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Using the Cloud with Google Drive *Step-by-Step Guide*

by **Mike Angstadt**

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Computer Lab

Norristown, Pennsylvania

www.mc-npl.org

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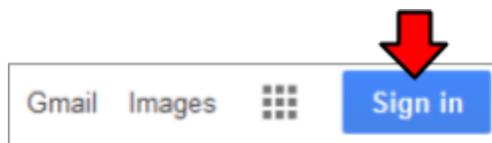


Introduction

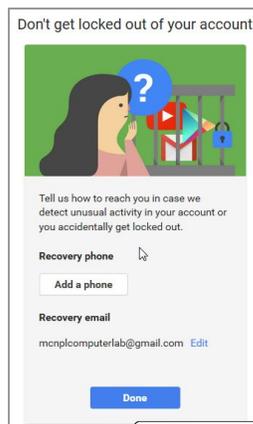
Google Drive is a platform for **storing**, **sharing**, and **editing** files on the “cloud” (the Internet). Think of it as a computer that runs inside of your web browser. Because the files are stored on the Internet, they can be accessed from any Internet-connected computer. Files can also be shared so that other people can view and edit them. You use **apps** to view and edit files (kind of like the apps on a smart phone). We'll cover all of these things in this course.

Opening your Drive

1. **Open** a web browser (**Firefox** in class, or you can use **Chrome** if you are following along at home) and **navigate** to www.google.com.
2. **Click** on the blue “Sign in” button in the top-right corner of the screen.



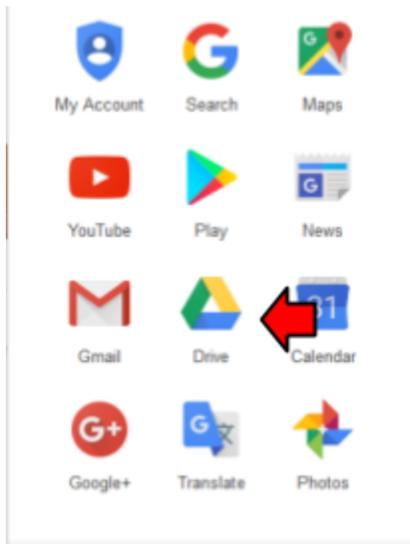
3. **Enter** your Google Account login credentials at the prompt.
4. If you see a message that says “**Don’t get locked out of your account**”, **click Done**.



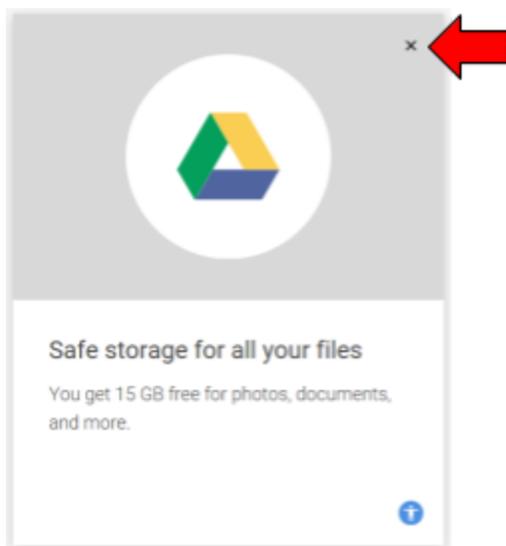
5. You will then be redirected **back** to the Google homepage. The first letter of your first name will be displayed in a colored circle in the upper-right corner of the screen.



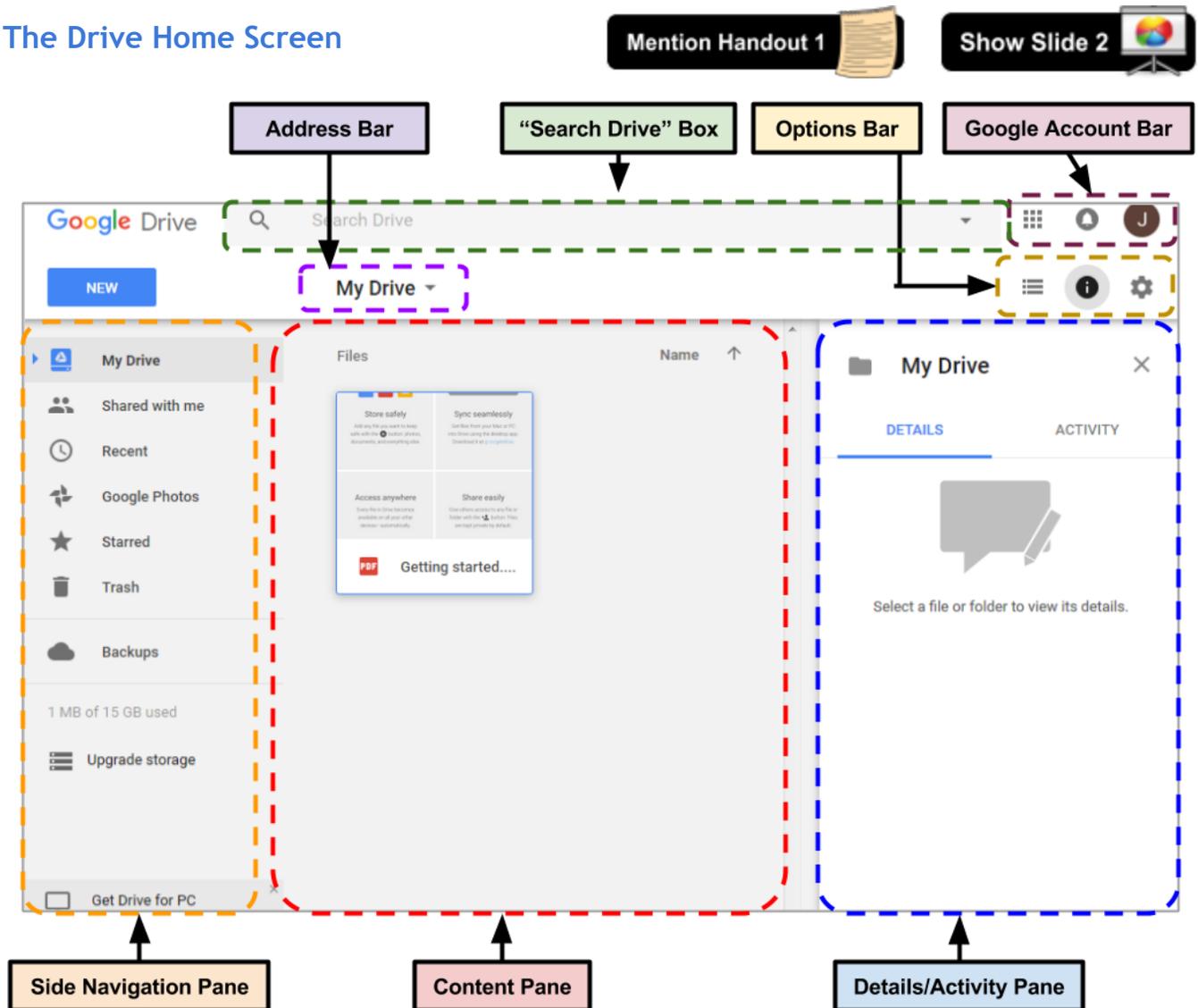
6. **Click** on the square “**Apps**” icon  . This displays all of the Google services that are available to you as a Google Account holder.
7. **Click** on “**Drive**” to go to your Drive.



8. If this is the first time opening your Drive, you might see a **welcome dialog**. This dialog gives you a brief introduction to Google Drive. We’ll be covering all this during this class, so you can **close** it by clicking the “X” in the upper-right corner.



The Drive Home Screen



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<http://goo.gl/QihSS5>

Side Navigation Pane The location you are currently viewing will have a blue icon.	NEW button	Creates new files, uploads files from your computer, and creates new folders.
	My Drive	Shows the files that are in your Drive account. Your Drive opens up in this location by default.
	Shared with me	Shows files that other people have shared with you.
	Recent	Shows your recently-opened files.
	Starred	Shows the files you've marked as important.

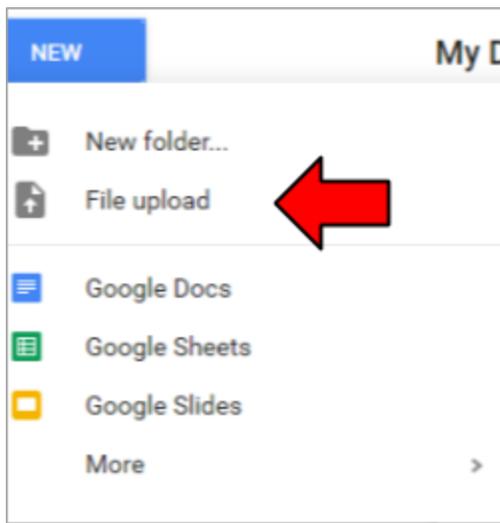
	 Trash	Shows your deleted files. Deleted files stay in the Trash until you empty the Trash.
	 Backups	If you use your Google account on your phone or tablet, it will automatically back your data up here.
	Storage space	Shows the amount of storage space you are currently using across all of the services in your Google Account (bottom of pane).
Content Pane	Shows the files and folders in the currently selected folder (shown in the Address Bar).	
Details/Activity Pane	This is hidden by default, and can be shown by clicking the “Show details” button  in the Options pane. We will talk about this later.	
Address Bar	Shows your current location in your Drive. Similar to the address bar in a Computer Window in Windows.	
“Search Drive” Box	Allows you to perform a search over all your files. The contents of each file will be searched.	
Options Bar	Contains options that let you interact with files you select, or change your Drive’s settings. We will talk about this more later.	
Google Account Bar	 Apps	Displays the other services you have access to as a Google Account holder.
	 Google Account	Gives you access to your Google Account settings and also allows you to log out.

Working with Files and Folders

Uploading a File

Let's start by uploading a file from our computer to our Drive account. Remember that our Drive account is like an online flash drive--we can use it to store whatever kinds of files we'd like.

1. **Click** on the blue **"New"** button, and **select** **"File upload"**.



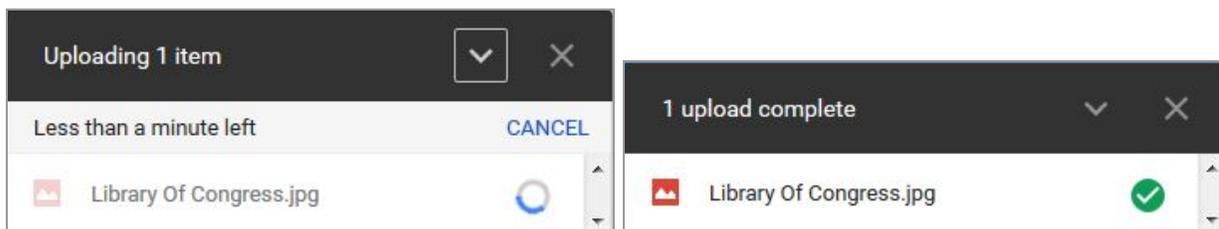
Note to Home Students:

You can either download this image from our Class Resources page, or use an image of your own choosing.

www.mc-npl.org/class-resources

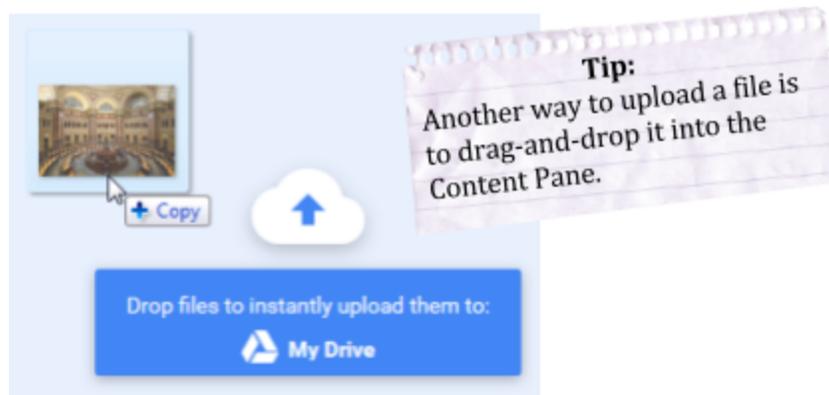
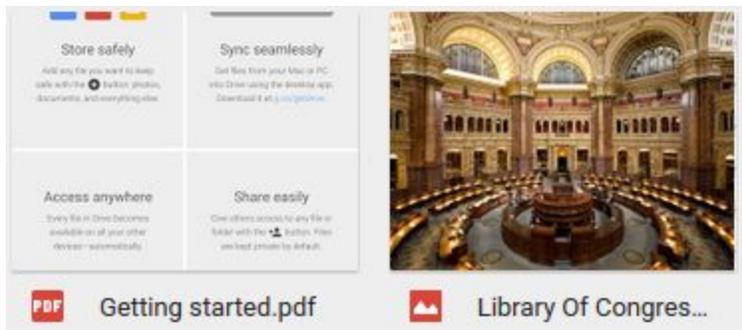


2. **Before** we select a file to upload, **note** that an **Upload Pane** will appear in the bottom-right corner of the screen. This will display the progress of the upload.
3. In the file upload dialog box, **navigate** to the **Temporary Patron Drive** and **select** **"Library Of Congress.jpg"**.
4. **Notice** the **Upload Pane** in the **bottom-right** corner of the screen. It will display a green checkmark when the file upload has completed.



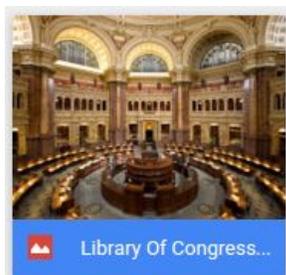
5. **Click** the **X** in the top right corner of the **Upload Pane** to dismiss it.

6. **Notice** how the file appears in the Content Pane when the upload completes.

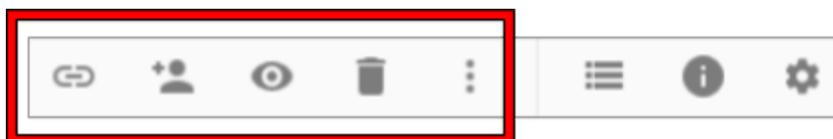


Selecting a file

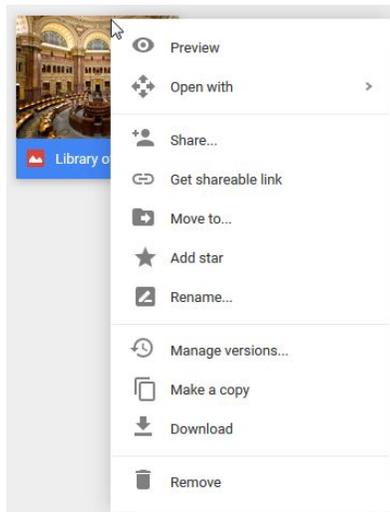
1. **Click** on the image file. This **selects** the file.
2. **Notice** how the file name now has a blue background. This means that the file is **selected**.



3. **Notice** how some **buttons** were added to the Options Bar. These buttons allow you to do certain things to the file. We will cover some of these buttons later.



4. **Deselect** the file by **clicking** in a **clear space**.
 - a. **Notice** how the file name no longer has a blue background.
 - b. **Notice** how the extra buttons are gone from the Options Bar.
5. **Click** on the same the image to **select** it again.
6. Now, **right-click** on the image. **Notice** the **context menu** that appears.
 - a. **Note** that all of the buttons in the Options Bar can **also** be accessed from the right-click context menu.
 - b. **Click** in a clear space to **dismiss** the context menu.



Deleting a file

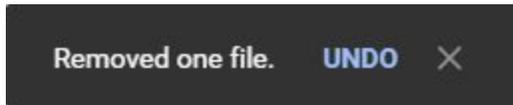
Deleting a file from your Drive is a lot like deleting a file from your laptop or desktop computer.

When you delete files from your Drive, they are first sent to the **Trash**. Drive calls this “**removing**” a file. If a file is in the Trash, it can be **recovered** or “undeleted”. Files stay in the Trash **forever**. However, if you **empty** the Trash, the files are **permanently** deleted and **cannot** be recovered.

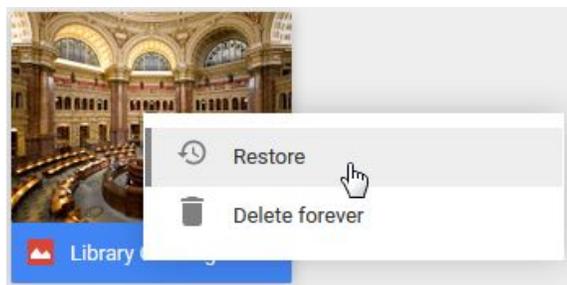
Let’s delete our image file.

1. **Note** that, when a file is removed, a **black status bar** will appear in the bottom-left part of the screen.
 - a. We will see the **black status bar** a lot throughout the course. It is often displayed when you perform an action of some kind. Sometimes it gives you the option to **undo** the action you just performed, but not always.
 - b. When we remove our file, the status bar will **confirm** that we just removed a file and will give us the opportunity to **undo** our action in case we removed it by mistake.
 - c. The status bar **disappears** after only a few seconds, so keep your eyes sharp!

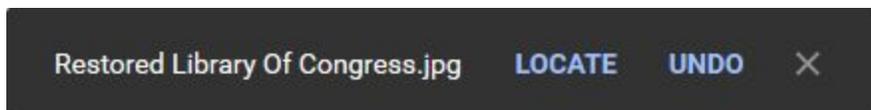
2. **Right-click** on the image and **select** “**Remove**” from the context menu.
3. **Notice** the **black status bar** in the bottom-left of the screen. It is confirming our action and giving us the opportunity to **undo** it.



4. **Removing a file does not delete it forever.** It moves it to the **Trash**, which allows you to recover it at a later time if you decide you need it back.
5. Let's **recover** the file we just deleted.
 - a. **Click** on “**Trash**” in the Side Navigation Pane.
 - b. **Right-click** the image and **select** “**Restore**”.



- c. Notice the black status bar in the bottom-left of the screen, confirming our action.



6. **Click** on “**My Drive**” in the Side Navigation Pane. **Notice** how our file is back where it was before we deleted it.

