

# MAISD/REMC 4 Discovery Center - Items Available for Checkout

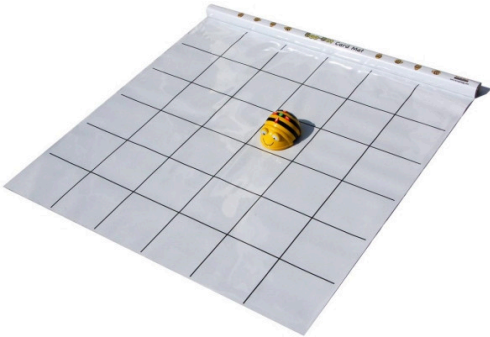
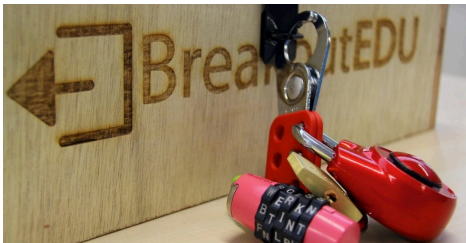
With the support of the REMC Association and REMC 4 Discovery Center funds, we've created a collection of Maker resources which MAISD and REMC 4 member districts can check out. The standard check out period is 3 weeks and the borrower is responsible for pickup and return to the MAISD. A few items - such as the 3D printers - require some setup time the first time they are borrowed. Note: many items are available in limited quantities and are designed more for exploration "centers". There may not be the quantity for all students to work at the same time.

Some items require the use of an app on an iPad or Chromebook.

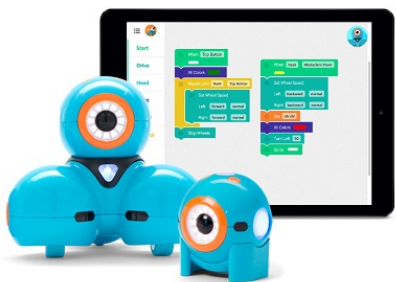
## Items for checkout include

| Tool (#)                                                              | Image                                                                               | Short Description (what and/or why)                                                                                                                          | Notes                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3D Printer<br><a href="#">FlashForge Inventor II</a><br>(4)           |   | Easy to use menu ; works with the Polar Cloud for management, uses USB Drives or cloud based management, user friendly guided calibration                    | Very quiet and high quality prints, removable print bed; Uses .5 or .6 Kg spool of filament which is stored inside the case. Can be modified to use 1Kg spools                                                              |
| 3D Pens<br><a href="#">DigiHero 3D Pens</a><br>(30+)                  |  | 3D pen and power cords reels; power bricks if requested                                                                                                      | Uses regular 1.75 PLA filament - some sample filament will be provided to help get you started. Speed control - one of the easier pens to unclog                                                                            |
| 360° cameras Kits<br>Ricoh Theta S & Theta V cameras & monopod<br>(2) |  | Capture 360° images or video - with lens on both sides of the camera, automatically stitches images into single 360° image; use with Theta app on smartphone | Use with programs such as Google Tour Creator, and CoSpaces - 360° video can be uploaded to YouTube or Facebook - capturing images or video goes quickly - so the cameras only need to be borrowed for short amount of time |

