



SETTING UP A Multi-Touch Preschool

An eight step plan, with costs, apps, and other details

By Warren Buckleitner

Note that while we discuss Apple iOS specific devices, many of these ideas could be used with Android-based tablets.

Above: Preschool-age children gather with older brothers, sisters or parents in Mediatech's iPad Lounge where we test apps. You can see the clear iPad storage container mounted on the door, within reach of a young child. Notice that one of the iPads is tethered to the wall with a cable, to prevent theft. Other devices, including a MobiGo, Leapster Explorer, Nintendo DS and an iPod Touch are available in other parts of the room.

In a preschool classroom, the difference between a smooth day and an utter disaster can be small, as any teacher knows.

Experienced teachers also know not to skimp on the classroom materials available to children during free play time. I've seen a sand table soothe an upset child, simply because it gives him or her something that is easy to use (just run your fingers through the sand), fun to explore (we would hide small plastic toys in the sand), and provides unlimited ways to create (especially when mixed with drops of water). These types of materials lie at the heart of any early childhood curriculum.

That's why it is so important to consider the iPad, or any other soon-to-be-invented multi-touch tablet or handheld device — as an important new classroom material that can support an active learner. The multi-touch screen makes it easy to accidentally succeed, with all five fingers (see the Taxonomy of Touch, CTR, November 2010) and the 9-hour batteries can make it to the end of the day. Other goodies include a microphone for adding narration to a story, a camera (in the iPad 2) for putting your own face onto the screen, motion sensitivity and enough memory to store hundreds of apps. Now it is possible to hand a child a device that can turn a beanbag chair into an ideal interactive learning environment.

Getting Started

Here's an early (consider this a draft!) step-by-step procedure for enhancing a typical preschool classroom with multi-touch learning. **No traditional classroom materials are replaced!** Instead, the technology and apps are carefully selected to supplement existing materials and classroom socialization patterns.

This plan assumes you already have robust wireless access (Wi-Fi) in the room. Depending on how much technology you already have, it can cost between \$1800 to \$4000 per classroom. To keep things simple, we've decided to use the iTunes store as a regular consumer, so an active iTunes account is required to be managed and fully controlled by the teacher. Explore Apple's educational purchasing programs fully, such as the Volume Voucher, that lets you purchase apps in denominations of \$100s of dollars. Apple might also be able to provide training. Visit <http://www.apple.com/itunes/education/faq> to learn more, and make sure to explore all the options that Apple can provide. It is also possible to purchase gift cards, to eliminate the need for a credit card, but at the end of the day, somebody's credit card will be required. Reminder: This publication has no commercial links to/with Apple. Also note that staff training should be minimal for teachers who are already using iPhones, iPods, iTunes or are comfortable downloading content to other digital media players, although you should not assume that teachers have this level of comfort with technology. **Teacher control and empowerment is an underlying part of this plan.**

STEP 1: Start by finding and designating a Windows or Macintosh computer to serve as your iPad content manager. For purposes of budgeting, we've included a student model white MacBook, currently selling for about \$1000 (check for school rates), but it is possible to use just about any Macintosh or Windows computer, as long as it can run the latest version of iTunes. In the ideal situation, this computer is a laptop with a CD-ROM drive and a camera, making it possible to distribute photos to the iPads, or move your existing CD library into the music library. Don't forget that iPads are good music players, too.



Notes: a) Wireless Internet access in the classroom is required and not include in price.
 b) An existing computer (Windows or Mac) could substitute for the teacher's MacBook.
 c) iPad price includes protective case.

STEP 2: You'll need an active credit card to set up an account, and the teacher should be the main account holder, based on the idea that they are given the maximum amount of control over what appears on each screen. You'll need one device, either an iPod Touch but preferably an iPad, per 3 to 5 children. Note that it is now possible to pick up a used iPhone 3, or older iPod Touch as a donation, now that the iPhone 4s have been released; certainly one of the benefits of constantly improving technology. Keep the chargers safely away from children (e.g., all plugged into one power strip, on a higher shelf) and make sure to fill all unused electrical outlets with safety plugs. In the best case, you'll have 1 device for every 3 to 4 children. If your screen/child ratio gets great than 1:5, you run the risk of arguments over a "scarce" resource.

