



NIAGARA FALLS  
**PUBLIC LIBRARY**



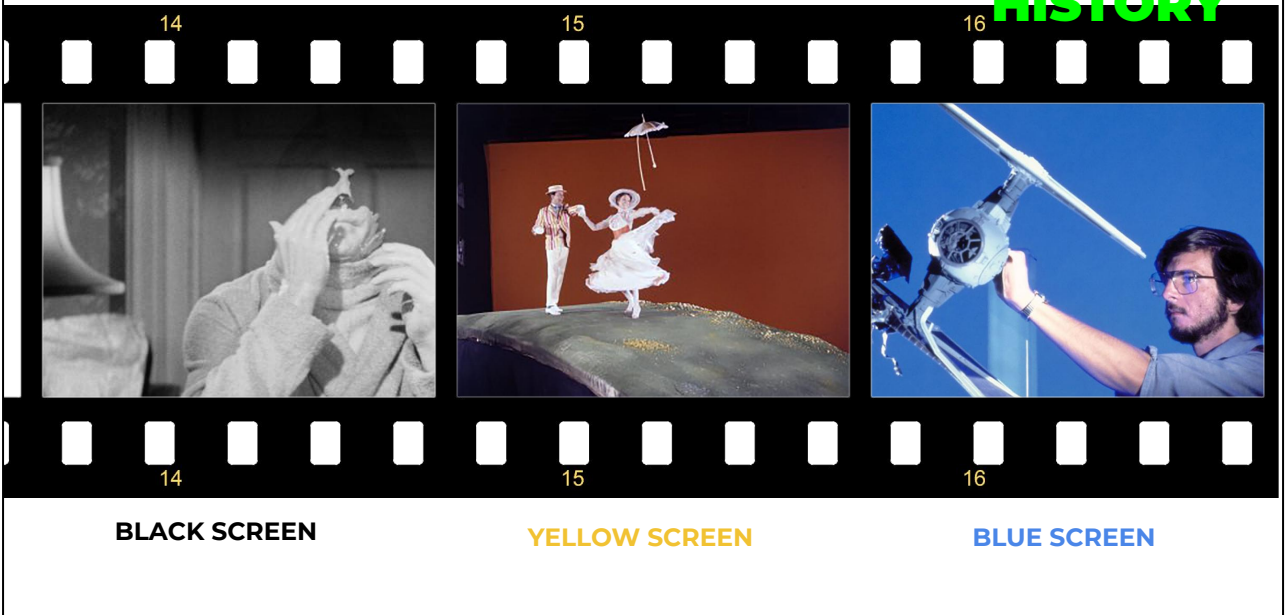
# EVERYTHING'S GONE **GREEN** GETTING THE MOST OUT OF GREEN SCREENS

Thanks for coming!

- Introduce ourselves
- Don't want to talk for too long; tech learning should be mostly hands-on so today we're going to start with:
  - Introducing the Media Lab
  - Quick Tour, including plans for the future (about 5 - 10 min.)
  - A brief presentation (about 10 - 15 min.)
  - Two parallel learning activities (about 20 min. each):
    - Lego stop motion green screen techniques using iPads and the Stop Motion Studio app (Greg)
    - Historic Niagara green screen, using human figures and photos from our local history archives (Gareth)
  - Remaining time to play with the equipment, if interested

## CHROMA KEY

## HISTORY



- Green screen is the colloquial term for CHROMA KEY COMPOSITING, a widely-used image manipulation technique in which two or more images are combined, with certain parts of one or more of the layers removed--or "keyed out"--according to a specific colour--or "key".
- Historical precedents include BLACK SCREEN: Used as early as 1903 on The Great Train Robbery, in which a moving background was double-exposed over black curtains blocking out a train windows. The Invisible Man (1933), shown here, used a black screen "traveling matte" technique, in which a portion of the background was blacked out so that another image could be inserted.
- Disney had a yellow screen technique -- used in films such as Mary Poppins -- in which certain colours could be chemically removed from an image so it could then be composited with cartoon backdrops and characters.
- BLUE screens -- used in films such as The Empire Strikes Back -- used optical printers to key a blue background out of an image and combine it with a different background. In the '80s computers were introduced to control optical printers.