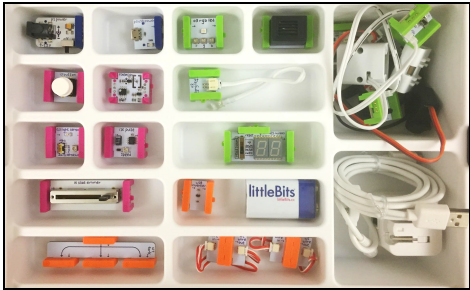
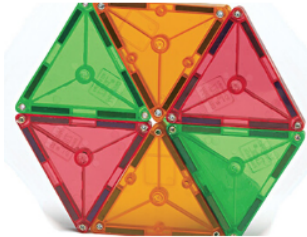
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| iPads - for Bloxels (28)                                 |    | This older iPads IIs work with some apps which still work with iOS 9.9 or earlier. It works well with Bloxels and Bloxels Star Wars                                                                       | iPads have an assortment of apps including Bloxels and Bloxels Star Wars                                                                                                                                                                                                                                                                |
| <a href="#">Bee-Bot</a> and <a href="#">Card Mat</a> (2) |    | The Bee-Bot is a codable robot perfect for introducing coding to young children. The clear mat has a clear vinyl cover which can be opened to add your own images or drawings to any of the 36 6" squares | This rechargeable, robot is a perfect tool for teaching counting, sequencing, estimation, problem-solving, and just having fun!                                                                                                                                                                                                         |
| Badge-a-Matic Button Maker (1)                           |   | Create 2 1/4" buttons Design buttons using <a href="#">template</a> (online or print out the template and use offline). Includes a circular cutter                                                        | Button making is a 2 step process. A button is made up of three parts: front, back w/ pin, and a clear mylar cover. Each button costs 25¢ however, you are welcome to order your own <a href="http://www.americanbuttonmachines.com">www.americanbuttonmachines.com</a> or <a href="http://www.badgeaminit.com">www.badgeaminit.com</a> |
| Breakout Boxes (4)                                       |  | <a href="#">Breakout EDU</a> is a problem solving/team work game played as a team or classroom tries to unravel the clues to unlock a variety of locks to find whatever is in the box                     | Fun team building activity with a hundreds of free games available on the Breakout EDU site. Setup includes help learning to manage the game and program the locks                                                                                                                                                                      |
| Circuit Playground (16)                                  |  | An Arduino board created by Adafruit with LEDs, buttons, and sensors built in.                                                                                                                            | <a href="#">Circuit Playground</a><br>The board is required for Code.org's unit 6                                                                                                                                                                                                                                                       |

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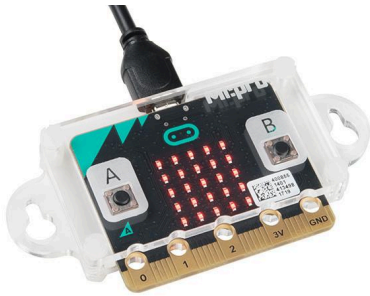
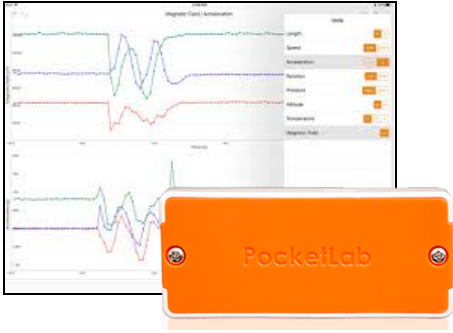
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| <p><a href="#">Code &amp; Go Robot Mouse &amp; Maze</a><br/>(20 mice and 10 Maze board)</p>                                                                                          |    | <p>Great tool for teaching coding to early learners. Includes challenge cards and small action cards to layout the required code before entering it into the mouse.</p>                                                    | <p>Each 16 square maze can be configured in a variety of formats. Be sure not to push the mouse or the gears for the wheels can get damaged</p>                                                                                                                                         |
| <p><a href="#">Dash</a><br/>(11)</p> <p><a href="#">Dot</a><br/>(4)</p>                                                                                                              |    | <p>Engaging interactive robots which are controlled using any of six different tablet based apps. The 4 Dot robots don't move but can be programmed and interact with Dash</p>                                             | <p>Visit the <a href="#">Let's Get Going</a> webpage. Free apps are available for iOS and Android. Also available are 11 ball launcher kits and 2 xylophone kits. Loan includes six tablets for controlling the robots.</p>                                                             |
| <p><a href="#">Dribble Up Balls</a><br/>5 Basketballs - Junior Size</p> <p>5 Medicine Balls - 6lb</p> <p>1 Basketball full size</p> <p>1 Medicine ball 10lb</p> <p>1 Soccer ball</p> |   | <p>Dribble Up balls work with the Dribble Up app to teach skills in ball handling and exercise</p>                                                                                                                         | <p>Install the app on a phone or iPad and face the camera towards the ball and begin your workout. A free Dribble Up account is required (it must be created on a computer)</p> <p>If you don't have an iPad, I have 6 available with the Dribble Up app installed you may request.</p> |
| <p><a href="#">Google Cardboard VR Headsets</a><br/>(30)</p>                                                                                                                         |  | <p>Lead students on <a href="#">Google Expeditions</a> using the VR headsets and user provided devices (smartphone with a built-in gyroscope) The guide and the followers must have installed the free Expeditions app</p> | <p>VR headsets along with a router/access point for peer to peer networking. Option to borrow an Android or iPad tablet and a small number of Android Smartphones.</p>                                                                                                                  |