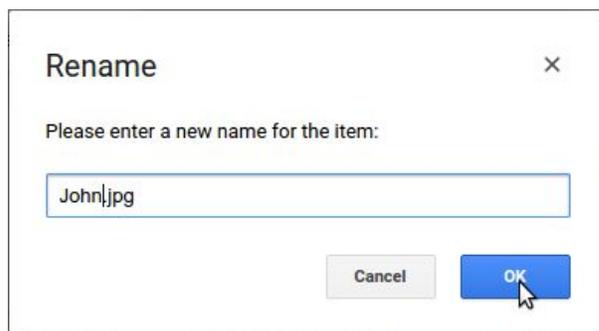
Renaming a File

Just like on your computer, files in your Drive can be renamed. We are going to rename our image file.

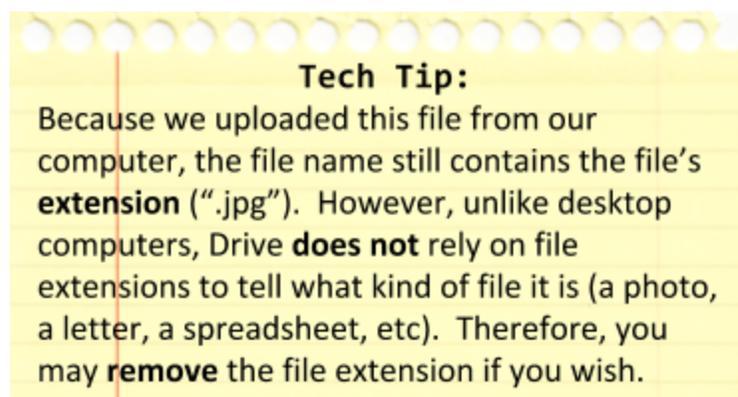
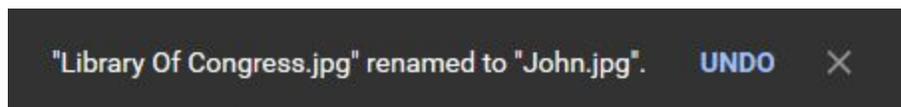
1. **Notice** how the “My Drive” icon in the Side Navigation Pane is **blue**. This indicates that we are currently inside of this location.



2. **Select** the image file by clicking on it.
3. **Right-click** the image and **select Rename**.
4. **Type** your **first name** in the Rename dialog box.



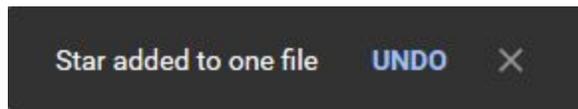
5. **Click** OK.
6. **Notice** the **black bar** in the bottom-left corner of the screen, confirming our rename operation.



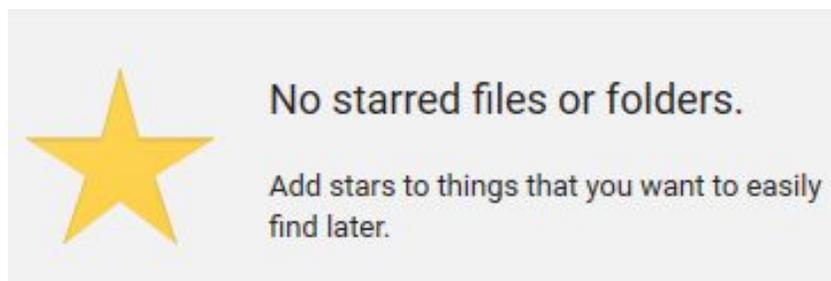
Starring a file

If you want to mark a file as important you can “star” the file. Starring a file makes it easier to find.

1. **Right-click** on the image file and **select** “Add star” from the context menu.
2. **Notice** how the **black status bar** in the bottom-left corner of the screen is confirming our action and giving us a chance to undo it.



3. **Click** on “Starred” in the Side Navigation Pane to view your starred files.
4. **Notice** how our image file is shown in the Content Pane on the right.
5. To unstar a file, simply **right-click** on the file and **select** “Remove star”.
6. **Notice** how our file has disappeared. That’s because we are currently on the screen that shows us our starred files. However, we don’t have any starred files anymore because we removed the star from our picture file.



Downloading a file

Sometimes, you need to download a copy of the file to your computer in order to work with it. For example, if we wanted to use an advanced image editor such as Photoshop to edit our image, we would need to first download a copy of the image to our computer’s hard drive so that we can open it in Photoshop.

1. **Click** on “My Drive” in the Side Navigation Pane to return to the complete listing of all the files in your Drive.
2. **Right click** on the image file.
3. **Notice** the “Download” option. Clicking this would download a copy of the file to our computer. However, we won’t actually do this in class because we don’t need to download the file.

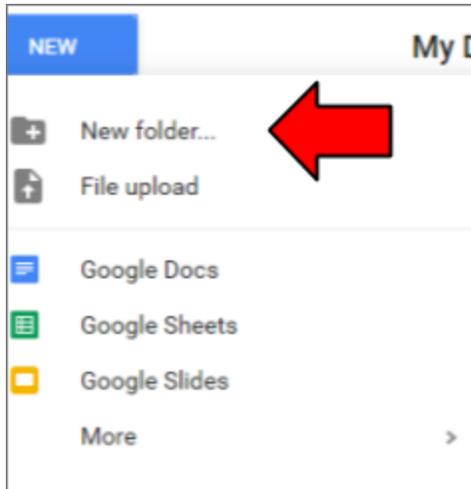


4. **Click** in a clear space to dismiss the context menu.

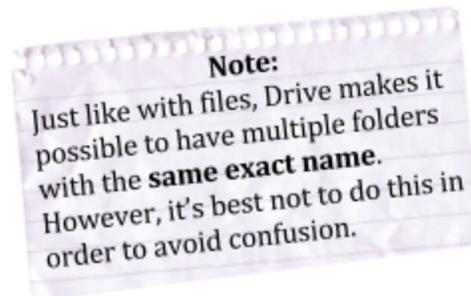
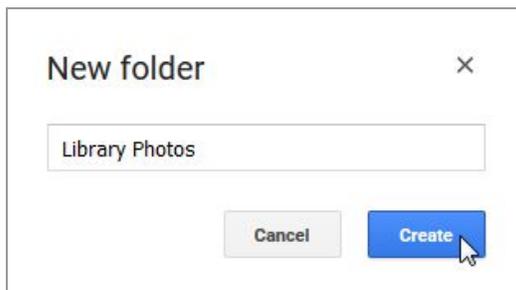
Working with Folders

Google Drive allows you to organize your files into folders, just like you can on a laptop or desktop computer. Let's create a folder for our image.

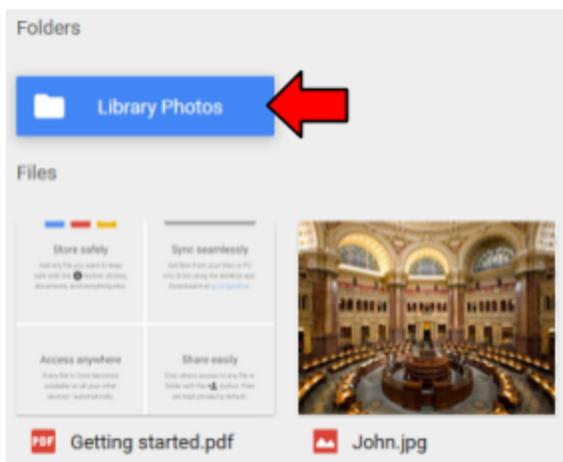
1. **Click** on the “**New**” button, then select “**New Folder**”.



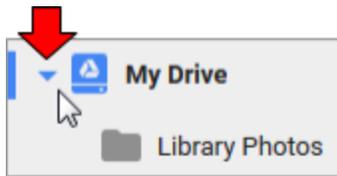
2. A dialog box will appear ask you for the name of the folder. **Type** “**Library Photos**” then **click** “**Create**”.



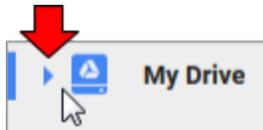
3. **Notice** how the folder appeared **above** the files. **Also notice** that it's **blue**, which means it is **selected**.



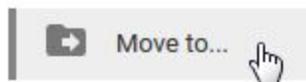
4. **Click** on the **chevron** (the triangle) next to “My Drive” on the Side Navigation Pane.
5. **Notice** how the folder we just created appears below “My Drive”. This is showing us all the folders that are in “My Drive”.



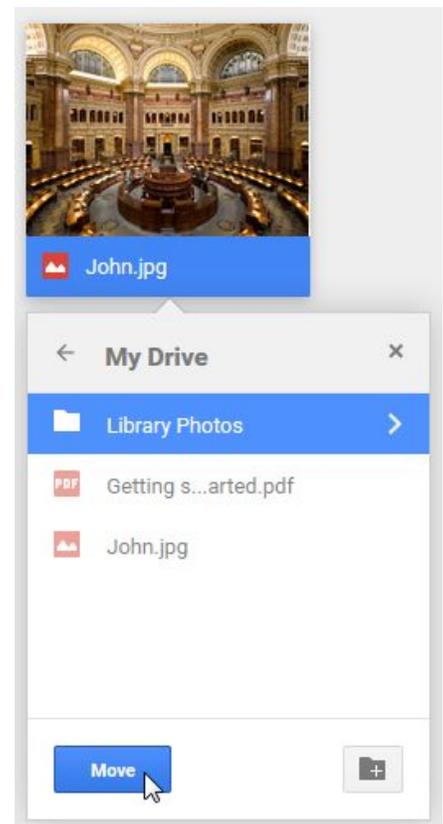
6. **Click** on the chevron again. This will **hide** the folders.



7. Next, we’re going to move our photo into our new folder. But before we do that, **note** that the **black status bar** will appear in the bottom-left corner of the screen, confirming our move operation and give us a chance to **undo**.
8. Now, let’s move our image file into the folder.
 - a. **Right-click** on the file and **select** “Move to...”



- b. **Notice** the options that appear below the file. It’s asking us where we want to move the file.
- c. **Click** on “Library Photos” to select it.
- d. **Notice** how it’s given a **blue background**. This indicates that it is **selected**.
- e. **Click Move**.



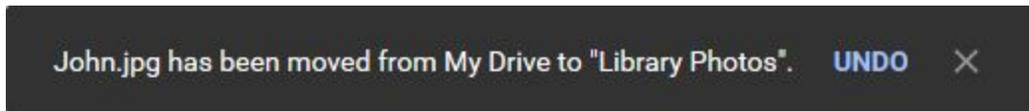
Teacher’s Note:

The “Move” button may be hidden off the screen, due to the small resolutions of the monitors.

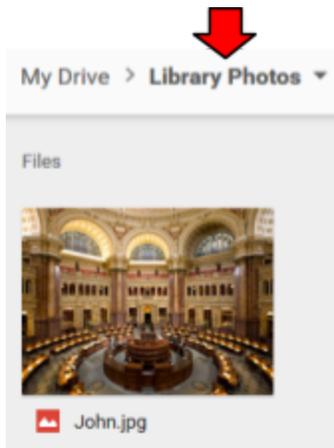
Scroll down to see the button. **You will see a scroll bar on the right, but only the mouse wheel works!**



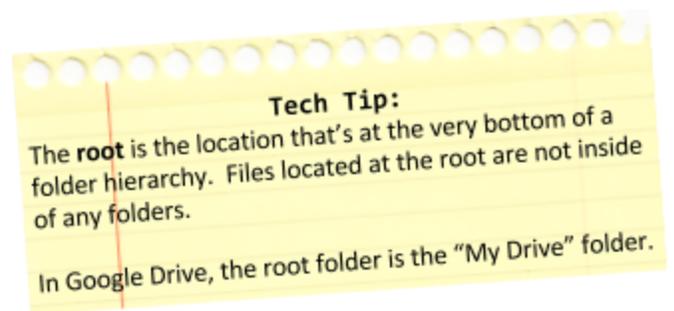
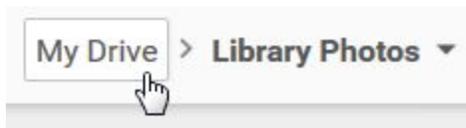
9. **Notice** the familiar **black status bar** in the bottom-left of the screen. Google Drive is telling us that a file was just moved, and is giving us the option of **undoing** our move operation.



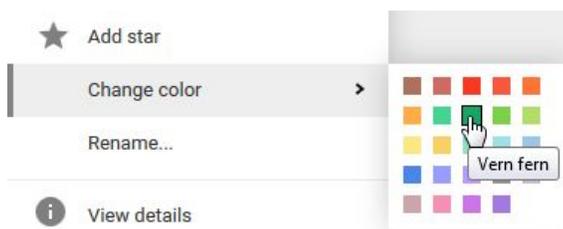
10. In the Content Pane, **double-click** on the folder to open it. **Notice** how the **Address Bar** changes to show that we are currently viewing the contents of the “Library Photos” folder.



11. Clicking on a folder in the Address Bar will take you to that folder. Let’s go back to the **root folder** by **clicking** on “My Drive”.



12. You can change the **color** of a folder.
 - a. **Right-click** on the **Library Photos** folder.
 - b. **Point** to “Change Color”.
 - c. **Click** on a color of your choice.

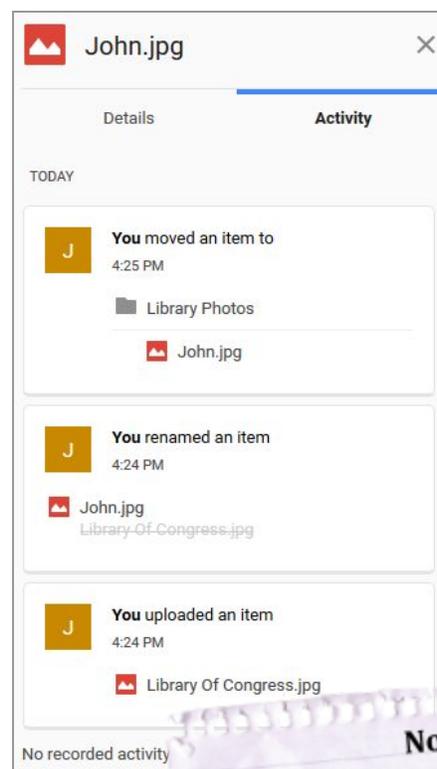
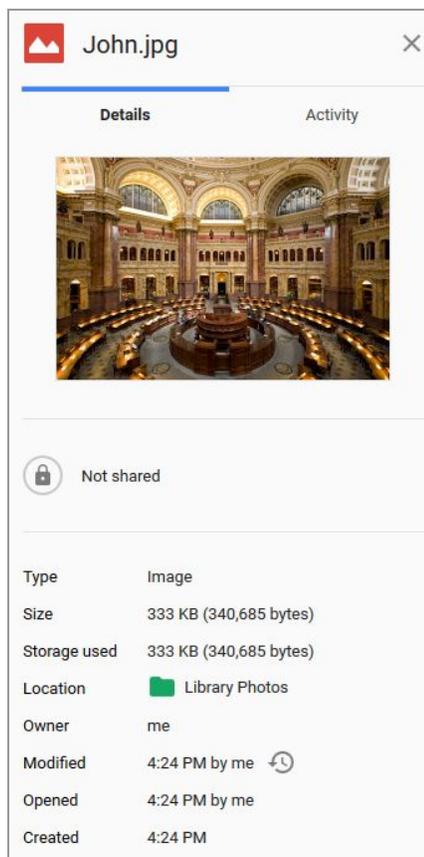


13. **Click** in an empty space to **deselect** the folder and see its new color.



Details/Activity Pane

1. In the Content Pane, **double click** on the “**Library Photos**” folder to open it.
2. **Click** on the image to **select** it.
3. **Open** the **Details/Activity Pane** by clicking the “Show details” button ⓘ in the Options Bar.
4. **Notice** the **Details/Activity Pane** appears on the right. This pane consists of two tabs: “**Details**” and “**Activity**”.
 - a. **Click** on the “**Details**” tab. This tab displays additional information about the file, such as its file size and creation date.
 - b. **Click** on the “**Activity**” tab. This tab shows a record of all changes that have happened to the file. Our file is showing that it was uploaded at such-and-such a date, then moved to the “Library Photos” folder.



Close the Details/Activity Pane by:

- **Clicking** its button in the Options Bar ⓘ **or**
- **Clicking** the “X” in the upper-right corner of the pane.

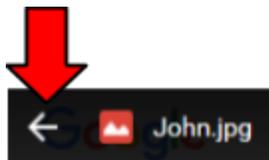
The Preview Window

Opening a file in the Preview Window

Double-click method

When an image file is double-clicked in Google Drive, the image is opened in the **Preview Window**. The preview window lets you **view** the file, but **not** edit it.

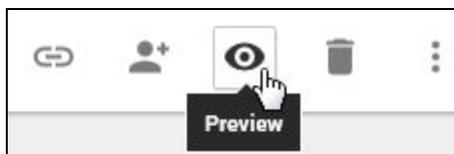
1. **Double-click** the image file and **notice** how a larger version of the image appears. We are now looking at the Preview Window.
2. **Notice** the toolbar at the top of the screen. This may **disappear** when you stop moving your mouse. To keep it visible on the screen, **point** somewhere on the toolbar.
3. **Close** the preview by **clicking** the back arrow in the top-left corner of the screen. **Do not confuse this with the browser's back button!**



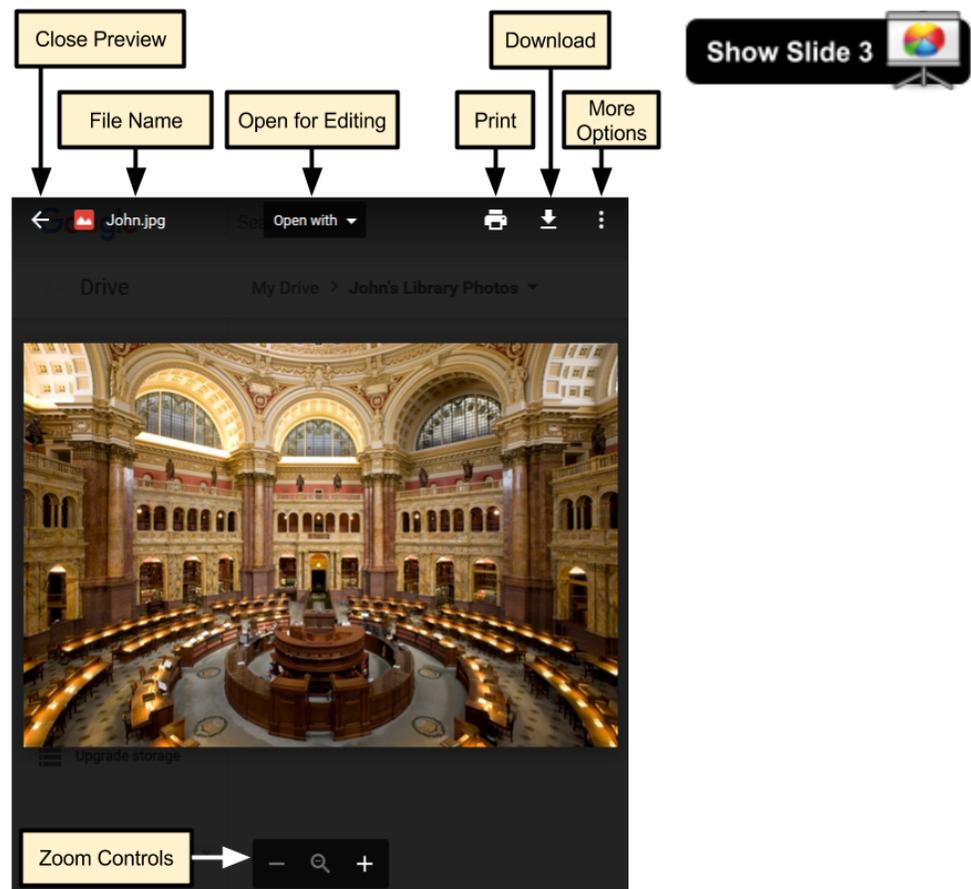
Preview button method

Note that, depending on the type of the file, double-clicking on the file may **open it for editing** instead of **previewing** it. A **sure-fire** way to preview a file is to use the **Preview button** in the Options Bar.