DIGITAL

TODAY



- Fast forward to today and the ubiquitous green screen technique, in which a green background or even green-covered body parts can be digitally keyed out and combined with computer generated backgrounds.

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- Fast forward to today and the ubiquitous green screen technique, in which a green background or even green-covered body parts can be digitally keyed out and combined with computer generated backgrounds.
- This one is neat because we can see that his hand and lower body are keyed out in the final image.



DIGITAL INNOVATION HUBS



## IN LIBRARIES

Agincourt  
Albion  
Downsview  
Fort York  
North York Central Library  
Richview  
Scarborough Civic Centre  
Toronto Reference Library



**Hamilton  
Public  
Library**

GREEN SCREEN STUDIO  
@ CENTRAL LIBRARY  
MAKERSPACE

**Kitchener  
Public Library**

HEFFNER STUDIO  
@ CENTRAL LIBRARY



**Lincoln  
Public  
Library**

Learn, Discover, Experience, Explore



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- What used to be an esoteric film technique requiring time-consuming processes using expensive, specialized equipment can now be done in seconds using your phone.
- A number of libraries -- including us -- have found green screens an interesting and inexpensive addition to their maker space programming and services.
- Here are some of the Ontario libraries we're keeping an eye on. Anyone here experimented with green screens at their library?

## WHY?

### DIGITAL LITERACY

*Objective:*

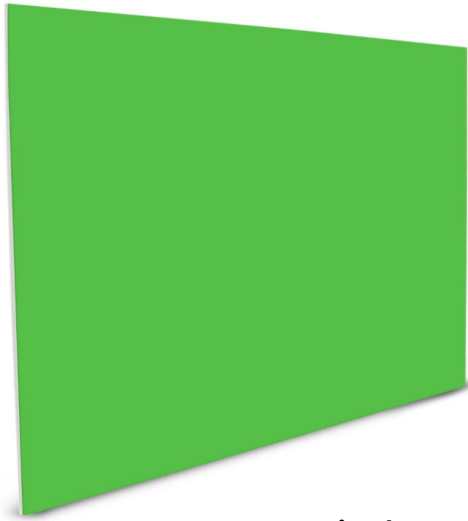
**To develop an understanding of some of the ways in which digital images can be manipulated by operationalizing basic chroma key compositing techniques.**

*Outcome:*

**Participants will demonstrate a basic understanding of chroma key tools and techniques by generating simple chroma key composited images and short animations.**

- On one level, it's something fun and interesting for people of ages to play with.
- On a deeper level, though, what are we trying to accomplish with green screen programs? From our perspective, digital literacy is the big goal.
  - We live in an image-saturated culture, most of the images we're bombarded with on a daily basis being digitally manipulated in some way, many with chroma key techniques.
  - Learning some of the ways in which digital images can be manipulated and learning the techniques and tools for doing it yourself gives context, allowing learners to more critically engage with them images, to better understand how they work.
- Here's a sample learning objective and outcome for our green screen activities today





**Green Bristol Board**  
**\$2.50**

## **EQUIPMENT**



**Behr Sparkling Apple**  
**Paint | Matte (S-G-430)**  
**\$40/gallon**

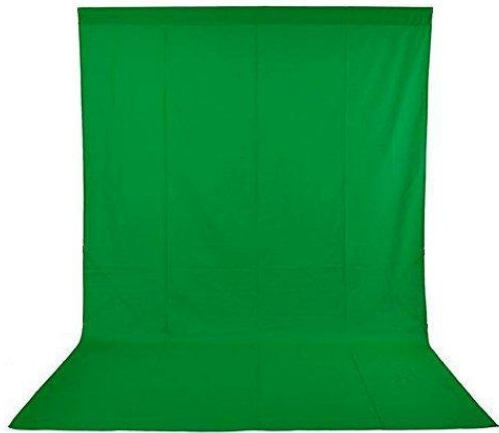
- Adding a green screen to your library makerspace doesn't have to be expensive
- Pretty much any green backdrop will do
- For our Lego figure work today, we'll be using a sheet of green bristol board
- If you can find a free wall somewhere in your library, even some green paint can transform it into a green screen
  - Behr S-G-430 "Sparkling Apple" is recommended online by many who have used it
  - Make sure it's the matte finish

## EQUIPMENT



**Elgato Retractable Green Screen**  
**\$199.95**

- If you want to get fancy, the Elgato screen packs up and travels well.
- Gareth will be using it for his green screen activity, so you can check it out for yourself.