STEP 3: Prepare your content. Download the apps you want (see the starter list), along with the latest copy of iTunes and the iOS operating system. Next, transfer (or burn) any music CDs or photo albums that you want to keep on the iPads. In choosing apps, make sure you support your curriculum. Once your content library is stocked, its time to start filling up your iPads

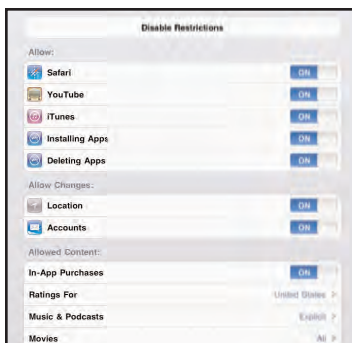
using the included USB/iPhone table. This is also a good time to put your school's logo on the main screen, or perhaps a group photograph.

STEP 4: Sync, or connect each iPad to your computer using the included wires. In most cases, the syncing process happens automatically, once your host computer sniffs the iPad. This can take some time, so bring a book.

STEP 5: Time to work on the security. Don't forget that each iPad is a portal to your credit card information. In addition, you don't want a child to accidentally erase all your apps, or end up on some obscure web site. It is easy to turn on or off these features by exploring the Restrictions tab, found in Settings. Make sure you don't forget your four digit PIN -- we recommend keeping this the same for each device. If you plan on sharing setup privileges with a co-teacher, it is best to think up and use a second PIN that you don't use for personal use, such as your banking. At this point, you might consider budgeting for a protective case which can increase the chance your iPad will survive a fall on a tile or cement floor. We don't recom-

mend clear, plastic screen covers, however, as they can reduce the responsivity of the screen.

STEP 6. Make your iPad hard to steal. There are a few things you can do. First, set up the anti-theft features that come standard as part of iOS 4.2 or higher. Here's what you do. First download and install an app called Find My iPhone (it works for iPads and iPod Touches, too).



OtterBox, \$90

Big Grips Frame (\$35, www.big-grips.com) and the OtterBox (\$90, www.otterbox.com) both provide protection for the iPad. Big Grips is lighter and easier to hold. We don't recommend screen protectors



After you register using your iTunes screen name and password, the app registers your device on a remote Apple server. Now you can start the app anytime to see where your devices are, superimposed over a Google map.

Try it out first to make sure it works-- it's especially handy if you plan on letting your iPad devices go home for a weekend, say with a staff member for inservice. We were able to successfully track four devices simultaneously. Once you've found your iPad on the map from another iPad or iPhone, you can choose to lock it up, wipe it clean of any information, or display a please return message, along with a loud audio alarm.

STEP 7. Create a physical storage-age system. We mounted a clear magazine rack on the wall, well within reach of a short preschooler. The clear plastic makes it easy to know if the device is there or not, making it easy to see if the iPad is being used, and giving it an easy to reach home that children can get used to using. You may consider security locks if needed, that will tether the iPad or iPod Touch to a table.



STEP 8. Time to organize your apps. Start by fine-tuning the apps that appear on each screen, much like you'd test out different materials on a busy classroom shelf. Children are natural app-browsers, which is why it is so important to put the quality apps on the home screen, to increase the chances that they will discover them. Use the iOS folder-making ability to make folders (just hold your finger down over an app icon until it starts to wriggle, and then drag and drop it over another app). Here are some recommended Apps for each area of the curriculum: each could be a folder.

Recommended Apps

Here's a list of some no-fail apps from the CTR Software Finder. All have scored well on the CTR Evaluation Instrument. You can place each set in a different folder if you like, but make sure you put the apps you want children to find on the first screen.

Art Area

123 Color is a collection of dot-to-dot puzzles, that you touch to fill in creating an active counting and letter recognition experience. Visit KidCalc. <http://kidcalc.info> \$1.99. Ages 3-up.

Color & Draw for Kids is an open-ended drawing program that gives you the best of both worlds, free one finger scribbling on a blank screen, or coloring on one of 50 traditional-looking coloring book pages. You can also import your own photos. Builds art, creativity, drawing, fine motor development. TipiTap Apps. www.tipitap.com \$.99. Ages 3-9.