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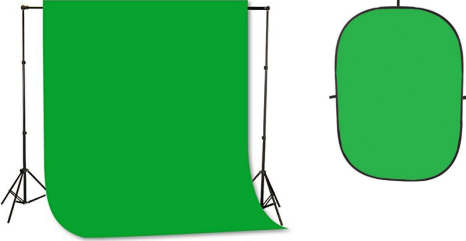
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| <a href="#">Hue HD camera</a><br>(1)                                             |    | <p>A high definition USB camera on a flexible arm that can be used to capture live video or still images for digital projects.</p>                                       | <p>Camera can be used with the base and USB cable or plug directly into a computer without using the base.</p>                                                                                                             |
| <a href="#">KEVA Planks</a><br>(1)                                               |    | <p>Two bags of 400 wooden planks for creating and building</p>                                                                                                           | <p>Simple as it is - students can be very creative building with planks</p>                                                                                                                                                |
| <a href="#">littleBits Steam Student Kit</a><br>(13)                             |   | <p>Small electronic building blocks: Make circuits by following guided challenges or create something completely unique. Pieces snap together with built-in magnets.</p> | <p>19 bits and some accessories are in this package. Teacher's guide and other classroom resources at <a href="http://littlebits.cc/student-set">http://littlebits.cc/student-set</a><br/>Recommend 2 students per kit</p> |
| <p>Magna-Tiles<br/>(5)</p>                                                       |  | <p>Connect translucent tiles together to create shapes, patterns, and objects</p> <p>Classroom bundle contain five 100 tile kits - a total of 500 tiles</p>              | <p>100 shapes including 4 large and 50 small squares, 20 equilateral triangles, 11 right triangles, and 15 isosceles triangles<br/>Develops math, science, spatial and tactile skills.<br/>STEM approved!</p>              |
| <a href="#">Makey Makey</a><br>(15)<br><br><a href="#">Makey Makey Go</a><br>(2) |  | <p>Turn everyday objects into keys for your computer, with this circuit board and cables allowing for creative ways to interact with a computer.</p>                     | <p>Classroom provide computer or Chromebook<br/><i>Note: the Makey Makey Go allows only one devices to be connected and does not provide as many options as the Makey Makey (I won't buy them again)</i></p>               |