1. Make sure the image is still selected by **clicking** it.
2. **Click** on the “eye” icon in the **Options Bar**.



Examining the Preview Window



Close Preview Takes you “back” to your Google Drive home screen (closes the preview window).

File Name The name of the file that’s being viewed.

Open with Allows you to choose an app to open the file with in order to edit it. Also, shows suggestions of third-party apps that are not yet connected to your Drive that can open the file.

Print Prints the file. We recommend you **avoid this button** for two reasons. (1) Depending on your web browser, it may not give you a print preview and (2) it does not work well with certain file types, such as Microsoft Word documents. If you want to print a file, it’s usually better to **download** the file, open the downloaded file with an app on your computer, and print it from there.

Download Saves a copy of the file to the computer you are currently sitting at. If you make any changes to this copy while it is on your computer, then you will have to **re-upload** the file to your Drive if you want your Drive to have the changes.

More Options Displays a menu with additional options.

Zoom Controls Lets you zoom in and out of the image. You can also use the scroll wheel on your mouse to zoom in and out.

Segway: By default, your Drive account does not include an app that lets you edit images. So, in order to edit our image, we'll need to use a **third-party app**. But before we do that, let's quickly talk about what an app is.

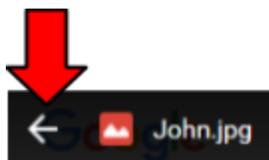
Apps

To open and edit our image file, we'll need an **app**. Google Drive apps aren't "downloaded" and "installed" like you might do on a smartphone or a computer. Instead you **connect** an app to your Drive account, and it runs right inside of your web browser. In this way, Google Drive is like a **full-fledged computer** that runs in your web browser--it stores your files and uses apps to open and edit them.

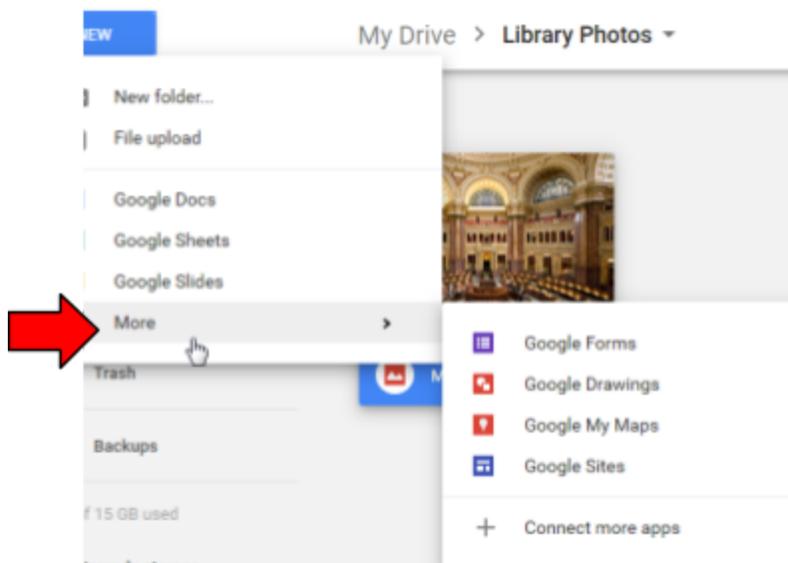
Pre-connected Apps

Your Google Drive account comes already connected to a suite of office productivity apps that were created by Google. Unlike third-party apps, which we'll talk about shortly, these apps cannot be disconnected from your Drive. Let's see what these apps are.

1. **Close** the preview window by clicking the back button in the upper-left corner of the window. **Do NOT click the browser's back button!** That will do something different.



2. **Click** on the "New" button. Three of these apps are immediately shown.
3. To see the rest of the apps that are connected to your Drive account, **point** to "More".



Pre-Connected Google Drive Apps

 Google Docs	A word processing app, like Microsoft Word.
 Google Sheets	A spreadsheet app, like Microsoft Excel.
 Google Slides	A slideshow presentation app, like Microsoft PowerPoint.
 Google Forms	Creates online surveys for people to fill out.
 Google Drawings	Creates drawings and diagrams.
 Google My Maps	Creates custom maps using Google’s mapping service, Google Maps.
 Google Sites	Creates simple websites, like Wordpress but less powerful

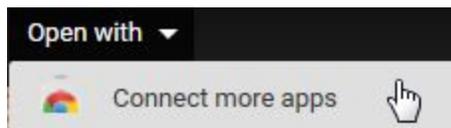
- Note** that this isn’t necessarily a complete list of all the apps that are connected to your Drive. The New button only displays apps that are capable of **creating new files** (not all apps can do this).

Connecting to a Third-Party App

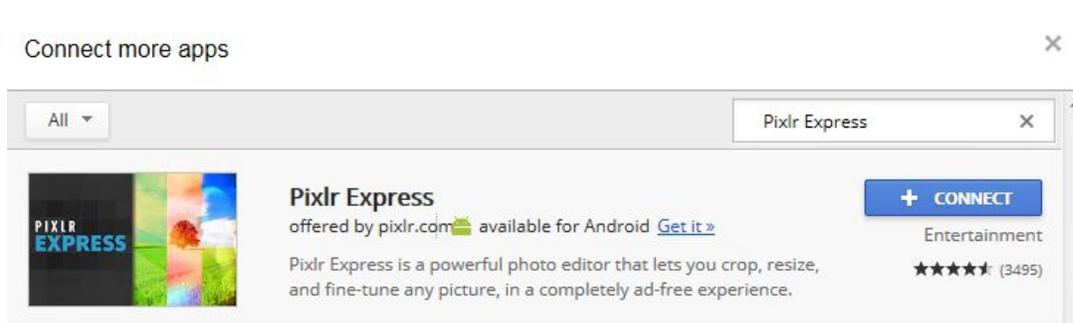
Teacher’s Note:
 If there is a technical problem with the Pixlr Express app, use the **Pixlr Editor** app instead. See **Appendix A** for the modified version of this section.



- Double-click** on our image again to open it in **preview mode**.
- Click** on “**Open with**” at the top of the screen, then click **Connect More Apps**.



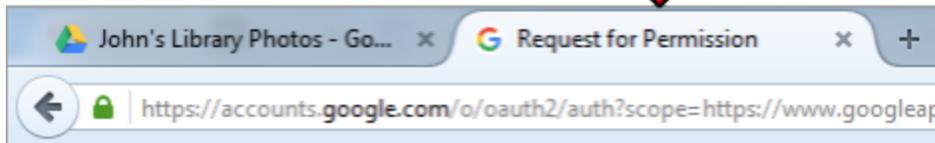
- In the Search Box, type **Pixlr Express** and hit **Enter**



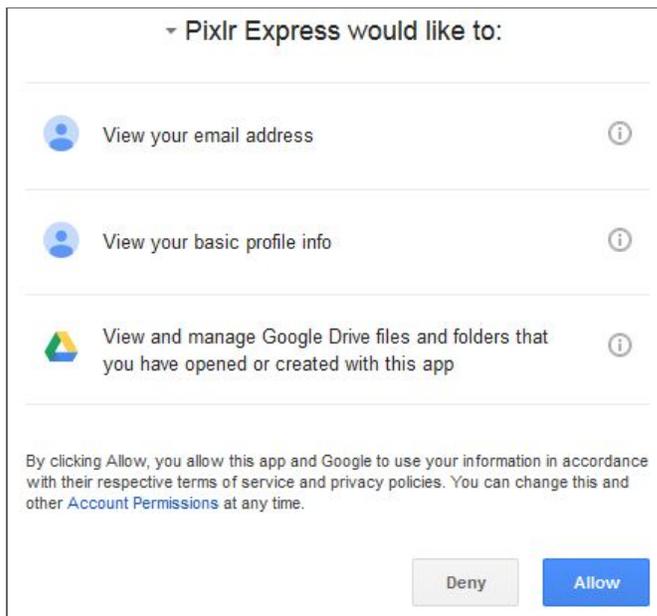
4. **Click** the **Connect** button on the right side of the box that says “**Pixlr Express**”. This will **connect** the “Pixlr Express” app to our Drive account, then return us to the **Preview** window.
5. **Notice** that the **Open With** button now says **Open with Pixlr Express**. **Click** it.



6. **Note** that a **new browser tab** has opened. **When you open a file in your Drive with an app, it opens in a new browser tab.** The tab will contain an icon for the app you are using. We haven’t authorized the app yet, so it’s just showing the Google logo.

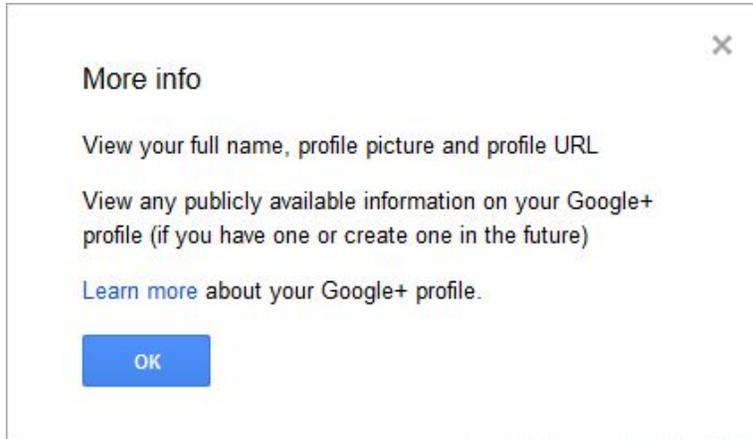


7. After a few moments, you will see a **permissions** screen. Before you can start using an app, you have to give the app permission to access your account. Some apps require more permissions, some apps require less. You have to accept **ALL** the permissions in order to use the app--you cannot pick and choose. This screen only appears the **first** time you use an app.



8. The permissions Pixlr Express is requesting are reasonable. Later on in the class, we will show you what unreasonable permissions look like. Pixlr Express needs:
 - a. **Our email address.** Most apps require this.
 - b. **Our basic profile info**, such as our full name and any information we made public on our Google+ profile (Google+ is Google’s version of Facebook). Most apps require this as well.

- c. The ability to **open and edit** the Google Drive files that we tell it to open and edit. This is reasonable. Without this permission, we couldn't open any files with Pixlr Express.
- 9. **Click** on one of the "More info" icons . These give you more information about a permission.
- 10. **Click** the **OK** button to **dismiss** the dialog.

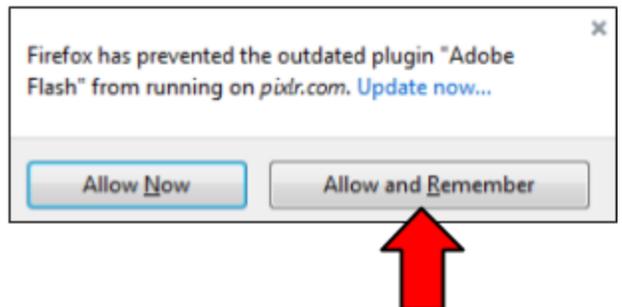
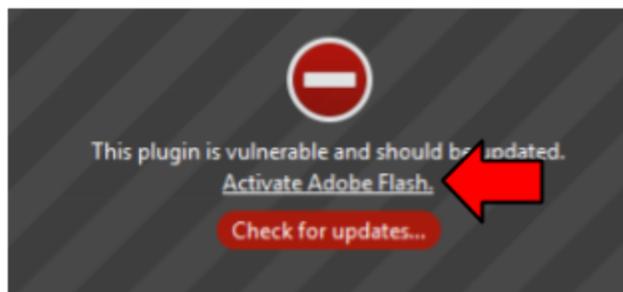


- 11. **Click** on the **app name** in the heading at the top of the screen. This gives you additional information about the app, including an email address of the company.



- 12. **Click** "Allow". If you don't do this, you simply cannot use the app. Most apps require the kinds of permissions you see now.

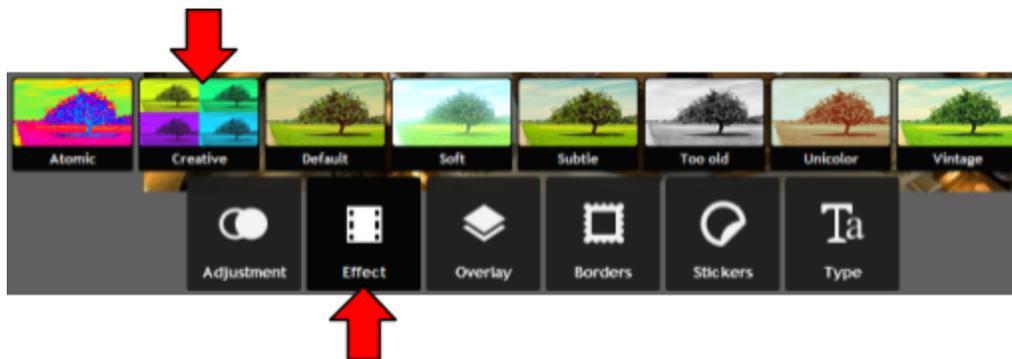
Teacher's Note:
 If Flash is out of date, you may see the following warning. Click "Activate Adobe Flash", then click "Allow and Remember".

- Because this course is about Google Drive, we're not going to go into too much detail about how Pixlr Express works. But it's important to *note* that **a banner advertisement is at the right side of the screen.** This is how apps like Pixlr Express can be free and still make money for their creators.
- If the image is very small, *click* the "zoom to fit" button to make it larger.



- Click* on the "Effect" button at the bottom of the screen, then *click* on "Creative".



- Choose* an effect.

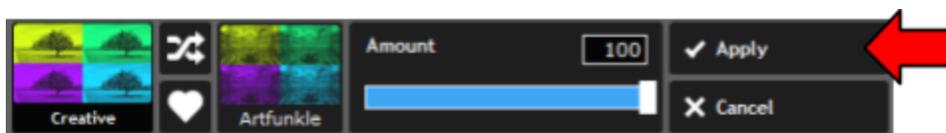
LEFT partner picks:



RIGHT partner picks:



- Click* "Apply" at the bottom of the screen to apply the effect to the picture.



- Click* the "Save and replace" button in the top-right corner of the screen. This will save the changes we made to the image.



- Once it has finished saving, *close* the **browser tab**. This will return us to the browser tab that has our Google Drive home screen in it.

The preview window for our image should still be open. **Notice** how the image hasn't changed. **This is a Google Drive bug** that happens when you edit an image file. The preview **should** update with our changes, but it hasn't. We're going to **ignore** it for now, since it requires a page refresh to remedy.

20. **Close** the preview to return to the Drive home screen.

21. **Notice** how the image file thumbnail has updated to show the changes we just made to our image. This confirms that our changes were indeed saved.

22. **Remember**, it may take a few seconds for the thumbnail to **sync** with the cloud and update. If the thumbnail does not update after thirty seconds, try doing a browser refresh.



Sharing

Arguably the most powerful feature of Google Drive is the ability to **share** files with other people. This allows multiple people to view and edit the same file, making it great for collaboration.

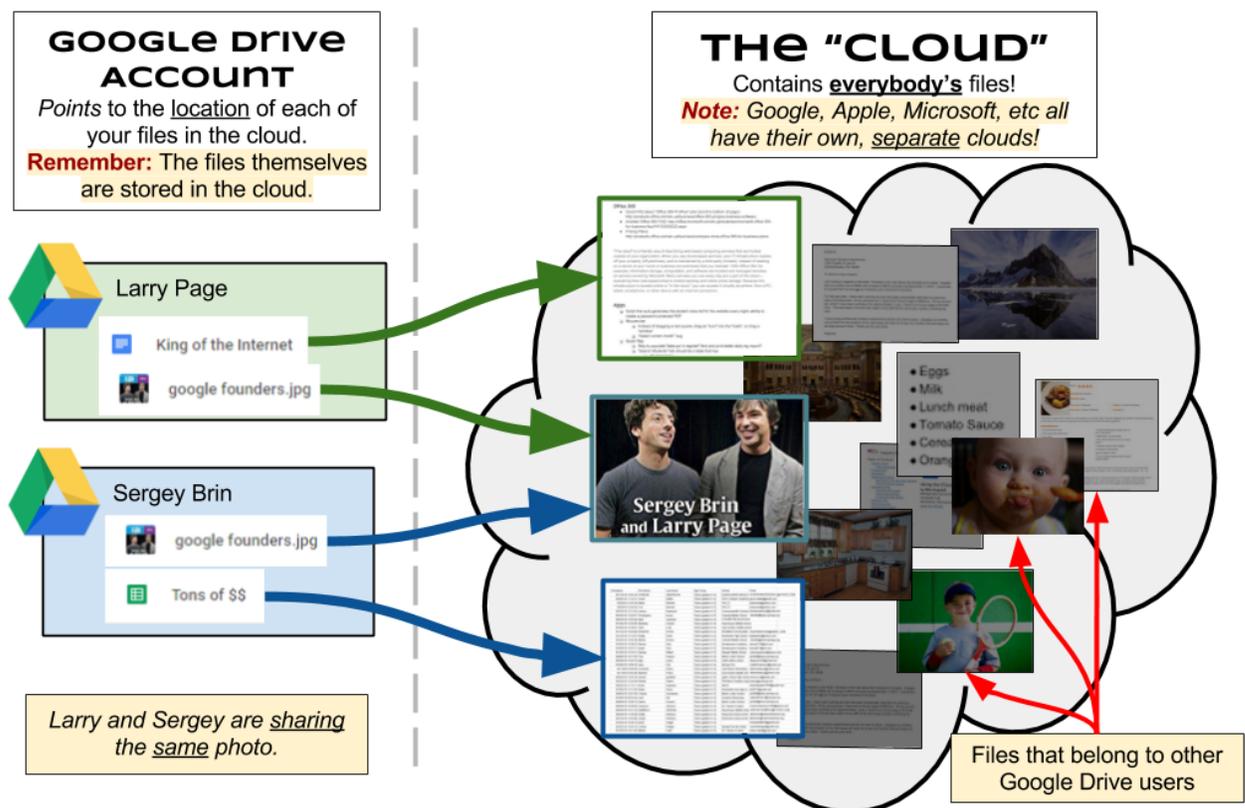


To make this possible, Drive saves all of your files to Google's "cloud". The cloud is essentially a collection of thousands of computers located at Google's headquarters. Everybody's Google Drive files get saved here.

