The RetroMath software has no sound; however, some of the other games have sound.

Before running any games make sure that the Tiny Arcade battery is fully charged by attaching the USB cable to the connector just below the micro SD card and the other end to a power source like your personal computer.

The LED will extinguish when the battery is fully charged.

Installing RetroMath (or any other game)

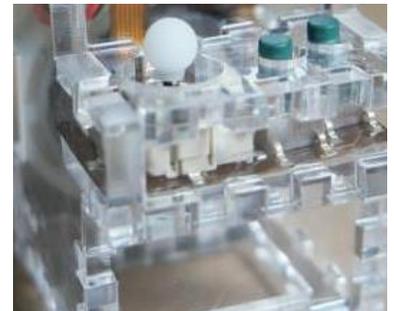
1. Turn OFF the Tiny Arcade
2. Insert the micro SD card into the slot on the back
3. Turn ON the Tiny Arcade. It should say "Finding SD Card"
4. Move the joy stick left or right to find the RetroMath game
5. Push the left button once – the one closest to the joystick. A red and green progress bar should appear going from left to right. This loads RetroMath into the Tiny Arcade's memory
6. Turn OFF the Tiny Arcade
7. Remove the micro SD card and put it in a safe place
8. Turn ON the Tiny Arcade again
9. The RetroMath screen should be showing with the forklift facing right.
10. That's it!
11. If you make a mistake and choose the wrong game, just start from Step 1 again.



Repeat the above to load in any other game

The Game Controls

1. Two buttons and the joy stick are all you need to play.
 - 1.1. Push the right button to move the forks up or down. With this button, you can pick up (and put down) the numbered boxes.
 - 1.2. Push the left button to switch from the game to scores and back to the game again.
 - 1.3. Move the joystick back and forth, up and down, to move the forklift and to see your scores.



How to Play RetroMath

1. With the joystick, move the forklift to the right until you see “Directions”.
2. Choose either + (addition), - (subtraction), * (multiplication) or / (division) and move the forklift in that direction until you come to a room.
3. Now choose the room you want to enter. The numbers 1, 2 and 3 indicate the difficulty level.
4. Using the joystick, move the forklift into the room.
5. When the forklift bumps into the center blocks, move it left or right and then go all the way to the back of the room.
6. On the upper-left you’ll see the problem.
7. Below the problem is a number that indicates how many right answers you got for this room.
8. To answer the problem, move the forklift (with the forks down – right button) and pick up the correct numbered box.
9. With the joystick move the numbered box to the proper bin on the upper-right.
10. Then push the right button to drop the box into the square hole.
11. If it’s the correct answer the boxes will drop through the square holes; the number below the problem will increase by one and a new problem will appear.
12. Depending on the difficulty level there will be one, two or three holes on the upper-right.
13. This means that you need to pick up more boxes and move them to the correct square hole.
14. You can move the numbered boxes to any of the holes in any order.
15. If the box falls through the hole it may mean that you got the answer wrong, so try again.
16. There is no penalty for wrong answers. It just means you don’t score until you get it right.



Checking Your Score

1. You can check your score anytime by pushing the left button; the one closest to the joystick.
2. The scoring screen starts with Addition and shows how many questions you got right for each difficulty level.
3. Move the joystick up and down to see your scores for Subtraction, Multiplication and Division.
4. These scores remain even if you turn OFF the Tiny Arcade.



Resetting the Score

1. To reset your score (or your student's score), first push left button; the one closest to the joystick.
2. The scoring screen is displayed with Addition.
3. Move the joystick left or right.
4. The Main Menu should appear.
5. Below the Main Menu you should see the following prompt:

<Main Menu>
Press 3x B to reset the scores

6. Push the right button 3 times to reset the score.
7. You should see the words "Scores Reset!" when you do this.
8. Once the scores are reset you can begin another game.
9. This is an effective way to see what a student has done before giving the game to the next student.



Arithmetic Topics

RetroMath drills the student in four basic topics of arithmetic

- Addition
- Subtraction
- Multiplication
- Division

The students should know the basics of these topics BEFORE interacting with RetroMath. RetroMath simply reinforces their learning – it is not meant to teach arithmetic, but it can certainly give them the practice they need to do better in this subject.

Difficulty Levels

There are three (3) levels of difficulty for each arithmetic function.

- Room 1 – Individual numbers like $2 * 2 = 4$ $3 + 3 = 6$
- Room 2 – Double numbers like $44 / 11 = 4$ $21 / 7 = 3$
- Room 3 – Triple numbers like $543 - 101 = 442$ $279 * 3 = 837$

More than one student can use RetroMath as one Tiny Arcade can be shared among multiple students in multiple classes. And like all video games there are no instructions or rules...students can automatically learn how to play it on their own.

Math won't be scary anymore...it will be fun...and they'll remember what they've learned.

Difficulty Levels and Scoring

As illustrated above are three (3) levels of difficulty for each arithmetic function like addition, subtraction, multiplication and division. More numbers to compute translates to greater difficulty. Plus, multiplication and division are generally more difficult compared to addition and subtraction, so consider this when you assign problems to your students.

For scoring RetroMath disregards difficulty levels as well as addition versus division and just scores correct answers. Wrong answers are not counted or indicated...only correct answers. This is what all video games do, so that the player does not get discouraged when a wrong answer is encountered. They just go on until they get correct answers.

You can see how well your students are doing by timing their results. The greater the number of correct answers over a given time period means a greater understanding of the problems presented (and vice versa).

How to Score

There are no hard and fast rules for assigning a greater or lesser score for more difficult or easy problems; this is left up to you. Suffice it to say, however, that scores should be weighted to consider the level of difficulty and adjusted for same.

Easy problems like adding or subtracting single-digit numbers should be scored lower than the same problems with two or three-digit numbers. The same goes for multiplication and division, which are generally harder for most students to comprehend.

The most effective way to score the results would be to place a “weighting factor” on the raw scores shown on the Tiny Arcade. For example, multiply scores by the following:

	Addition	Subtraction	Multiplication	Division
1 digit	x1	x2	x3	x3
2 digits	x2	x2	x10	x10
3 digits	x5	x5	x20	x20

Again, the above weighting is not hard and fast; it is only meant to give you some guidance as to how to choose that way in which you would score your students on an equivalent “paper” test.