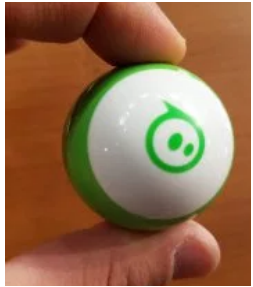
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| <a href="#">Micro:bit</a><br>computer<br>with battery<br>pack<br>(32)             |                   | <p>Learn to code a computer using a blockly style or Python coding language. Works with Chromebooks via the <a href="#">coding site</a> or with free iOS and Android apps</p>                                                                      | <p>Connect via USB plug or an app via Bluetooth and drag and drop your programming to the micro:bit. A and B button and multiple output options including LEDs, Bluetooth, audio connectors...</p>                                            |
| <a href="#">Oculus Quest</a><br>(5)<br><br><a href="#">Oculus Quest 2</a><br>(15) |                   | <p>The Oculus Quest is a stand alone virtual reality headset. It includes an assortment of educational apps and serves as more of a demonstration of the future of VR</p>                                                                          | <p>Runs about 2 hours on a charge. Can connect to a Chromecast or iPad/phone app to view what a user is seeing (useful for guiding new users) An amazing immersive experience</p>                                                             |
| <a href="#">Ozobots</a><br>(20)                                                   | <p>2-20-202</p>  | <p><a href="#">Ozobots</a> are small robots that fit in the palm of a child's hand with color sensors underneath. It can read codes drawn on paper or can be programmed using the free <a href="#">Ozoblockly</a> website and pulses of light.</p> | <p>18 from the educator's kit plus 2 extras. See the Ozobot <a href="#">Getting Started</a> webpage for learning materials, teacher's guide, and lesson ideas</p> <p>Works with Chromebooks - be sure the screen is at maximum brightness</p> |
| <a href="#">Pocket Lab</a><br>(1)                                                 |                 | <p>Small Bluetooth with free iOS/Android or Chromebook app - measures motion, acceleration, angular velocity, magnetic field, pressure, altitude, and temperature</p>                                                                              | <p>User provides device - laptop/Chromebook or tablet (tablet is recommended)</p>                                                                                                                                                             |

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| <p><a href="#">Pocket Operator Bundle - includes six different Pocket Operators</a><br/>(6)</p>                 |    | <p>Create music using calculator sized synthesizers called Pocket Operators (PO). Create sequences and save. Includes silicon cover for circuit boards and cables to connect together</p>                                                           | <p>Use individually or connect together. Low volume output - plug into a power speaker, headphones, or amplifier. Uses AA batteries, no off switch as it auto powers off after a few minutes.</p>                                                                               |
| <p><a href="#">Pop up green screen</a><br/>(2)</p> <p><a href="#">Cloth green screen with stand</a><br/>(1)</p> |    | <p>Green screen allowing for <a href="#">chroma key</a> effects in digital storytelling /reporting</p>                                                                                                                                              | <p>The oval pop open screens are green on one side and blue on the other.</p> <p>Works well with the <a href="#">DoInk app</a> iPad app. Learn more at this blog post: <a href="#">Green Screen in any curriculum area</a></p>                                                  |
| <p>iPads - 9.7"<br/>(6)</p> <p>iPad Mini<br/>(1)</p> <p>iPads - 8th Generation<br/>(20)</p>                     |   | <p>iPads are needed for Dash and Dot, Green Screen, and Bloxels. Because many maker items require iPads, teachers are encouraged to obtain their own iPads whenever possible and check out the maker item then use their school provided iPads.</p> | <p>All iPads have an assortment of apps on every iPad including: Dash and Dot apps, DoInk Green Screen, Google Expeditions, Bloxel, Ozobot, Pocket Lab, and Sphero Edu apps</p> <p>Before returning iPads, any project students create or photos should be deleted.</p>         |
| <p>PowerUp 2.0 kit<br/>(24)</p>                                                                                 |  | <p>PowerUp 2.0 is a power unit which is added to a student created paper airplane to study the principles of flight. A charge will provide about 30 seconds of flight.</p>                                                                          | <p>Uses AA batteries (provided). Best to fly outside on a still day or in a large space like a gym.</p> <p>PLTW approved Educators Guide: <a href="https://www.poweruptoys.com/pages/steam-education-al-kits">https://www.poweruptoys.com/pages/steam-education-al-kits</a></p> |