Note that every company has its own, **separate** cloud. For example, you cannot access a file on Apple's cloud service using a Google Account.

The diagram below attempts to demonstrate this. It shows Google Founders Sergey Brin and Larry Page's (fictional) Google Drive accounts. Larry has two files: a document and a photo of Larry and Sergey. Sergey also has two files: a spreadsheet and the same photo of Larry and Sergey. The photo that they each have is the **same exact file**. In other words, they **share** this file. If one person edits it, the other person will instantly see the changes.

But the diagram shows other files too. These belong to the millions of other Google Drive users. Everybody's files are lumped together in the same cloud, but nobody can see each other's files unless they explicitly share them with someone else.



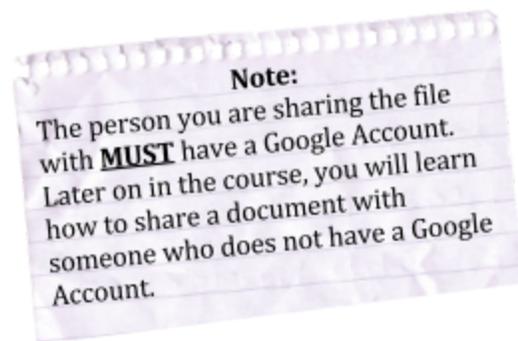
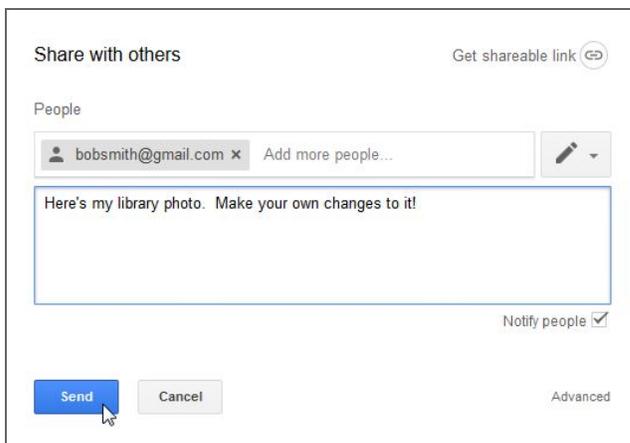
To demonstrate sharing, we're going to share our image file with our partner.

Sending a Sharing Invitation

1. **Click once** on the photo to **select** it (if it's not already selected).
2. **Click** on the “Share” button in the **Options Bar** (or use the **right-click context menu**).

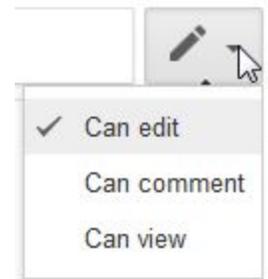


3. A **share dialog** will appear. This dialog allows you to control who can view and edit your file.
4. **Click** inside of the textbox and type your **partner's email address**. **Note** that your email address is your Google Account username, followed by “@gmail.com”.
5. As you start typing the email address, a **textbox** appears below. When you share a document with a person, the person gets an email notification. The textbox allows you to include a custom message in that notification. **Type** a short message.



6. **Click** on the **dropdown list** to the right of the textbox. This lets you control what kind of access you want to give the person.
7. We will **keep** “Can edit” selected because we want our partner to have the ability to edit our photo. See the table below for a description of each access level.

Can edit	User can view, add comments, and make changes to the file.
Can comment	User can view and add comments to the file. A “comment” is a note that you add to the file without editing the file itself (think of it like a sticky-note).
Can view	User can only view the file.

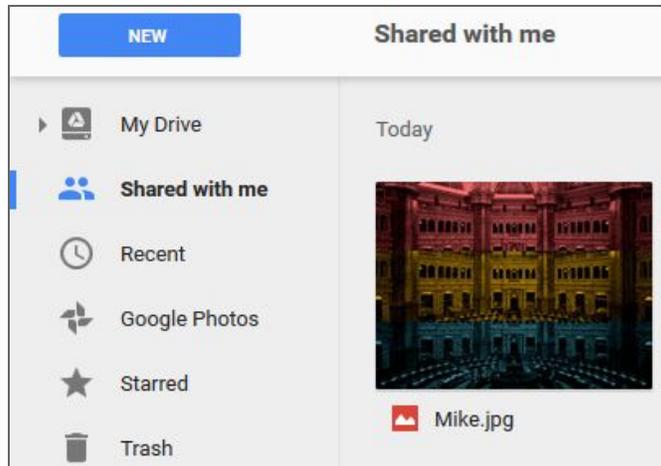


8. **Click** “Send” to complete the invitation.

Opening a Shared File

Now, let's open the photo that our partner shared with us.

1. In the **Side Navigation Pane**, **click** on “**Shared with me**”. This is like a “mailbox” where files that people have shared with you will appear.
2. **Notice** how “Shared with me” turned **blue** to indicate that we're currently viewing this location.
3. **Notice** how your partner's photo is shown in the Content Pane. **Note** that it may take a few seconds to appear because your computer has to sync itself with the cloud.



A Note About “Syncing”:

When working in the cloud, you will sometimes experience issues with your computer not getting the latest information in a timely manner. For example, someone might share a file with you, but you might not actually *see* the file until a couple minutes later.

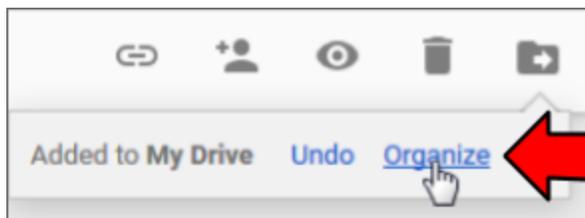
To resolve these issues, it sometimes helps to do a **browser refresh**. This forces your computer to “**sync**” with the cloud and download the latest information.

4. **Note** that the files in “Shared with me” cannot be organized into folders, unless you first move them to “My Drive”.
5. **Also note** that the files in “Shared with me” are not actually physically present in your Drive. They are in **someone else's** Drive. So you are essentially looking at a **list of files**.
6. If you have a lot of files in here, they can be hard to find after a while. However, it is possible to create a “shortcut” of sorts by a method that **looks** like you are **moving** it to your Drive. But in fact, the file really isn't actually being moved. It is merely going to be “referenced” from another folder in your Drive.

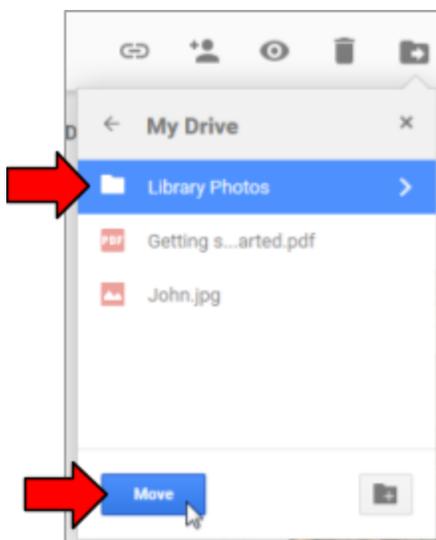
7. Let's "move" our partner's photo to the "Library Photos" folder we created.
 - a. **Click** on the file to **select** it.
 - b. **Click** on the "Add to my Drive" button in the Options Bar.



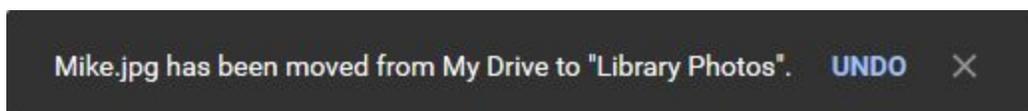
- c. A message appears that says "Added to My Drive". The picture is now in the **root** of your Drive. However, we want to specify a **specific folder** to move it to. **Click** on "Organize".



- d. In the popup that appears, click on "Library Photos" to select that folder and click "Move".

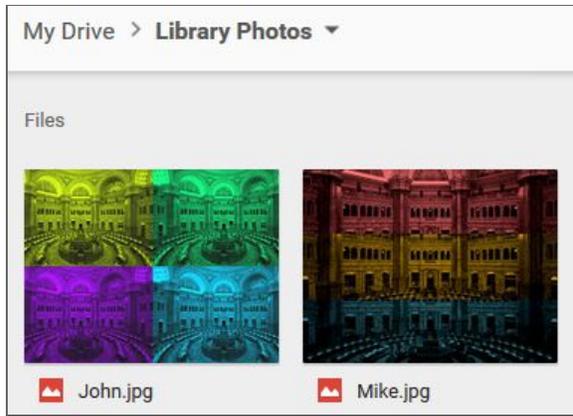


- e. **Notice** the black bar that appears in the bottom left of the screen, confirming our move operation.



8. **Notice** how the file we moved is still in "Shared with Me", even though we "moved" it. Files that are shared with you remain in your Shared with Me location, unless you explicitly remove it from this location.

9. Now, let's open the "Library Photos" folder to confirm that the file was moved.
 - a. **Click** on the chevron next to "My Drive" in the Side Navigation Pane.
 - b. **Click** on "Library Photos".
10. **Notice** how there are now **two photos** there: your photo and your partner's.

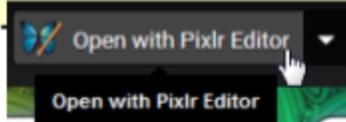


11. Because we've given our partner the ability to edit our file, let's edit our **partner's** photo. **Double-click** on your **partner's** photo. The preview window will open.
12. **Note** how there is now a button in the toolbar that says "**Open with Pixlr Express**" (before, it just said "Open With"). That's because we've already connected the Pixlr Express app to our Drive account. **Click** this button to open the image in Pixlr Express.



Teacher's Note:
If you used the **Pixlr Editor** app to edit your image instead of Pixlr Express, the "Open With" button will instead show the Pixlr Editor app.





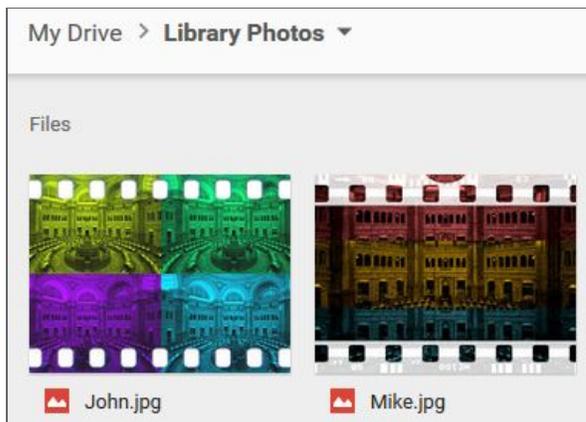
13. Let's apply a new effect to our partner's photo.
 - a. **Click** on the "Borders" button, then click "Film".
 - b. **Choose** a border of your choice ("Ball" is a good one).
 - c. **Click** "Apply".
 - d. **Click** "Save and replace".
 - e. **Close** the browser tab and the preview window

Teacher's Note:
If you used the **Pixlr Editor** app to edit your image instead of Pixlr Express:

1. **Click** on the **Filter** menu.
2. **Select** one of the following effects:
 - * Pointinize
 - * Polar Coordinates
 - * Kaleidoscope



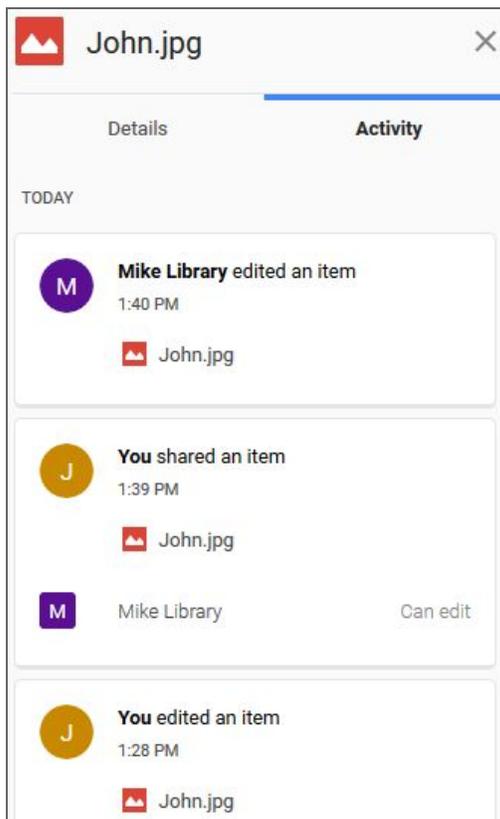
14. **Notice** how the thumbnail of your image has changed. That's because it's showing you the changes your partner made to the file.



Whatever changes your partner makes to the file, you will see, and whatever changes you make to the file, your partner will see! This is the power of Sharing!



15. **Click** on your image to select it. **Notice** how the “Activity” tab of the Details/Activity Pane contains a record of your partner editing the file.



Teacher's Note: Students may need to refresh their browser window, as the activity sometimes does not update. This is a good teaching moment for explaining how to resolve “syncing” issues in the cloud (refresh the browser window).

Note: When you share a file with someone, you are **NOT** sending them a **copy** of the document, like you would with email. It is the **same file**. This means that any changes you make your partner will see, and any changes your partner makes, you will see.

File Ownership

What is an “owner”?

Every file on Google Drive has exactly one **owner**. The owner is usually the person that created the file (although it is possible to *transfer* ownership of a file to somebody else). Owners have full control over a file, meaning they can edit it, delete it, and share it.

Only the owner of a file can truly **delete** a file. When the file owner deletes the file, the file gets deleted off the cloud. Anyone that the file is shared with will no longer be able to see the file. However, if a file is just **shared** with you and you delete it from your Drive, you are not deleting the actual file off the cloud. You are just removing it from your personal Drive account.

Owner Settings

Owners have access to special settings which can be used to restrict the kinds of things that other people can do to the file. But first, let's talk about what an owner is.

1. To access these settings, **open** the **share dialog** of the photo that **you own** (the one with your name on it).
 - a. **Click** on it once to **select** it.
 - b. **Click** on the “**Share**” button in the **Options Bar** (or use the **right-click context menu**).
2. When the share dialog appears, **click** “Advanced” in the bottom-right corner.

- At the bottom of the dialog is a section labeled “**Owner Settings**”.

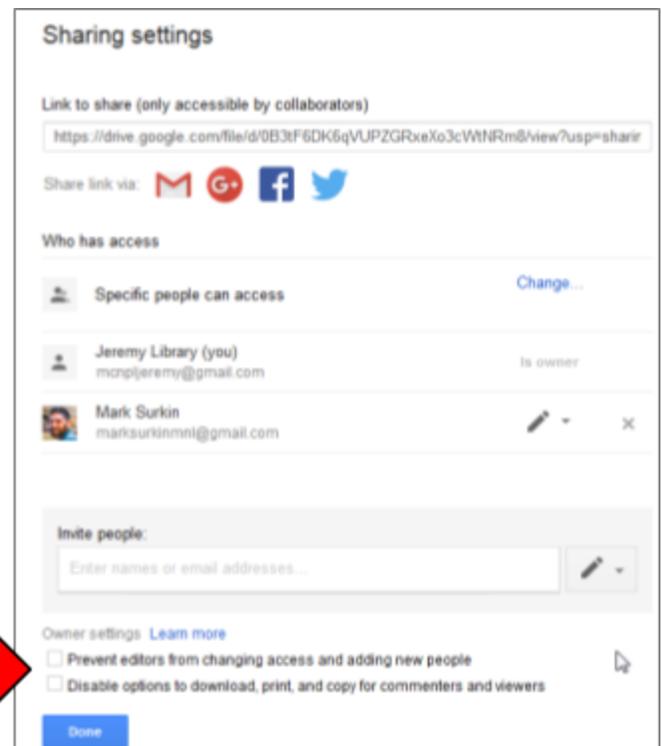
Prevent editors from changing access and adding new people

Whenever you give someone permission to edit your file, in addition to having the ability to make changes to the file, they can also share the file with whoever they want and even remove other people’s access permissions from the file. Clicking this checkbox will prevent them from doing these things.

Disable options to download, print, and copy for commenters and viewers

In addition to editing and creating files on Google Drive, you can also download Google Drive files to your local computer, print them, and make copies of them.

Clicking this checkbox will prevent anyone who has access to your file from doing any of these things. **Note, however, that there are ways to get around this in some circumstances, so you shouldn’t rely on it.** For example, if you mark a photo as not being downloadable, the viewer could still take a screenshot of the photo and then save the screenshot (assuming they have the technical knowledge to do so).



Creating a Shareable Link

Another way of sharing a document is by creating a **shareable link**. This allows **anyone** with the URL of your document to access it.

Benefits

- A Google Account is **not** required in order to access documents with shareable links.
- You don't have to manually invite each person you want to give access to.