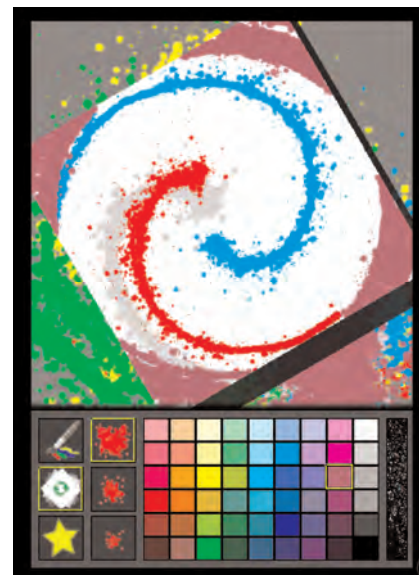
Color Collector (camera required) is another one of the Tickle Tap App series. It turns your camera-equipped device into a color sampler. Builds colors, visual discrimination. zinc Roe Design. www.zincroe.com \$1.99. Ages 3-5.

Doodle Buddy can be used to sketch out the plans for an invention on an iPad screen. This app is easy to start and use, and it uses multi-touch. Builds art, drawing, creativity. Pinger. www.pinger.com \$free. Ages 3-up.

Drawing Pad turns your iPad into a smart easel. Because the tools appear in a drawer on the side of the screen, you can pull them out or put them away, as needed. Builds drawing, art, creativity. Darren Murtha Design. www.touchscreen-preschoolgames.com \$1.99. Ages 2-12.

Little Things is a well-designed hunt and find experience that could be a wonderful collaborative problem solving experience. Builds visual discrimination, matching and logic. KlickTock, www.klicktock.com \$2. Ages 4-up.

SpinArt. Turn your iPhone screen into a paint-splattered mess with this fun program. Builds art, creativity, logic (spatial relations). Brian Smith. www.7twenty7.net \$1.99. Ages 3-up.



Cost Per Classroom

Higher estimate* with iPads and teacher laptop

	Cost per unit	Quantity	Total
iPads 16 GB, no 3G or case	\$533.93	5	\$2,670
MacBook	\$1020	1	\$1,020
Apps	\$4	60	\$240
Total			\$3,930

* does not include wireless Internet access and router

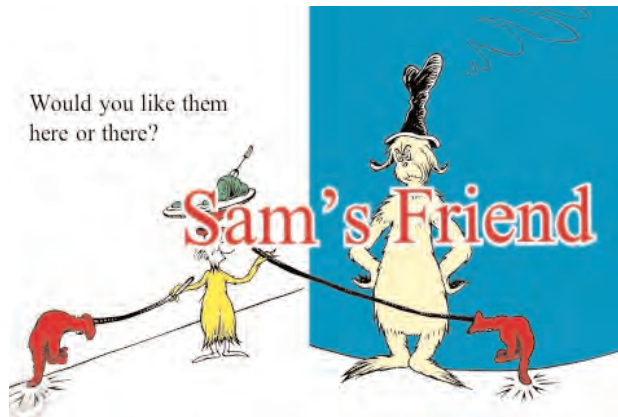
Least possible costs*, using existing PC

	Cost per unit	Quantity	Total
iPads 16 GB, no 3G or case	\$533.93	2	\$1,068
iPod Touches 4th generation, with camera	\$240	2	\$480
Apps	\$4	60	\$240
Total			\$1,788

* does not include wireless Internet access and router

Language (Reading & Writing)

Green Eggs & Ham. Like the other Oceanhouse Media titles, Green Eggs & Ham follows the same formula of pulling the text and illustrations from the original Dr. Seuss story, and presenting it, one page at a time with clear responsive labels. The simplicity is refreshing. There are now a huge library of Oceanhouse Media titles, all with this similar design. Builds reading, word recognition. Oceanhouse Media. www.oceanhousemedia.com \$3.99. Ages 3-up.



Interactive Alphabet 1.5. Each letter becomes a toy, in this well designed, responsive alphabet book that following a simple, tried-and-true technique. Builds reading, alphabet. Piikea Street. www.piikeastreet.com \$3. Ages 3-6.

Letter Writer: Oceans is one of two letter tracing apps (the second is Letter Writer: Space, for lower case). Children move their finger over each letter to learn how it is formed, with autocorrecting feedback. Builds writing, letter tracing, fine motor coordination. Barking Dog Interactive. <http://barkingdoginteractive.com/> \$.99. Ages 3-7.