**Andoer 1.6 x 3M Non-woven  
Backdrop Background Screen  
\$24.99**

## **EQUIPMENT**



**Ohuhu Adjustable Muslin  
Background System Stand  
\$49.99**

- These sheet and adjustable mount systems are less expensive
- We started out with one of these, but the sheet can get very wrinkly to the point where it becomes unusable (until it's ironed)



**CanadianStudio Umbrella Lighting Kit  
with Muslin Backdrop & Stand  
\$159.00**

## **EQUIPMENT**



**Neewer Umbrella Lighting Kit  
\$64.99**

- As we'll discover in our activities, light helps make for a stronger chroma key effect!
- Umbrella lights diffuse in a photogenic way, but we'll be experimenting with desk lamps for the Lego figure activity.

## EQUIPMENT



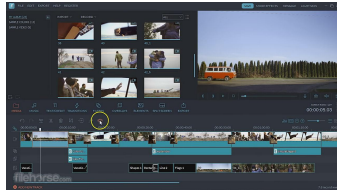
**Neewer Table Clamp  
Smartphone & Tablet Stand  
\$43.99/pair**

- For stop motion, you can get clamp-on tablet/smartphone stands
- We haven't gotten this far yet, so for today we'll be using the built-in stands on our tablet case.

## APPS



### WONDERSHARE FILMORA



\$39.99USD+  
Mac & Windows



### iMovie



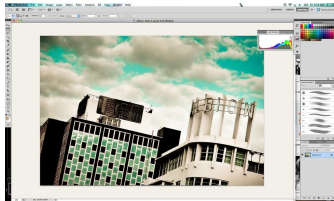
Included with  
Mac OS & iOS

- As far as apps, as Gareth pointed out to me, almost every image editing program these days has chroma key capabilities of one sort or another.
- If you're on mac, iMovie is the easiest solution
- If not, Filmora is a fairly inexpensive option. I haven't used it myself, but I believe Gareth said he had once or twice, to feel free to ask him more about it.

## APPS



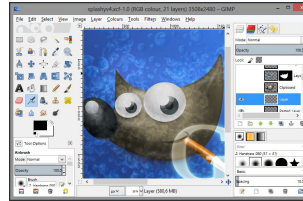
### PHOTOSHOP



From \$9.99USD/mo  
Mac & Windows



### GIMP



Free/open source  
Mac & Windows

- For still images, we've all heard of Photoshop. Adobe's Photography subscription package isn't too bad, but GIMP is a free alternative that gives you probably most of the basic functionality you'll need.

## APPS



### STOP MOTION STUDIO



\$1.99 - \$9.99  
iOS, Android,  
Mac & Windows



### STIKBOT STUDIO



Free  
iOS & Android

- Finally, for stop motion, here are a couple of options. I started out on Stikbot Studio, which is free
- But Stop Motion Studio has a lot more features and is generally a bit easier to use. You can try both today and see what you think.





## SPACES

- To give you an idea of what a green screen space looks like in a library, it could just be a backdrop sheet against a wall in any available room, preferably with decent lighting.
- This is one of TPL's Digital Innovation Hubs, with painted wall backdrop, to give you an idea of what that looks like.
- Our Media Lab is a work in progress. Eventually, we'd like to have a cyclorama at the back of the room, in which the wall slopes into the floor, to give a seamless green backdrop. The Photography and Video program at Stamford Collegiate, a local high school, has this.