Drawbacks

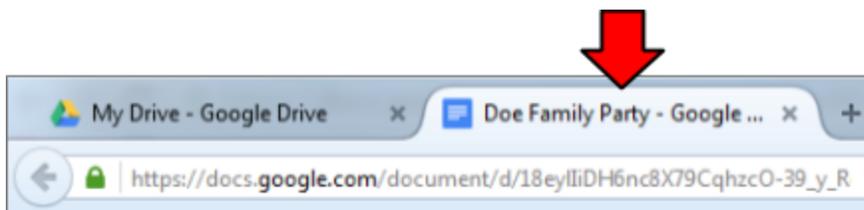
- If someone you don't know, or someone you don't want to give access to, gets a hold of the URL, then they will be able to access your document.
- You can't prevent an individual from accessing the file once they have the URL.

To demonstrate this, we're going to create a **Google Docs** file that we will use for family members to record what they are bringing to a family holiday party. We have a lot of family members, and many of them do not have Google Accounts, so this would be an ideal time to create a shareable link.

1) Creating our sharable document

First, let's create the document we want to share.

1. **Click** "My Drive" in the Side Navigation Pane to get back to the **root** of your Drive.
2. On the **Side Navigation Pane**, **click** the "New" button, then **click Google Docs**. This will create a **new** Google Docs file within our Drive.
3. **Notice** how a new **Google Doc** file has opened in a **new browser tab**.



4. **Click** where it says "Untitled Document" in the top-left corner of the screen. This will allow us to **name** our document.
5. **Type** "<Your last name> Family Party" and **press** .



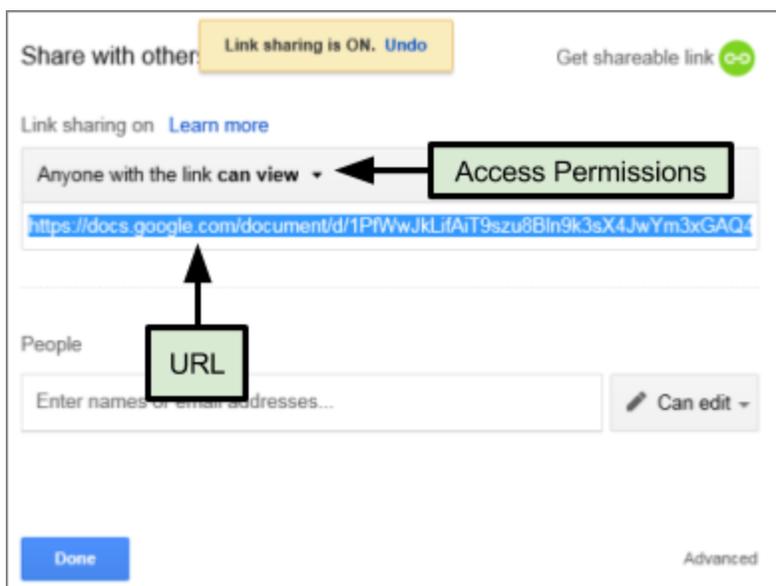
6. **Type** the names of a couple **dishes** to get a list started.
7. **Close** the document by closing the **browser tab**. The Google Docs app **automatically saves your changes** as you type, so there's no "Save" **button** to click.

2) Creating a shareable link

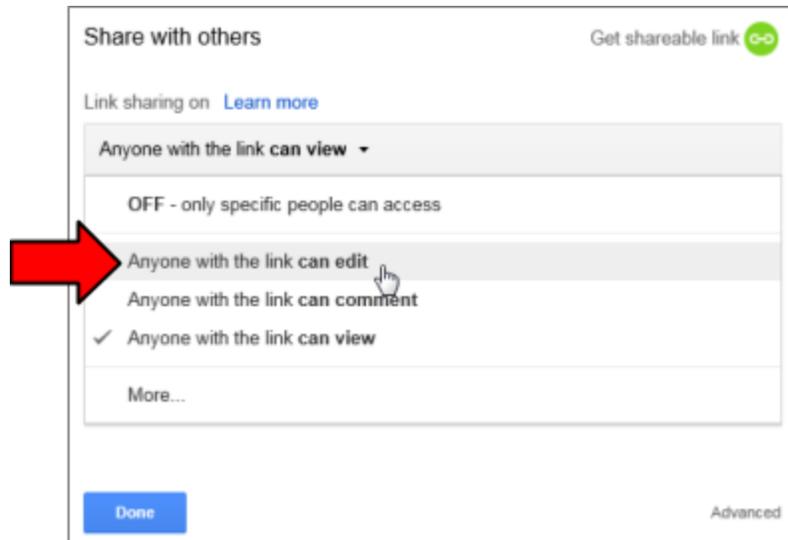
1. **Click once** on the file to **select** it.
2. **Click** on the “**Share**” button in the **Options Bar**.



3. The Share dialog box will open. Instead of typing in an email address like we did before, **click** “**Get shareable link**”.
4. **Notice** the long URL that appears in the screen. This is the URL that people need to go to in order to see your document. One way to share this URL is to put it in an **email**. We will demonstrate this shortly.
5. **Notice** that the access permissions are set to **view only**. We want our family to **edit** this document, so we need to change the access permissions.



6. **Click** on the dropdown list and **select** “Anyone with the link can edit”.



Isn't this dangerous? Won't strangers be able to edit my file?

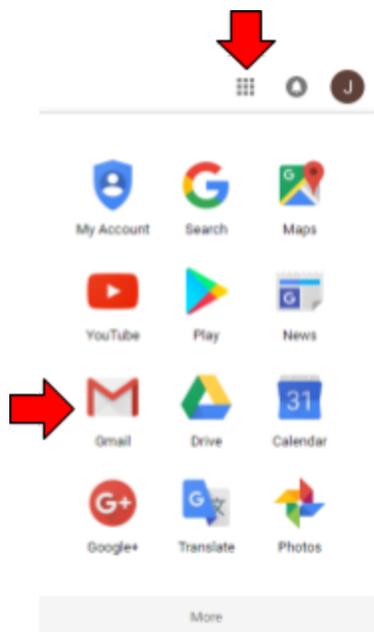
While it's true that anybody can open and edit this file, the file's URL is filled with so many random letters and numbers that it makes it essentially impossible for strangers to guess it. This means that, for all practical purposes, the only way to gain access to the file is to get the file's URL from somebody you know.

3) Emailing the link

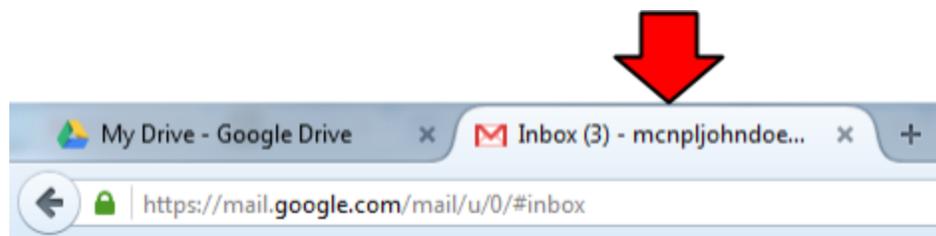
Now, let's pretend our partner is a family member and email the URL to our partner.

1. Before we close the Sharing dialog, we need to **copy** the URL to the **clipboard** so we can **paste** it into the email. Again, this URL is what each of our family members will need in order to access our document.
 - a. **Click** on the link. **Notice** how it **selects** the entire link for us.
 - b. **Press** **Ctrl** + **C** to copy it.
2. **Click** “Done” to close the Sharing dialog.

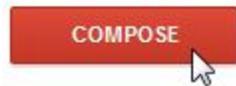
3. Now, let's open our **Gmail** account.
 - a. **Click** on the "Google Apps" icon in the Google Account Bar.
 - b. **Click** on "**Gmail**".



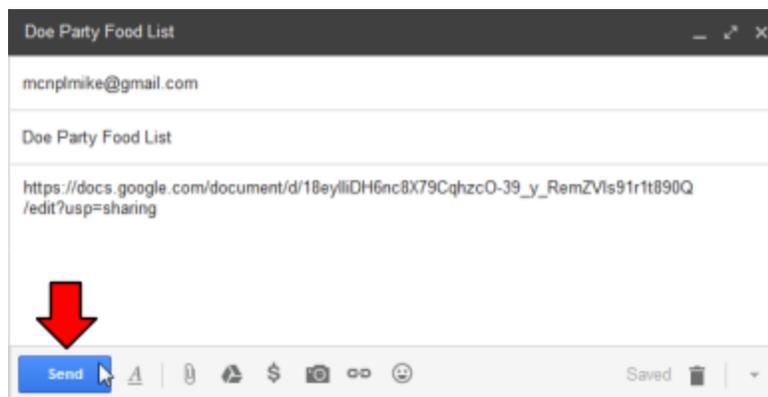
- c. **Notice** how Gmail opens in a **new browser tab**.



4. Now, let's compose a new email, and send it to our partner
 - a. **Click** the red "Compose" button on the left to start a new email.



- b. **Notice** how the new email window appears on the right side of the screen.
 - c. **Type** your partner's email address in the "To" field.
 - d. **Type** "<Your last name> Party Food List" in the "Subject" field.
 - e. **Click** in the body of the email and **press** Ctrl + V to paste the URL of the document.
 - f. **Click** "Send".



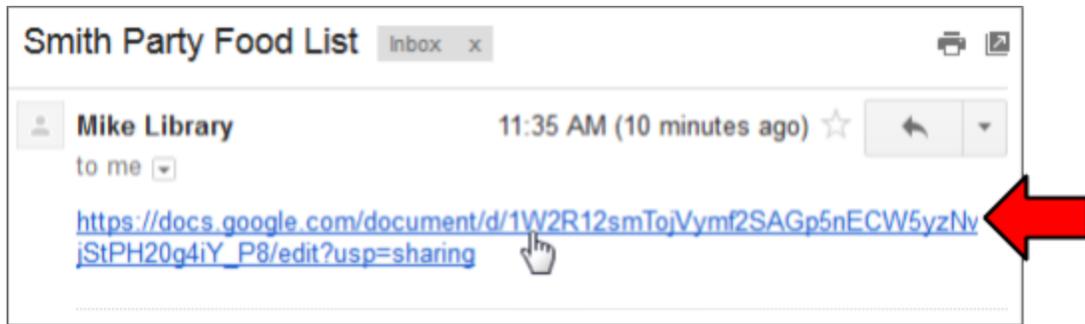
5. Once your partner sends his or her email to you, **click** the **Refresh button** at the top of the screen to check for new messages. You may have to **wait** up to a minute for your partner's email to appear.



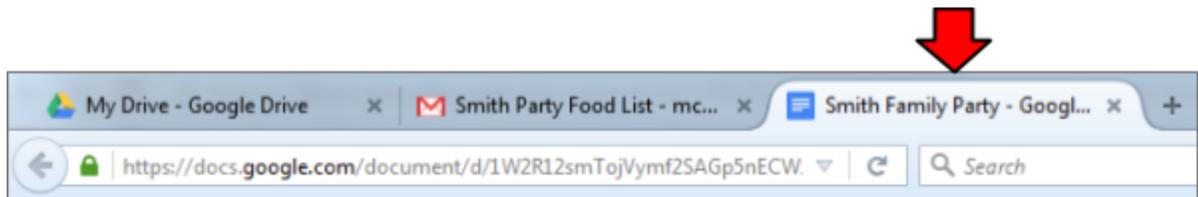
6. **Open** the email by **clicking** on the email's subject line: "<Last name> Party Food List".



7. **Click** on the URL in the email to open the document.



8. **Notice** how the document opened in a new browser tab.



9. **Add** some more dishes to the document.
10. **Close** the document by closing the browser tab.
11. **Close** the email browser tab.

Note:
Note that files that people share with you through shareable links do **not** appear in the "Shared with me" area of your Drive. The only files that appear there are the ones that people shared **directly** with you (by typing your email address on the Share screen).

URL Shorteners

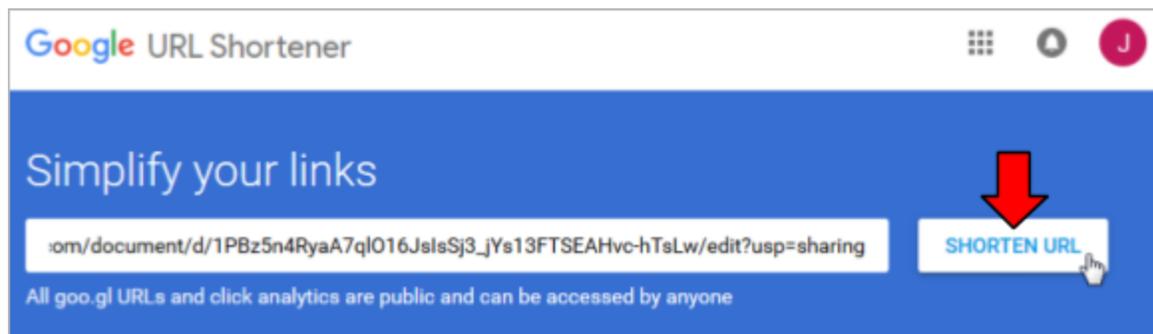
https://docs.google.com/document/d/1PBz5n4RyaA7q1016JsIsSj3_jYs13FTSEAHvc-hTsLw/edit?usp=sharing

Above is an example of what your file's URL probably looks like. Note how **long** it is. What if the person you're giving the document to does not have an email address? You simply cannot expect the person to type this all in by hand. Or what if you want to give the person the URL over the phone? Just imagine how long that would take and how error prone that would be.

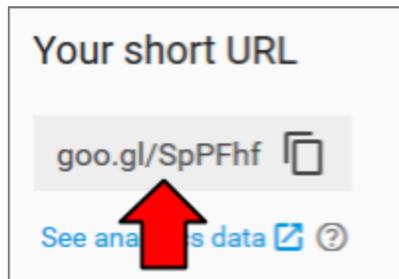


A **URL shortener** can be used to make long URLs like this much shorter. There are many URL shortener services on the Internet. Since this class is about a Google product, we will use Google's URL shortener service.

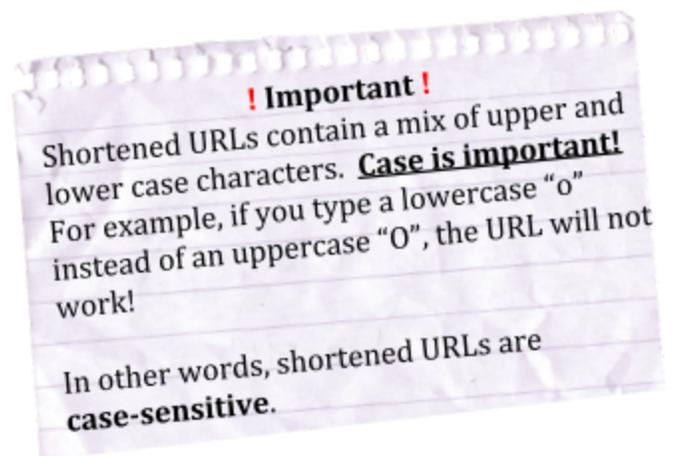
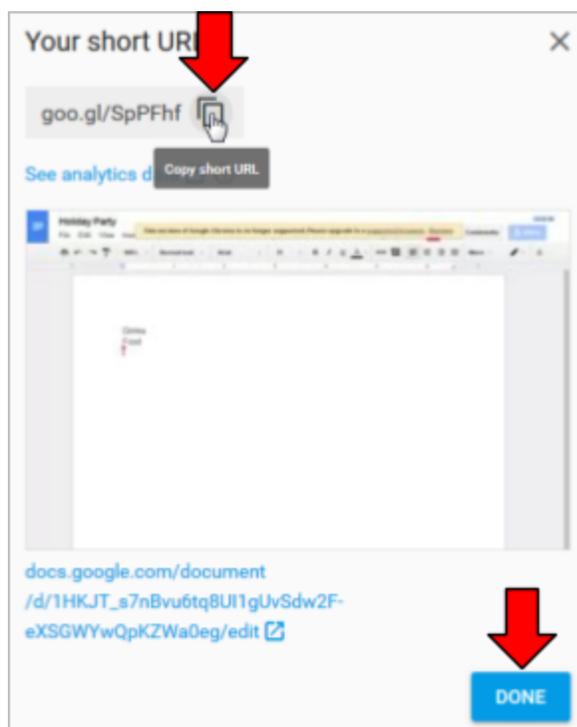
1. **Open** a new browser tab, and **type** "goo.gl" into the Address Field. This is not your typical ".com" address, but rest assured it is a valid web address! ("gl" is actually the top-level domain for the country of Greenland).
2. **Paste** the **URL** of the holiday party document you copied previously into the textbox on the page.
3. **Click** on the "I'm not a robot" checkbox, if one is present. This confirms that you are a **real person** and not a spammer.
4. **Click** the blue "Shorten URL" button.



5. A dialog box appears containing the **shortened URL**. **Notice** how much shorter it is!
6. **Note** that the URL might look strange because it doesn't begin with "www" or have a ".com" in it, but rest assured it is a valid URL.



7. **Click** the **Copy** button next to the URL to copy it to the clipboard. Then, **click Done**.