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| <p><a href="#">Snap Circuit Junior</a><br/>(15)</p>                                                        |    | <p>The colorful pictures in the manual will guide student teams to create projects such as FM radios, digital voice, recorders, AM radios, burglar alarms, doorbells, and much more!</p> | <p>Students love to follow the “recipe” book as they learn about circuits by snapping together components to create over 100 different projects. Good for all grade levels. After creating a project, students can experiment with modifying items to see the effect</p>                                                                                       |
| <p><a href="#">Squishy Circuits Kits</a><br/>(15)</p>                                                      |    | <p>Includes battery packs &amp; batteries, motors, buzzers, colored LEDs</p> <p>User creates conductive and nonconductive dough</p>                                                      | <p>Ideal for teaching about circuits and electricity. Dough keeps for a few weeks (<a href="#">recipes</a>)</p>                                                                                                                                                                                                                                                |
| <p><a href="#">Sphero Bolt Powerpack</a><br/>(1)</p> <p>Includes 15 <a href="#">Sphero Bolt robots</a></p> |  | <p>Baseball-sized, spherical robot, “Powered by the Lightning Lab app, you can easily learn programming, complete hands-on activities, and share your creations with the community.”</p> | <p>Charger, Cord, Manual. “The new SPRK+ uses Bluetooth Smart technology, making the device connection process nearly instant. Just open the Lightning Lab app, hold your device next to SPRK+ and it will automatically connect” Free <a href="#">Lightning Lab app</a> is available (for iOS, Android, and Kindle) and necessary for using Sphero SPRK+.</p> |
| <p><a href="#">Sphero Mini</a><br/>(16)</p>                                                                |  | <p>Includes 16 Sphero Mini robot ball and small traffic cones and bowling pins; charging cables</p>                                                                                      | <p>Connects via Bluetooth<br/>Install the Sphero Edu app on a Chromebook or mobile device to code or Android device and use drag and drop programming to control the Sphero Mini.</p>                                                                                                                                                                          |

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| <p><a href="#">Strawbee Dies</a> (2)<br/>and<br/><a href="#">Accucut Mark 3</a> Die Cut Machine</p>                                                                                                  |    | <p>Use this die to cut one- or two-pronged connectors from recycled plastic, cereal boxes, frozen pizza boxes, or sturdy polyethylene sheets.” Use the connectors for engineering and building with standard drinking straws.</p>                                                                                | <p>Borrow both machine and dies. Use the dies with the cutting side up.<br/>Recommend the <a href="#">poly sheets</a> if the connectors will be used multiple times.<br/>Cost \$20 for 50 sheets (3 colors available)</p> |
| <p>Cardboard Tools and Connectors<br/><a href="#">Zip Snip Cutting Tool</a> (1)<br/><a href="#">Make.do</a> Kits with "<a href="#">Dan Chan</a>" <a href="#">Corrugated Cardboard Cutter</a> (8)</p> |   | <p>Battery powered tool to ease the cutting of cardboard and other maker materials.</p> <p>Each kit will include:</p> <ul style="list-style-type: none"> <li>• SCR42</li> <li>• SCR4 XL 17</li> <li>• MINITOOL 2</li> <li>• SCR4DRIVER 1</li> <li>• SAFE-SAW 1</li> <li>• Dan Chan Cardboard cutter 1</li> </ul> | <p>Includes card deck of project ideas for social studies</p>                                                                                                                                                             |
| <p>Tello Drones (10)</p>                                                                                                                                                                             |  | <p>Tello drone can be flown using the Drone Blocks app - a free app available for iOS, Android and Chromebooks It can also be flown using the Tello app - which supports using a bluetooth controller</p>                                                                                                        | <p>Comes in a protective case with three batteries and a charger.</p> <p>User must have the <a href="#">Drone Blocks app</a> installed to code</p> <p>The drone connect via WiFi to Chromebook or tablet or phone</p>     |
| <p><a href="#">Think &amp; Learn Code-a-Pillar</a> and expansion pack</p>                                                                                                                            |  | <p>Young students learn to code by arranging segments in order and pressing go. Control Code-a-Pillar direction and sound</p>                                                                                                                                                                                    | <p>Loud sound level can't be turned off or lowered</p>                                                                                                                                                                    |