## **PROJECTS | MAKE YOUR OWN LEGO MOVIE**

- Here are some stop motion videos that came out of our recent Make Your Own Lego Movie March Break programs

**PROJECT**

**MOVIE**



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## PROJECTS | MAKE YOUR OWN LEGO MOVIE



- Those were done in Stop Motion Studio
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## PROJECTS | MAKE YOUR OWN LEGO MOVIE



- Those were done in Stop Motion Studio
- Here are a couple I did with my 5-year-old son in Stikbot Studio on an old, 2nd-generation iPad
- You can see how short they are, since each frame is only a small movement; you'll feel like you've done a lot of work when you've only got a couple seconds of video at full speed

## **PROJECTS | SUPERHERO GREEN SCREEN**

## PROJECTS | SUPERHERO GREEN SCREEN



- Here's a superhero green screen they did here before I came onboard

## PROJECTS | DECODING NIAGARA'S PAST



- And here's the Decoding Niagara Niagara's Past program they did, again before my time, in partnership with the iHub, a tech organization that is part of our local public school board, using green screen tools and techniques to augment local history learning
- Gareth can tell you more about this during his activity today
- Notice iHub's green screen wall the back of the picture on the right

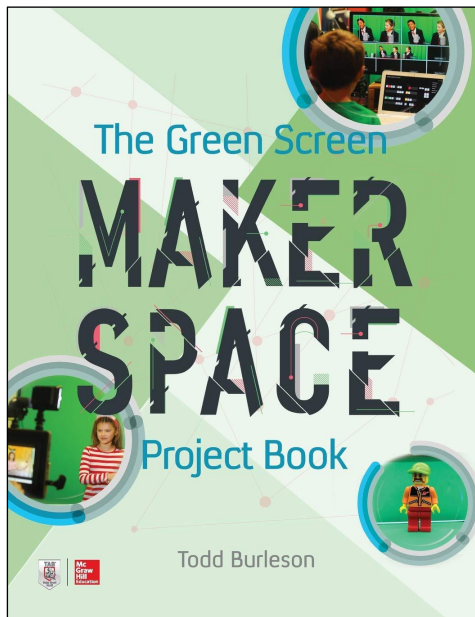
## STEAM-ish vs STEAM

**STEAM-ish** = a science, technology, engineering, art and design, or math activity.

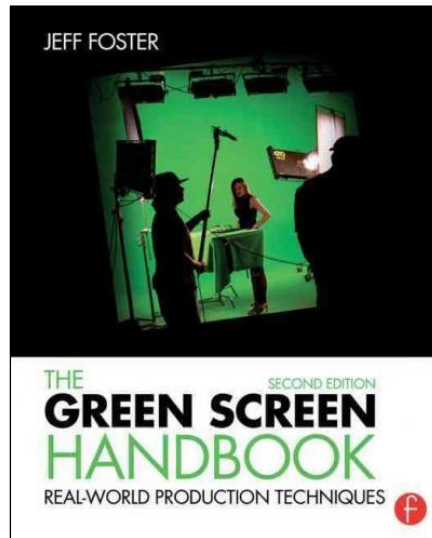
**STEAM** = an activity that combines two or more different science, technology, engineering, art and design, or math tools, techniques and modes of inquiry.

- If you bring green screen programming to your library, you might want to start out by doing a program or two that simply show what the green screens are and how to use them, for example superimposing people over different backgrounds.
- Here, we're looking for ways to combine green screens with other STEAM activities.
- I attended Markham Public Library's session on Maker Summer Camps at the OLA Superconference this past January.
  - They drew an interesting distinction between programs that were STEAM-ish and those that were STEAM.
  - STEAMish programs simply use a STEAM technology in a straightforward way--our example of superimposing images of people onto different backdrops.
  - STEAM is a bit more involved, combining tools, techniques and modes of inquiry from different STEAM activities.
- Lego stop motion is one example, in which we'll be using green screens in the context of an activity that also utilizes animation as well as possibly editing and other filmmaking techniques.

- The Decoding Niagara's Past project used green screens to get students to engage with local history.
- The idea is trying to find different ways to use green screens to enrich other kinds of programming, rather than as an end unto themselves.



## FURTHER READING



- The activities we'll be doing today are just a couple of things we've done here.
- I'm sure you'll find, or come up with, many others. I can't recommend any online resources, but these two books are not bad places to start. I've got them here, from our Media Lab collection, if you'd like to take a look at any point.

## CONTACT

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- Thanks for listening!
- Otherwise, if you have any other follow-up questions or comments, please don't hesitate to get in touch--I'll leave our contact info up for the duration
- Now we'll need to split up into roughly two groups, half going with Gareth for 20 min. or so, half with me--then we'll switch.





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