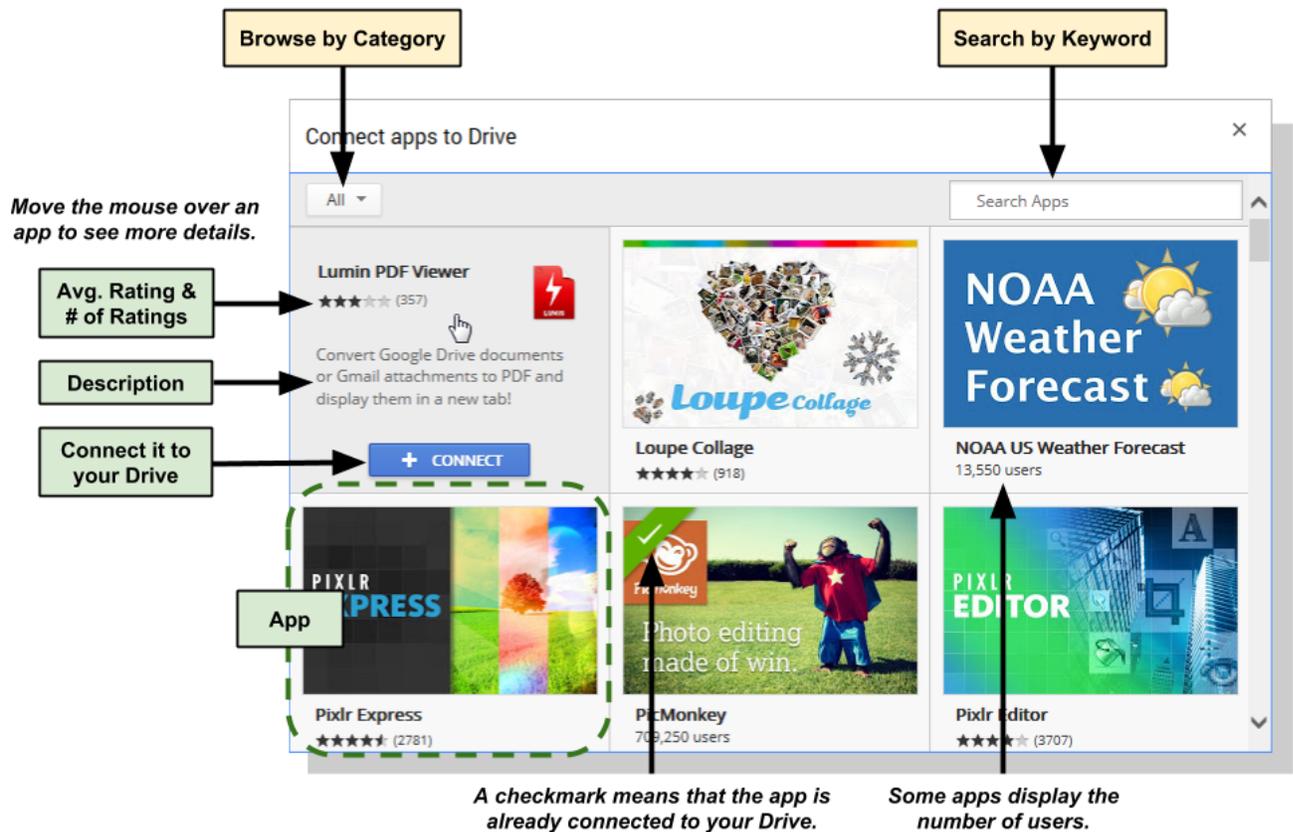


8. Now, let's confirm that it works.
 - a. **Open** a new browser tab.
 - b. **Press** + to paste the copied link.
 - c. **Press** to go to the link.
 - d. **Confirm** that it has taken you to the document.

Searching for Third-party Apps

Like many other mobile platforms (such as iOS and Android), Google Drive has a wide selection of third-party apps to choose from.

1. **Close** all browser tabs except for the one with Google Drive in it.
2. **Click** the “New” button, and **select** “More > Connect more apps”. This opens a dialog which allows you to browse or search for apps.



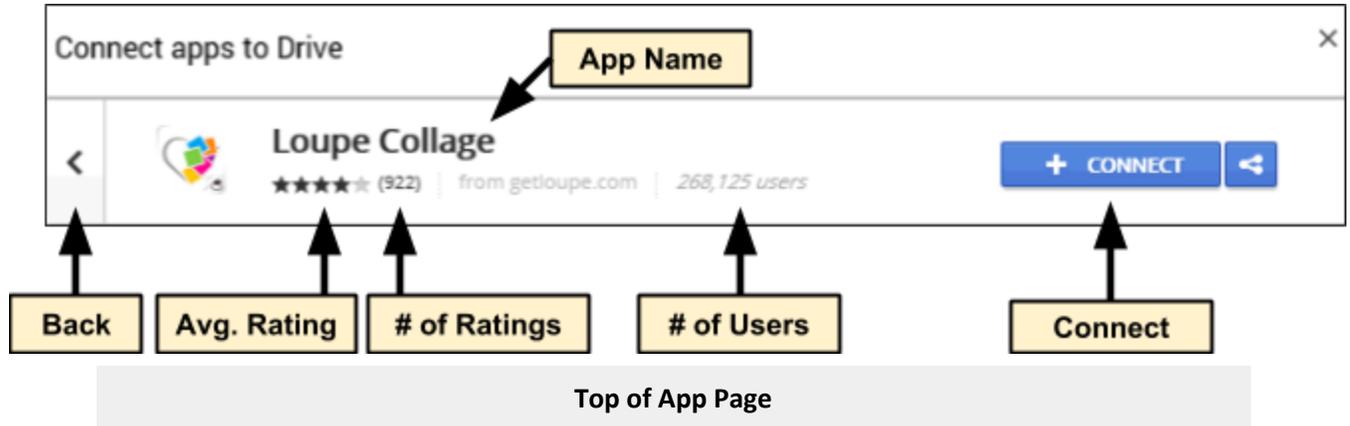
3. You can either **browse** for apps by category, or **search** for apps by keyword. **Select** “Productivity” from the category dropdown list. This will display all of the apps in this category. They are not displayed in any particular order.
4. **Hover** your mouse cursor over an app. **Notice** how this reveals more information about the app.
 - a. *Average Rating:* The average rating that people gave the app. If an app has less than 3 stars, you should be careful!
 - b. *Number of Ratings:* The number of user ratings. If an app has less than 100 ratings, you should be careful!
 - c. *Description:* A short description of the app.
 - d. *“Connect” button:* Clicking this button will add the app to your Drive account.
5. **Click** on an app (somewhere above the “Connect” button). This opens a page containing screenshots, a more detailed description, and reviews.

Teacher's Note:
Have everyone click on the same app.

The App Page

This page contains detailed information about the app, as well as user reviews. Let's start at the top of the page, and make our way downwards, as there's a lot of material to cover in this screen.

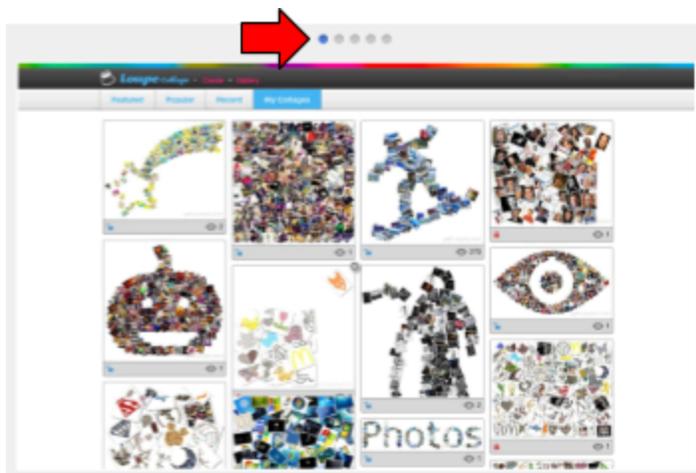
- Let's focus on the top of the page first:



App Name	The name of the app.
Back	Takes you back to the list of apps or search results.
Avg. Rating	The average rating that people gave the app. If an app has less than 3 stars, you should be careful!
# of Ratings	The number of user ratings. If an app has less than 100 ratings, you should be careful!
# of Users	The number of Drive accounts that the app is connected to. If an app has less than 100,000 users, you should be careful!
Connect	Adds the app to your Drive.

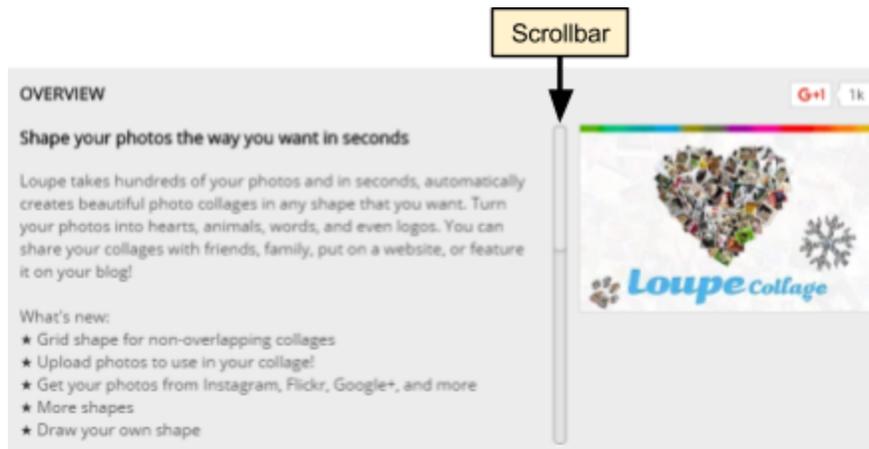
- Screenshots**

Next, a **screenshot** of the app is displayed. Point to the little circles to view the other screenshots.



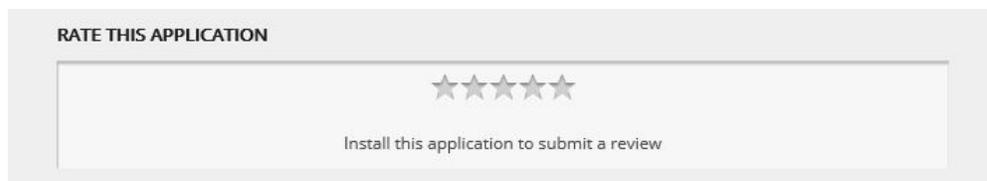
3. Detailed Description

Next comes a more detailed description of the app. Note that there may be a **scrollbar** in this section.

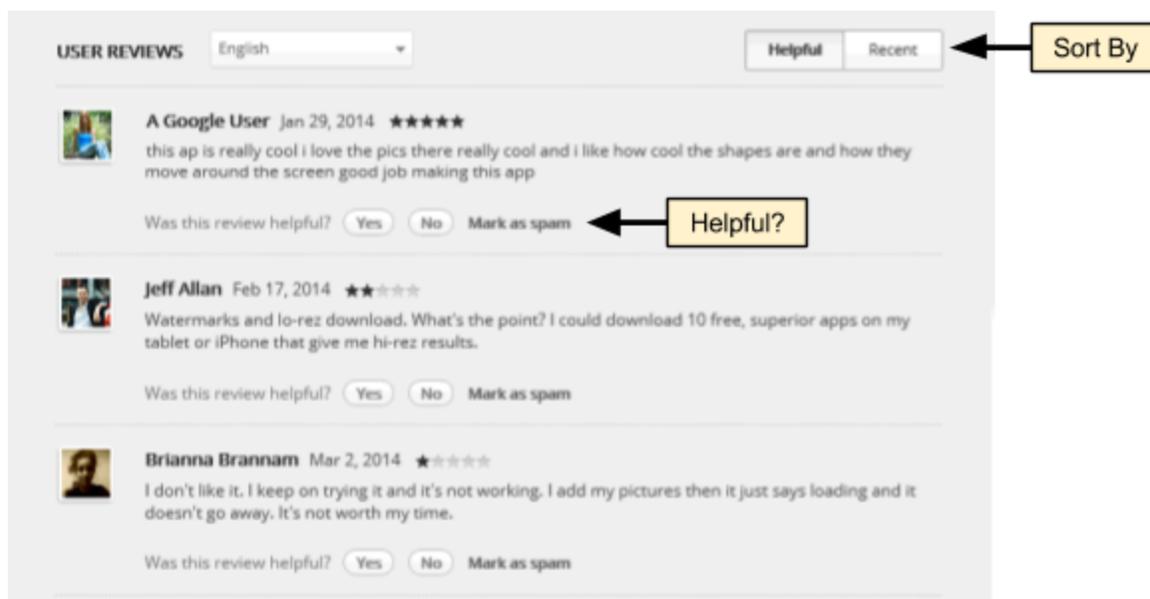


4. Write a Review

Once you connect an app to your Drive, Google gives you the ability to rate the app. If this app were connected to our Drive, we could write a review and give it a star rating.



5. At the very bottom are the user reviews. They can be sorted by most **Helpful** or most **Recent**. As you're reading through the reviews, you can flag individual reviews as being "helpful" or not by clicking the appropriate button. A "helpful" review doesn't mean it's a positive or negative review--it means that it helped you make a decision as to whether or not to use the app.



What a Good App looks like

The quality of each app varies greatly. Some are very good, and others are very bad. Therefore, it's always good to look at the average rating and read some reviews before connecting to it. Let's see what the reviews for Pixlr Express (a good app) look like.



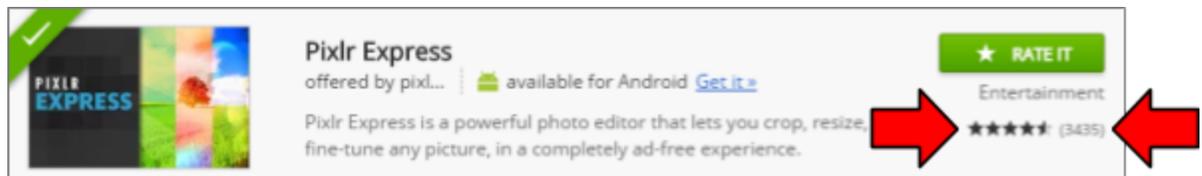
1. **Click** the “**Back**” button.
2. **Type** “**pixlr express**” into the search box and **press** .
3. Pixlr Express appears at the top of the search results.

a. **Average Rating**

Notice the **stars** to the right. This shows the **average rating** people gave the app. At the time of this writing, Pixlr Express has an average rating of 4.5 out of 5 stars. This is a very good rating! Again, if an app has less than 3 stars, you should be careful.

b. **Number of Ratings**

Notice the number to the right of the stars. This is the **number of ratings** that were submitted for the app. At the time of this writing, Pixlr Express has 3,496 ratings, which is a good amount of ratings. Again, **if an app has less than 100 ratings, you should be careful.**



4. Pixlr Express's **average rating**, combined with its **number of ratings**, suggests that this is indeed a good app. But let's investigate further. **Click** on “**Pixlr Express**” in the search results.
5. **Notice** how Pixlr Express has **over 500,000 users**. This is a sign of a good app. **If an app has less than 100,000 users, you should be careful.**
6. **Scroll down** the page to the user reviews.



Teacher's Note:

If you feel comfortable improvising, read the reviews you see on the screen. Point out both positive and negative reviews.

If you don't feel comfortable doing this, you can display **slide 6** and then read what's on the next step.

7. A few people say that certain features don't work. But the rest are overwhelmingly positive.

 **Rob Meres** Modified Jul 21, 2015 ★★★★★
Rotate image-> Apply-> Save-> Open-> NOT ROTATED
This program isn't worth the price. Yeah, finally figured it out.
Was this review helpful? Yes No Reply | Mark as spam or abuse

 **Herman J. Mortimer** Modified Jul 23, 2016 ★★★★★
The photo zoom inside the collage doesn't work for my Windows 10 laptop and that's the deal-BREAKER (deal-killer) in my book. It isn't good as the Android app, which is a shame. I agree with several people on here with the one-star rating. Until this gets fixed: This is uninstalled.
Was this review helpful? Yes No Reply | Mark as spam or abuse

 **Sean Piercy** Modified 3 days ago ★★★★★
Hands down the best image editing app I've found at least for adding filters, overlays, etc, and saving them out at the same resolution I imported them at. Many others scale down your photo which doesn't fly with me. I used this app months ago and had an issue with it but it seems they fixed it. Thanks Autodesk devs! Would definitely recommend it now. Please add more filters soon. This is the only area that's lacking (a little).
Was this review helpful? Yes No Reply | Mark as spam or abuse

 **R.E. Carroll** Modified May 2, 2016 ★★★★★
This is a great tool for photo editing and layouts! There's a wide layout design selection and i love that you can add text and graphics, as well. It's very easy to use and you can't get better than free!
Was this review helpful? Yes No Reply | Mark as spam or abuse

 **foevr dark** Modified Feb 17, 2016 ★★★★★
THE BEST EDITING TOOL I HAVE EVER USED! I AM AN AVID PHOTOGRAPH LOVER SO I LIKE MY PHOTOS EDITED AND CUSTOMIZED ACCORDING TO MY TASTE BUDS, AND PIXLR EXPRESS IS JUST THE RIGHT TOOL FOR DOING SO. I HAVE TRIED MANY APPS THOUGH,YET NONE OF THOSE ARE AS SIMPLER AND EFFICIENT AS PIXLR.
Was this review helpful? Yes No Reply | Mark as spam or abuse

 **Sylvia Lee** Modified Jan 13, 2016 ★★★★★
this is absolutely the best app i could have install
i was able to edit a photo that very distorted...
plus i was able to finish my brochure... Very Pleased
Was this review helpful? Yes No Reply | Mark as spam or abuse

What a Bad App looks like

Now, let's see what a bad app looks like.



1. **Click** the “**Back**” button.
2. **Type** “eml” into the search box.
3. **Click** on “**EML Manager**”.
4. **Scroll down** the page to the user reviews.
5. **Notice** how many of them are 1 star. Also **notice** how many comments point out that the app is not free, they cannot uninstall the app, and the app requests too many permissions. This is a good example of an app you should probably avoid.
6. And **notice** how many **users** of this app there are (**214** at the time of this writing). When that number is in the triple or double digits, it could mean the app is just new. But often, it's a sign that the app is bad.

Teacher's Note:

You shouldn't need to improvise here, as the negative comments for this app are pretty consistent.

USER REVIEWS English ▾ Helpful Recent

Jessica Stellato Sep 3, 2014 ★★★★★

Cannot uninstall it even though they send you a link. NOW I can't install any other eml readers.

Was this review helpful? Yes No [Mark as spam](#)

Kevin Watson Oct 6, 2014 ★★★★★

Requested far too many rights on my Google account

Was this review helpful? Yes No [Mark as spam](#)

Hristo Bojkov Oct 14, 2014 ★★★★★

Request to many rights

Was this review helpful? Yes No [Mark as spam](#)

Alexandre Dupont Oct 17, 2014 ★★★★★

not free, not working on trial version, can't uninstall. Use at your own risk or if you like to waste your time.