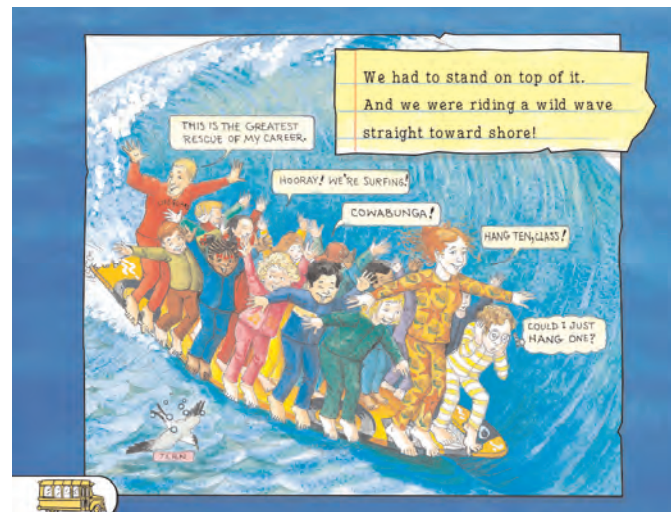
Montessori Crosswords is a set of well designed crossword puzzles, with picture cues and audio for each word. Builds reading, writing, language. L'Escapadou. <http://lescapadou.com> \$3.99. Ages 3-up.

Nash Smasher! If you want to try an excellent example of good ebook design, try Nash Smasher! by Bill Doyle with illustrations by Troy Cummings. Of course the design is helped along by a good story. Builds reading, emotions, fine motor. Crab Hill Press. www.crabhillpress.com \$1.99. Ages 4-up.

PopOut! The Tale of Peter Rabbit. Children's ebooks on the iPad don't get much better than this interactive rendition of Peter Rabbit, where every touch makes something interesting happen in support of the story. Builds reading, language. Loud Crow Interactive Inc. www.loudcrow.com \$5. Ages 4-up.

Toy Story 2 Read-Along is a 23 page/screen adaptation that mixes highlights of the second movie (Toy Story 2) with two games, two songs and three coloring activities that let children smart color the page outlines. Builds reading, language, logic, creativity. Disney Publishing Worldwide. www.DisneyDigitalBooks.com \$4.99. Ages 3-9.

Toontastic. Turn your iPad screen into a puppet show. Children can record their own voices as they add clipart. Builds creativity, language, planning, art, music, telling stories, cartoons. Launchpad Toys. <http://launchpadtoys.com> \$3. Ages 5-up.



Science Area

Magic School Bus: Oceans marks Ms. Frizzle's iPad debut. Based on the Scholastic book *The Magic School Bus: On The Ocean Floor* by Joanna Cole and illustrated by Bruce Degen, the app is arranged in ebook fashion, with pages that flip and hot spots that come to life. Content includes seven science explorations, 26 real photos and 11 videos of underwater animals and plant life, plus a trivia game on 20 animals. Builds science, ocean life. Scholastic Media. www.scholastic.com \$8. Ages 2-up.

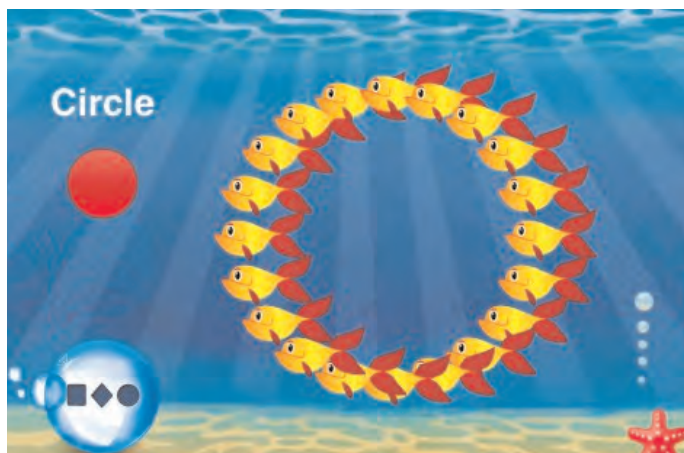
My First Weighing Exercises HD. Turn your iPad or iPod Touch into a balance beam scale. There are three modes of play, each with three challenge levels, and it is possible to alternate between ounces and grams. Builds math, equalities, balance, addition, subtraction, sums, mental math. A&R Entertainment. www.ar-entertainment.net \$1.99. Ages 2-7.