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| <a href="#">Soldering Iron Kits</a><br>(2) |  | Solder kits include Adjustable temperature soldering iron, 5 soldering tips, desoldering pump, solder wick, 2 anti-static tweezers, solder wire, iron stand with cleaning sponge, wire stripper cutter and a carry tool box |                                                                                                                                                                                             |
| Tools for Breaker Space                    |  | Assorted screwdrivers and wrenches for use in a breaker space. Mission stores are good places to find non-working items to take apart.                                                                                      | Recommend a teacher invest a few \$ in safety goggles. Be sure to cut off any power cords before starting. Harbor Freight is a great place to purchase a bunch of tools for not much money. |

## Discovery Center Checkout Guidelines

1. Only one item or item kit may be borrowed at a time - unless prior arrangements have been approved in advance.
2. It is your responsibility to check the [Maker Checkout calendar](#) to assure an item is available before you make a request.
3. You may checkout only a portion of a kit if you don't need all the items.
4. Make your request by emailing [amann@muskegonisd.org](mailto:amann@muskegonisd.org). In your email, explain what you are requesting, the time range (3 week loan for most items) and how you plan on using the item.
5. If you don't know how to use or integrate an item - arrange time with Andy Mann to properly learn how to use and integrate.
6. Attend the MAISD Tech Teacher meetings if possible; at these meetings a portion of each meeting is centered around using Discovery Center items.
7. You are responsible for pickup of the item you are borrowing. Arrangements need to be made in advance to assure someone is around or the item has been left with the receptionist for pickup.
8. You are responsible for returning an item. Arrangements need to be made in advance to assure someone is around or the item can be left with the receptionist.
9. The equipment must be locked in a safe location in your school when not in use. You are responsible for replacing any items which may be lost or stolen.
10. Missing or damaged items will be promptly replaced by you, allowing an item kit to be loaned out to another teacher without delay. Contact Andy Mann if an item needs to be replaced and for assistance in knowing where to purchase a replacement item.
11. Complete, sign, and return a [Discovery Center Checkout Form](#).

| SUN                                                                        | MON | TUE | WED | THU                             | FRI                         |
|----------------------------------------------------------------------------|-----|-----|-----|---------------------------------|-----------------------------|
| 28                                                                         | 29  | 30  | 31  | 1                               | 2                           |
| Theda V Camera - Jerry Johnson MPS                                         |     |     |     |                                 |                             |
| 8 Blowies kits and 30 iPad 2s - Brian Normandin - Whitehall                |     |     |     |                                 |                             |
| iPad for video capture - CTC Holly and Brian                               |     |     |     |                                 |                             |
| Google Expeditions Kit - Josh Reister Mona Shores HS                       |     |     |     | 1 iPad - Heidi Mann Mona Shores |                             |
| Dreamer 3D printer, AnyCubic 3D printer, MonoPrice Select Mini 3d          |     |     |     |                                 | 30+ Fizzbits & Sample case  |
| Sphero Mini - Christine Wilson - Fruitport                                 |     |     |     |                                 |                             |
| Kinea Planks, ping pong balls, cups - Julie Skodack Reeths-Puffer          |     |     |     |                                 |                             |
| 360 camera and monopod for Sue W and Kathy Van Ti - CTC                    |     |     |     |                                 | 30 pens (10) - Kathy Van Ti |
| Make.do - kits and Code and Go Mice - Ryan Kraus - MPS                     |     |     |     |                                 |                             |
| Flashforge Inventor IIs (2) - Sheila Tjapkes - MPS HS                      |     |     |     |                                 |                             |
| Dreamer 3D printer, AnyCubic 3D printer, - Jerry Mabrito Muskegon Catholic |     |     |     |                                 |                             |
| 3D Pens - Kristy Weberg-Tolbert MPS                                        |     |     |     |                                 |                             |