Was this review helpful? Yes No [Mark as spam](#)

Dustin Clark Oct 27, 2014 ★★★★★

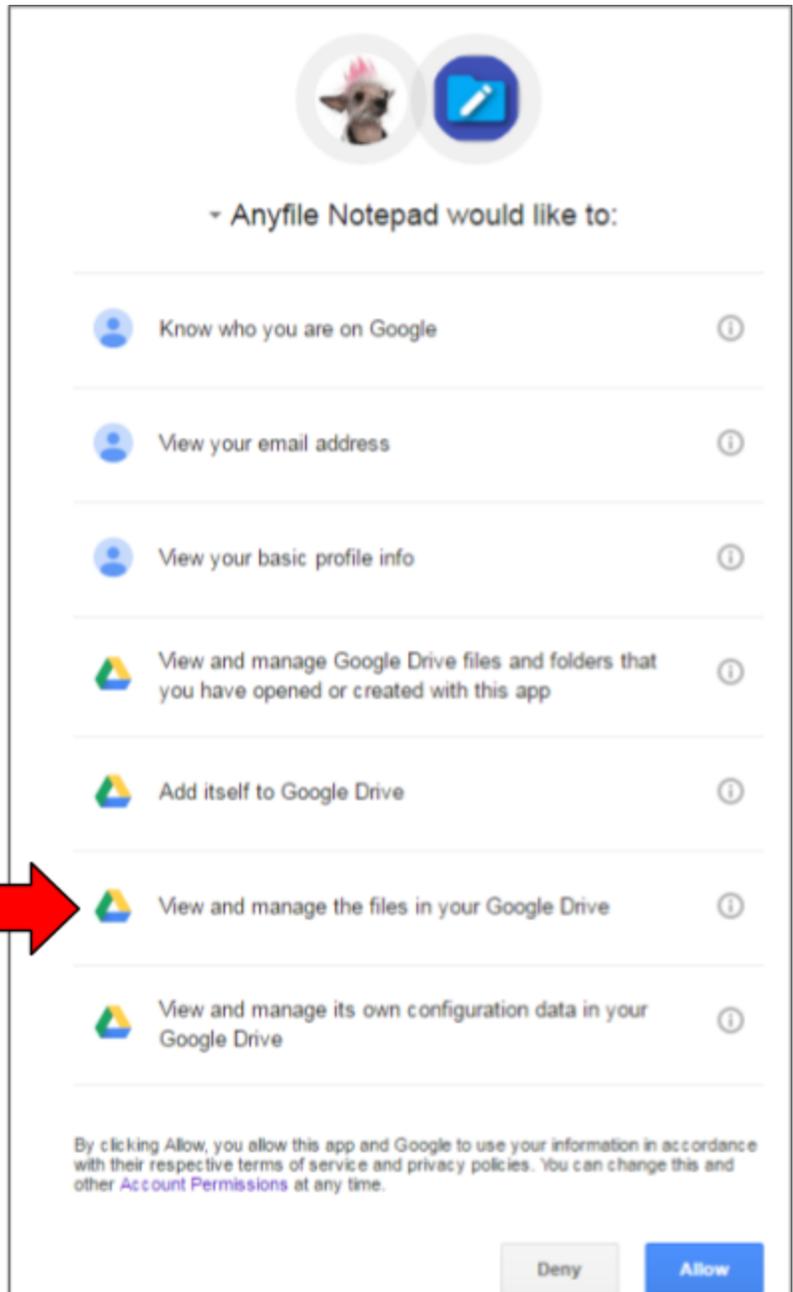
Too many rights, can't uninstall... and it's only for a free trial, which you don't see until after you add it. Horrible app.

Excessive Permissions

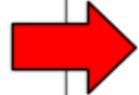
Another characteristic of a bad app is when it requires too much access to your account. Note that you can't tell what permissions an app requires until you try to use it for the first time.



Below is an example of such as app. Most of the permissions it requests are fine, but there is one permission that is scary: "View and manage the files in your Google Drive". This permission gives the app permission to do **whatever** it wants with your files, **whenever** it wants! Therefore, **you should never use an app that requires this permission unless you strongly trust the creator of the app.**



Danger, Will Robinson!



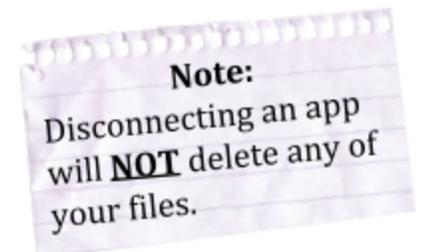
Disconnecting an App

If you no longer want to use an app, you can **disconnect** it from your Drive. This is equivalent to “uninstalling” an app from your computer or smartphone.

Why would I need to disconnect an app?

Unlike apps on your desktop computer or smartphone, Drive apps do not take up storage space. So why bother disconnecting an app from your Drive? Here are some reasons:

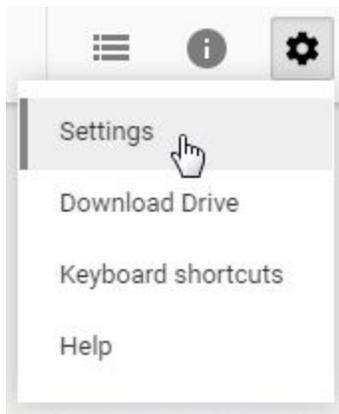
1. You **don't use it anymore** and do not want it to appear in the “New” menu.
2. You found an app that's **better** than the app you're currently using and no longer want to use the old app.
3. The app begins to **abuse the access permissions** you gave it when it was initially connected to your Drive. This rarely happens, but it's something you should watch out for.



Demonstration

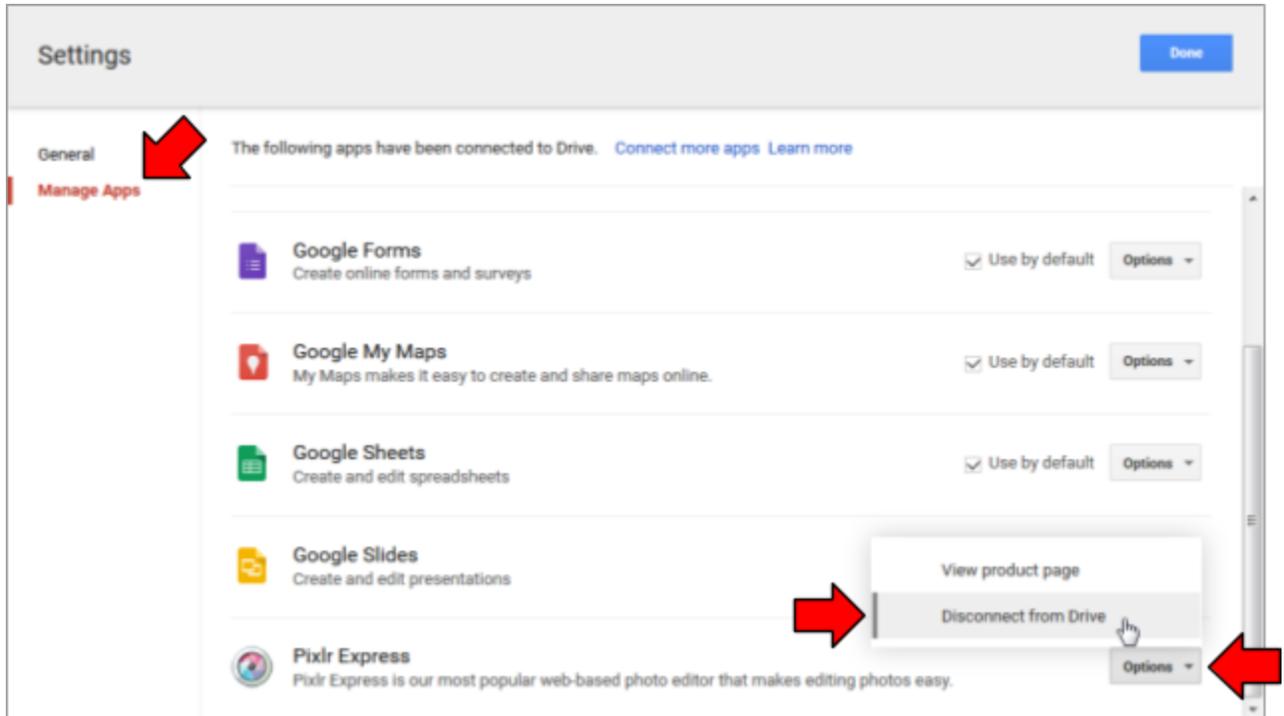
To demonstrate, we will disconnect the Pixlr Express app from our Drives.

1. If the **Apps dialog** is still open, **close** it.
2. **Click** on the **Settings** button in the **Options Bar**, then **select** “**Settings**”.

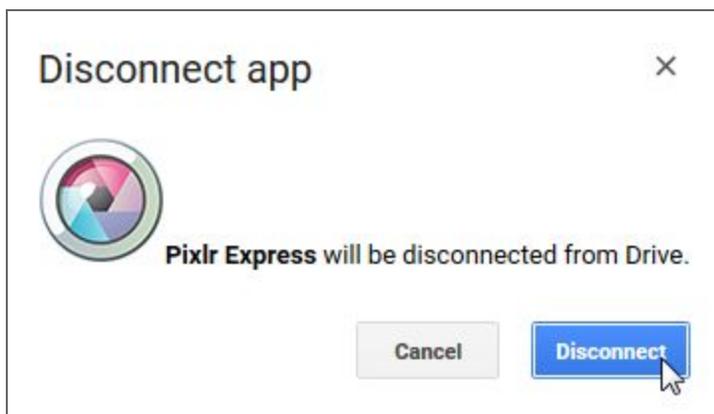


3. A “**Settings**” dialog box will open. **Click** on “**Manage Apps**” to view a list of all the apps that are connected to your Drive.
4. **Find** the “**Pixlr Express**” app.

5. **Click** on the app's "Options" button and **select** "Disconnect from Drive".



6. A confirmation dialog will appear. **Click** on "Disconnect".



7. **Click** "Done" to exit the **Settings** dialog.

Conclusion

As shown, Google Drive is great for sharing files and collaborating with people across the Internet. It's like a computer that runs in your web browser--it stores your files and uses apps to open them. And since all of your files are on the "cloud" (on the Internet), you can access them from any Internet-connected computer.

The lesson plan for this course was written using the "Google Docs" app. Its permissions are configured to allow anybody to view it. This means that you can add the lesson plan for this class to your own Drive account and view it at your leisure. And because the file is in Drive, you'll always have the latest version of the file.

1. **Open** a new browser tab.

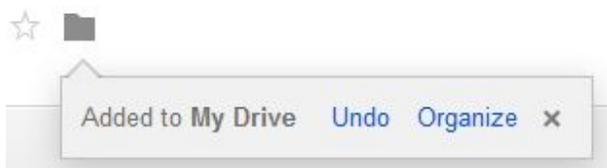
See Handout 3 for the URL

2. **Go** to goo.gl/ufdMa4.

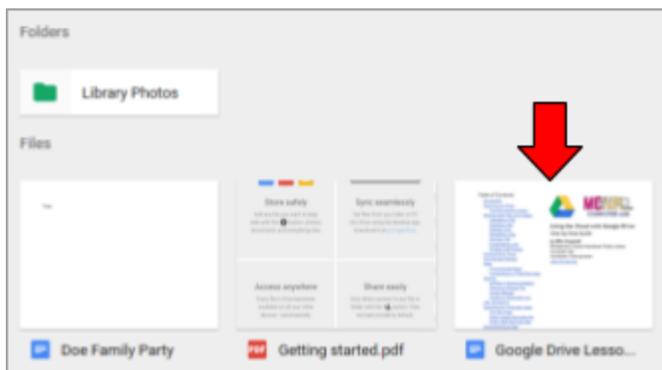
3. The lesson plan document will open up. The document's sharing settings is configured to allow anyone will the link to open (but not edit) the document. A Google Account is **not required**.
4. Now, let's put the file in our **Drive** so we can refer back to it later. **Click** on the **Add to My Drive icon** at the top of the screen.



5. **Notice** the message that appears. It says "Added to My Drive". The file has been added to your Drive.



6. **Close** the **document** (the browser tab) to return to your Drive. You should see the file (it may take up to a couple minutes to appear).



Introduction to the Google Docs app (supplemental)

Google Docs is one of the apps that comes already connected to your Drive. It is a word processor, which means it can be used to do things such as write letters. What is really special about this app is that it allows more than one person to edit a document at the same time. This is called **real-time collaboration**. We will be working in pairs to demonstrate this feature.

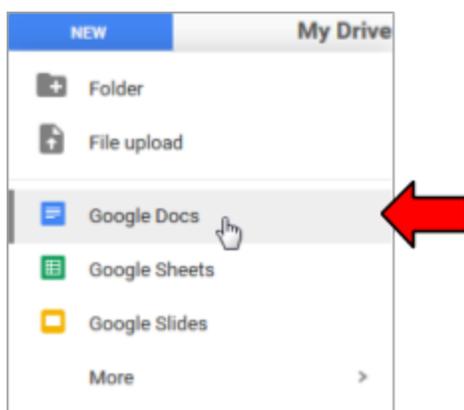
Let's pretend that we are creating a job resume, and we want a friend to help us create it. The person on the left will be the creator of the resume, and the person on the right will be the friend.

Creating a new document

1. First, we need to create a new document.

To the person on the left (and the instructor):

- a. **Click** on the blue "New" button.
- b. **Click** on "Google Docs". Our new document will open in a **new browser tab**.



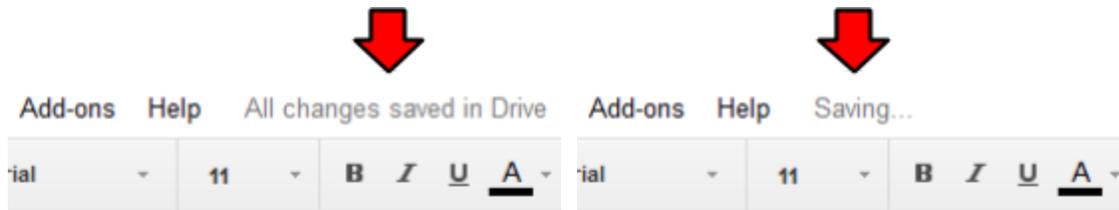
2. Let's give our document a name.

To the person on the left (and the instructor):

- a. In the upper-left corner of the screen, **click** where it says "Untitled Document".
- b. **Type** "(Your first name) Resume".
- c. **Press** .



- Before we add some content to this document, **notice** the words “All changes saved in Drive” to the right of the “Help” menu at the top of the screen. As we start typing, this will change to “Saving...”. Unlike traditional word processing programs, like Microsoft Word, Google Docs **automatically saves** your changes as you type.



- Let’s add some content to our document.
To the person on the left (and the instructor): **Type** your name.

Sharing the Document

- Now, let’s share our resume with our friend.
To the person on the left (and the instructor):
 - Click** the blue “**Share**” button in the upper-right corner.



- Type** your partner’s email address in the “**People**” field.
- Click** “**Send**”.
- Notice** the notification at the top of the screen, confirming that our document was shared with someone else.

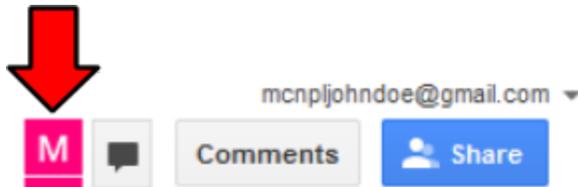


- Now, our friend needs to open the shared document.
To the person on the right:
 - Click** “**Shared with Me**”.
 - Double-click** on the resume to open it.

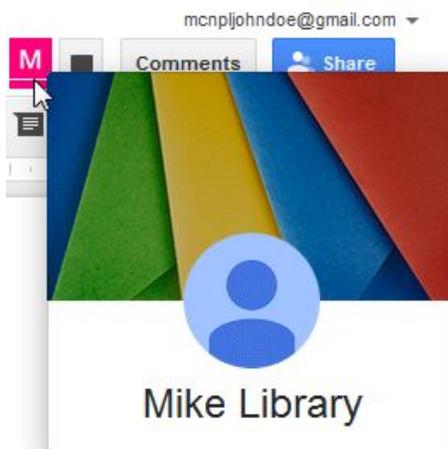
Collaborating on the Document

Many of Google's productivity apps, including Google Docs, support **real-time collaboration**. This means that multiple people can have the same document **open** at the same time and also **edit** the document at the same time.

1. **Notice** the brightly-colored box that appears in the upper-right part of the screen . This lets you know that somebody else currently has the document open.
If the person has a profile picture assigned to their account, then the person's profile picture will display here. Otherwise, it will be the first letter of their first name.



2. **Hover** your mouse over the box. The person's name will immediately appear.

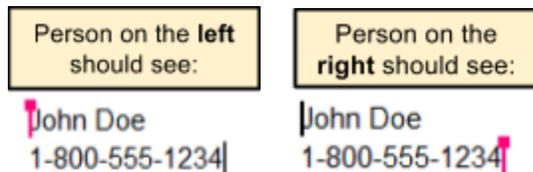


3. **Notice** the pink line to the left of the name. This shows you the location of your partner's insertion point.



4. Next, the person on the left is going to type some content into the document.
To the person on the right: **Watch** your screen--you will see the content appear on your screen as your partner types it.

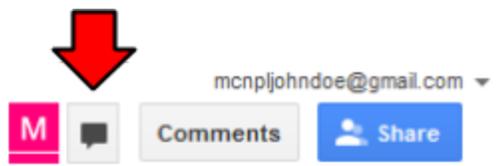
5. To the person on the left (and the instructor):
 - a. **Press** to go to a new line.
 - b. **Type** a made-up phone number.
6. To the person on the right: **Notice** how the letters appear as your partner is typing them. When you are viewing the document, you are seeing the **LIVE** document. Changes appear on your screen as other people make them. This makes Google Docs, as well as other apps on Google Drive, perfect for **collaboration**.



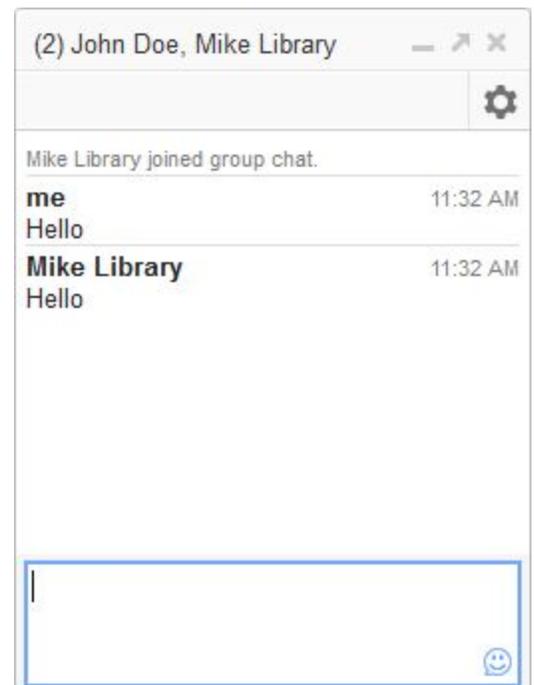
Group Chat

You can communicate with the people currently viewing the document using **group chat**.