Solar System for iPad. For a child with an interest in the stars and planets, this app is fun to just explore, despite the need for reading. Touch a planet, moon or comet to explore, in this carefully crafted interactive science poster that covers every corner of our Solar System. Builds science, astronomy, the solar system, planets. Touch Press. www.touchpress.com \$14. Ages 7-up.

Ultimate Dinopedia: The Most Complete Dinosaur

Do you make children's apps?
Don't miss Dust or Magic's 2nd Annual AppCamp, May 22-24 (Sunday - Tuesday), Asilomar, Monterey California, where marshmallow roasts on the pacific beach mix with conversations about the next great app.

Reference Ever lets children explore 600 types of dinosaurs. Builds science, dinosaurs, ecosystems. National Geographic Society. www.nationalgeographic.com \$6. Ages 6-up.



Math Area

Fish School makes the screen into a letter and numeral busy box, where failure isn't an option. Builds logic, math (counting, numeral recognition) the alphabet, letter recognition, shapes, memory. Duck Duck Moose Design. www.duckduckmoosedesign.com \$.99, \$1.99. Ages 2-up.

My First Tangrams HD.

This \$1.99 app includes 36 tangram puzzles, with drag-and-drop autocorrecting. A&R Entertainment. www.ar-entertainment.net \$1.99. Ages 3-up.

My First Wood Block

Puzzles. Part of the Learning is fun educational game collection, this puzzle app lets you press a block to swap it as you try to reconstruct the picture. It features nine different animals, three difficulty levels, and sound effects. Builds classification, matching. A&R Entertainment. www.ar-entertainment.net \$1.99. Ages 2-7.



Park Math. Another great app from Duck Duck Moose turns a playground into things to count, weigh, compare and classify. There are two levels -- Pre-K and first grade. Builds math, counting, quantities, adding, subtraction, numerals. Duck Duck Moose Design. www.duckduckmoosedesign.com \$1.99. Ages 3-up.

Symmetry Shuffle. Anyone who has ever packed a suitcase knows the value of spatial intelligence -- the ability to manipulate shapes in your head. This app contains 12 sets of objects that can be slid, flipped and turned, until all the shapes are correctly aligned. Builds math, geometry, spatial relations. Carstens Studios. www.carstensstudios.com \$1.99. Ages 4-up.

Tickle Tap Toddler Pack contains five activities in one iPad friendly app. Builds logic, sorting, counting, music, language. zinc Roe Design. www.zincroe.com \$4.99. Ages 3-6.

Music

Boogie Bopper. Another one of the Tickle Tap Apps, Boogie Bopper lets children play ten simple melodies like Bingo and Mary Had a Little Lamb by touching a rainbow shaped xylophone, with circle-shaped keys arranged from low to high. Even an accidental tap plays the right note, and a series of taps can create the song. A second more open-ended mode lets children freely construct their own instrument, by moving musical balls around the screen. There's not a lot to do, but you can't beat the design for giving children a way to explore melodies. Builds music, melody, rhythm, causality. zinc Roe Design. www.zincroe.com \$2. Ages 2-4.

Magic Piano. Turns your iPod into a zany piano keyboard with social features, that let you share songs with other players, from around the world. Builds music, rhythm. Smule, Inc. www.smule.com \$.99. Ages 4-up.



Old MacDonald Piano is a 17 key (octave + 2) piano keyboard, that includes four modes: Play and Sing Along (play Old MacDonald by following highlighted keys), Learn the Song (play and sing along, also with highlighted keys), Karaoke Mode (record your voice and piano playing by following words in English, Spanish or French) and Free Style Mode (free experimentation). See also Twinkle Twinkle Little Star, which shares a similar design. Builds music, piano. Kiboomu Inc. www.kiboomu.com \$0.99. Ages 3-up.

TonePad. Make musical patterns, and play with the structure of music. Builds music, timing. LoftLab. www.tonepadapp.com \$free. Ages 7-up.

The iPad is less than a year old, yet there's no doubt it, and devices like it, will influence how children play and learn. Will this be a good or bad influence? That's up to you. As you would with any traditional material, try each app with different children and change things around once in a while to keep things interesting. After all, starting each day with a set of fresh, fun, engaging materials -- whatever the form -- can increase your chances for having a smooth day!