1. **Click** on the “Show chat” button at the top of the screen.

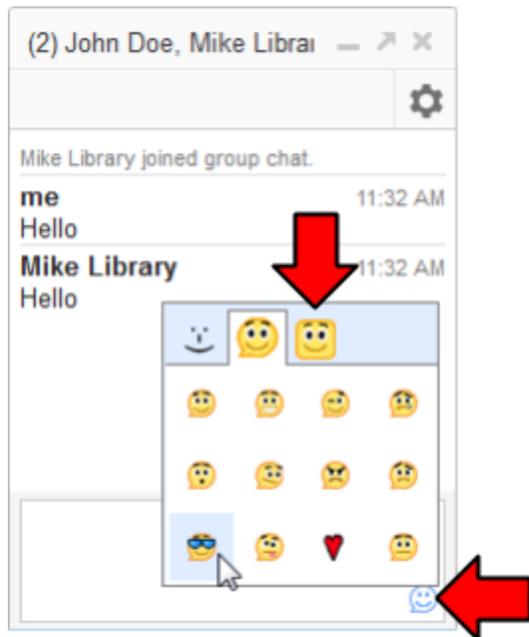


2. A chat window appears in the bottom-right corner of the screen. **Type** “Hello” and then **press** to send a message to your partner.
3. **Notice** how your message, as well as your partner’s message, appeared in the window.
4. **Notice** how the time that the message was sent is displayed to the right of the message.



If you want to have a little bit of fun, you can add **emoticons** to your messages. Emoticons are smiley faces that convey emotion, like happiness or anger.

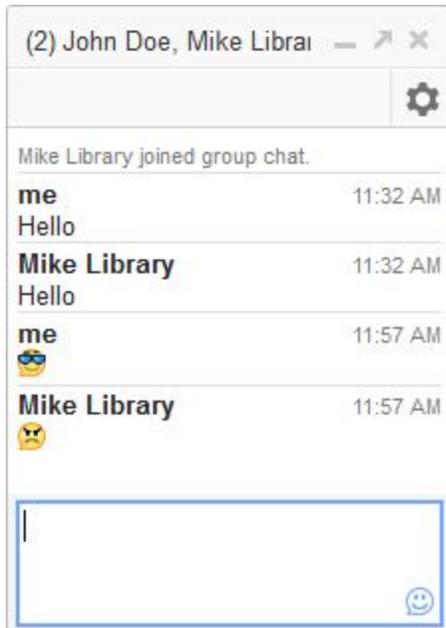
1. To add an emoticon to your message, **click** the “smiley face” icon in the lower-right corner of the message textbox.
2. There are three different styles of emoticons. **Switch** between the styles by **clicking** on tabs at the top.



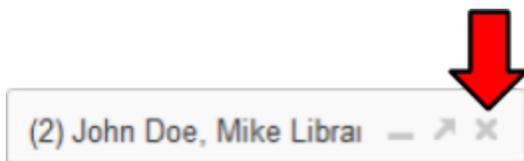
3. **Find** an emoticon you like and **click** on it to insert it into your message.
4. **Notice** how some strange symbols appeared in the message textbox instead of the icon you clicked on. That’s because only text can be sent through the chat. This is a text code for an emoticon. (Hint: Tilt your head sideways to the left. It kind of looks like a smiley face, doesn’t it!)



5. **Press** to send the message to your partner.



6. **Click** on the “x” in the upper-right corner of the chat box to close it.

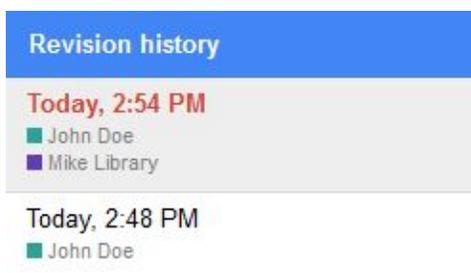


Revision History

The Revision History feature keeps track of all the changes that have been made to your document over time. It allows you to view previous versions of your document, as well as see what changes were made to your document, and by whom.

This feature also allows you to **revert back** to previous versions of your document. This is useful if you deleted something days or weeks ago and want to get the content back.

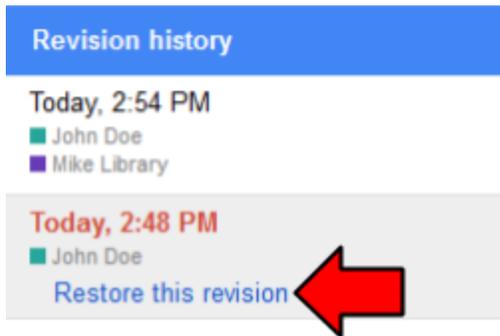
1. **Click** on “File > See revision history”.
2. **Notice** the panel on the right. It lists the “snapshots” Google Docs has made of our document over time. Our document has two snapshots. The most recent (top) snapshot is currently selected.



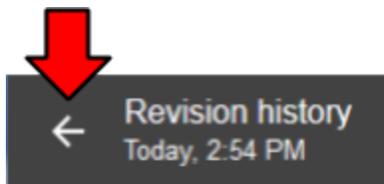
- The left part of the screen shows the content of our document at the currently selected snapshot. It color-codes the text to show the various additions and deletions that were made in this snapshot. It's showing us that two users have added content to the document, and highlights each user's contributions in different colors.

John Doe
1-800-555-1234

- You can turn this feature off if you'd rather not see the color-coding, by un-checking the box next to **Show Changes** in the lower right corner of the screen.
- Click** on the **previous snapshot** in the pane on the right (the one underneath the top one). **Notice** how it is showing us a blank document on the left. This snapshot was taken when we first created our Google Doc, so it is empty.
 - Notice** the "Restore this revision" link. Clicking this link would restore the content of that revision and delete all changes that were made to the document since that snapshot was created.



- Click** on the "back" arrow in the top-left corner of the page to return to the document.

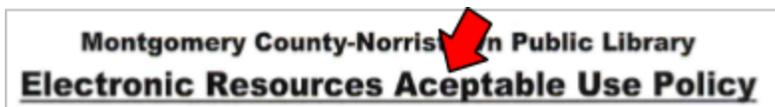


- This feature is useful for those rare occasions when you delete something that you wish you never deleted. When this happens, you can use the Revision History feature to restore the deleted content.

Optical Character Recognition (OCR) (supplemental)

Optical Character Recognition (OCR) is a technology that converts text found in a photograph to editable text on the computer. Google Docs provides rudimentary support for this by converting PDF files to editable Google Doc files. As we will see, it isn't perfect. But it can potentially save you a lot of work because it saves you the hassle of typing an entire document all over again by hand. Let's try this out.

1. First, let's look at the file we are working with. **Open** Internet Policy.pdf, located in the Temporary Patron Drive (P:).
2. **Scroll down** the document to inspect it.
 - a. **Notice** how the heading at the top consists of two lines of text.
 - b. **Notice** that the heading is bolded, and the second line is underlined.
 - c. **Notice** how it's two pages long.
3. **There's a typo!** Can you **find** it? ("Acceptable" should be spelled "Acceptable"). How can we fix this?

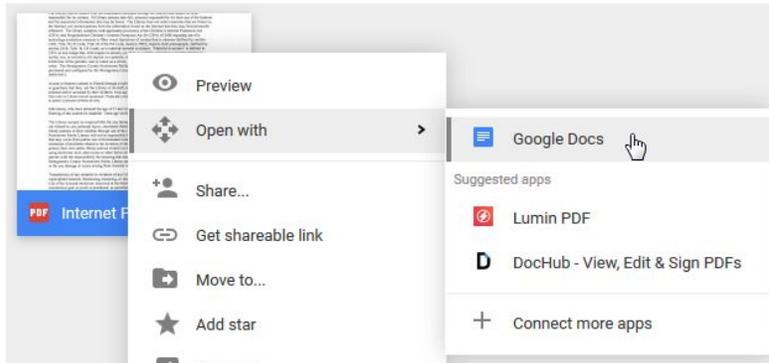


- a. Maybe we can edit it. Try to **click** on the word and **type**. That doesn't work because the program we're using to view this file is Adobe Reader, which does not let us edit PDF files.
- b. Maybe we could copy and paste the text into a word processor like Microsoft Word, make our correction, and then reprint it.
 - i. Try to **highlight** some of the text. It lets you draw a **box** around some text, but that's not the same as highlighting it.

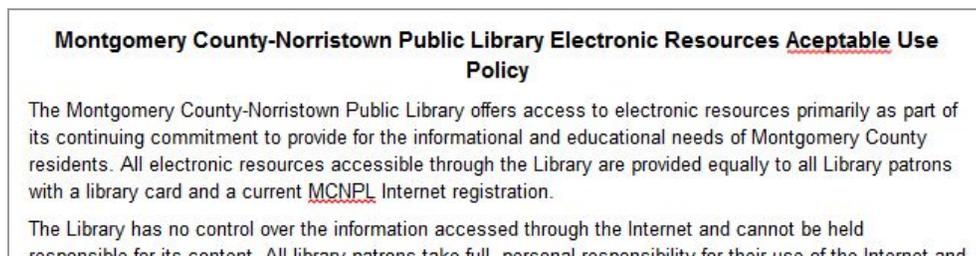


- ii. It's doing this because this PDF file is essentially a **photograph** of the original paper document. The scanner we used to scan the original paper copy took a "picture" of the document and saved that picture inside of a PDF file.
- c. When a PDF file is saved in this way, there's not much you can do in terms of editing. However, we **could** try using the **Google Docs OCR** feature to convert it to editable text. That way, we wouldn't have to type the whole document all over again just to make one tiny change.

4. First, you have to **upload** the **PDF file** to your Drive. (Teacher: See if they can do this themselves).
 - a. **Click** the blue “New” button and **select** “File Upload”.
 - b. **Navigate** to the Temporary Patron Drive.
 - c. **Select** “Internet Policy.pdf” and **click** “Open”.
5. Now that the PDF file is uploaded to our Drive, the next step is to open it in Google Docs. **Right-click** on the file, **point** to “Open with”, then **select** “Google Docs”



6. **Notice** how a new tab opens. It may take a few seconds for the document to appear because Google Docs has to do some processing in order to convert the scanned image to text.
7. When the document opens, **notice** how we can click inside the document and edit the text!
8. **Correct** the misspelled word.
9. **Notice** that much of the formatting was lost. This is one of the downsides to OCR.
 - a. The heading is not broken up into two lines like before
 - b. The heading’s font is different.
 - c. The heading is not underlined.
 - d. The document is now **three** pages instead of **two**.

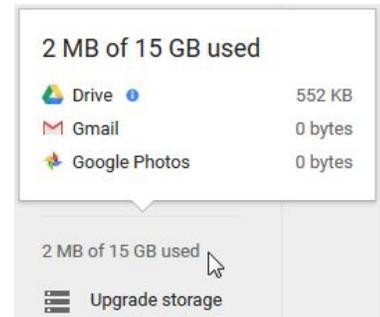


10. The text content was converted pretty well though. There’s only one mistake: The fifth paragraph merges the words “County” and “Norristown” into a single word.
 - a. **Note** that the quality of an OCR conversion depends heavily on the quality of the original scan or photograph. Our scan was very good quality, so there are few mistakes. However, if the paper was crumpled or dusty or warped in any way, the OCR reader would have more trouble reading it.

11. Now that we've corrected the spelling mistake, let's **re-save** the file as a PDF. To do this, we will use the Google Doc download feature.
 - a. **Open** the File menu and select "Download As".
 - b. This lists the various file formats that you can convert your Google Doc to. **Select** "PDF Document (.pdf)" from the list.
 - c. **Save** the file to the Temporary Patron Drive.

Managing your Storage Space (supplemental)

In the bottom-left corner of the screen is your **storage quota**. All Google Accounts get **15 GB** of free storage space to use across all Google services. This means that the files in your Drive, as well as, for example, the emails in your Gmail account, all count toward that 15 GB limit (however, there is one exception--Google Doc, Sheets, and Slides files do **not** count toward your quota).



15 GB is a lot of storage space. Unless you are an avid photographer or an aspiring filmmaker (photos and movies take up a lot of storage space), you shouldn't run out of space any time soon. But if you *do* start getting low, you'll want to either **delete** unused files or **purchase more space** (by clicking on the "Buy more storage" link).



Hovering your mouse over the storage quota shows you a detailed **breakdown** of how much storage space each Google service is using. And **clicking** on the blue "i" icon next to "Drive" conveniently gives you a list of all of your Drive files **sorted by file size**, so you can start deleting the largest files first.

The difference between KB, MB, and GB

Looking at Fig 4, you might be confused about the numbers that you see. "What does **2 GB** mean? Is it more or less than **304 KB**?" To put these units of measurement in perspective, consider the following real-life scenario. When you buy a gallon of milk at the store, the cashier doesn't tell you, "That will be three hundred and forty cents, please". One dollar equals one hundred cents, so instead, the cashier says, "That will be three dollars and forty cents, please". The same idea is used when measuring computer storage space.

Just like the smallest unit of measurement with money is "cent", the smallest unit of measurement with computers is **byte** (well, technically it's "bit", but for our purposes, we just have to worry about "byte"). So, just like 100 cents equals 1 dollar, 1,024 bytes equals one "kilobyte" (or "KB" for short). Similarly, 1,024 kilobytes equals one "megabyte", and so on.

The table below shows the different types of computer storage units of measurement, from smallest to largest. To put these sizes into perspective, the average song takes up about 3-4 MB (about 1 MB per minute), a high resolution photo might take 2-3 MB, and an email only takes around 10-15 KB.

1 byte or 1 B	The smallest amount of measurable space.
1 kilobyte or 1 KB	1,024 bytes (roughly 1,000 bytes)
1 megabyte or 1 MB	1,024 kilobytes (roughly 1,000 kilobytes)
1 gigabyte or 1 GB	1,024 megabytes (roughly 1,000 megabytes) Google Drive gives you 15 GB

1 terabyte or 1 TB

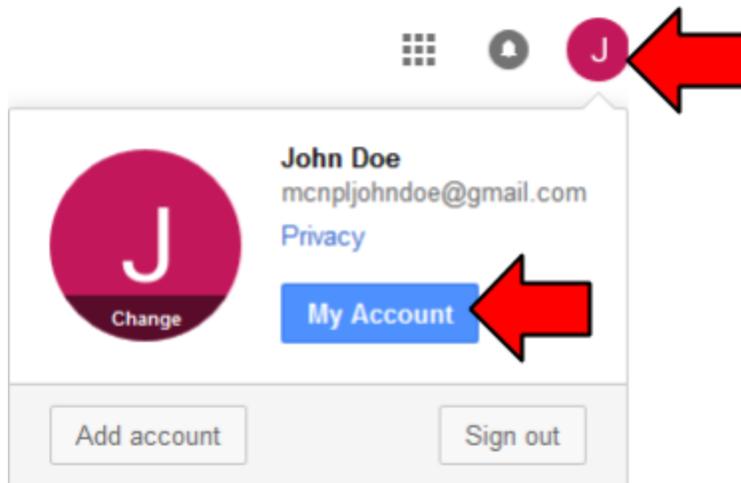
1,024 gigabytes (roughly 1,000 gigabytes)

Security and Privacy (supplemental)

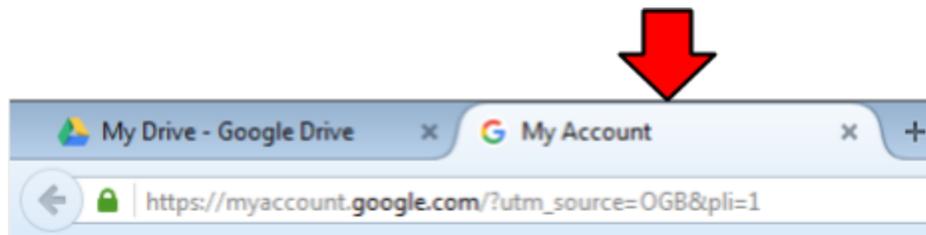
Google provides a number of “checkups” to help secure the data in your Google Account.

To get to your Google Account page:

1. **Click** on your profile picture in the Google Account Bar.
2. **Click** on the blue “My Account” button.

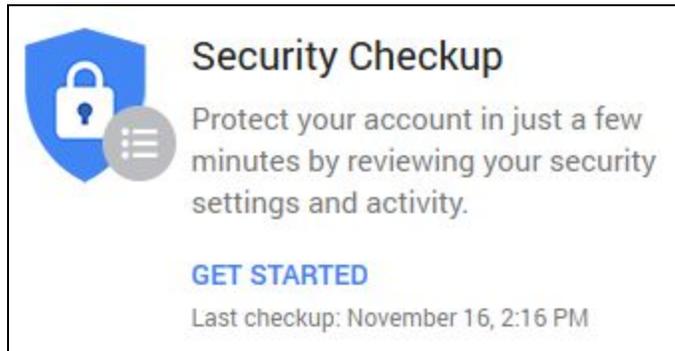


3. **Notice** how your Google Account settings open in a **new browser tab**.



Security Checkup

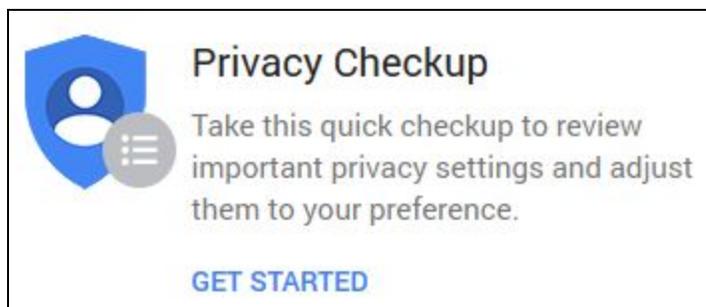
Under the “Sign-in & security” header, **notice** the “Security Checkup” section. Clicking this will take you through a number of steps to ensure that your account is secure.



- **Recovery Information**
Asks you to review your recovery phone number and recovery email. **Important:** These will be used to gain access to your Google Account in the event that you forget your password, so make sure you set them!
- **Connected Devices**
Show you a list of devices and locations where your account was signed into. If you see anything suspicious in this list (for example, a sign-in from Russia), then it could mean someone else has gained access to your account. If something looks wrong, the checkup will guide you through the appropriate steps to secure your account.
- **Account Permissions**
Shows you a list of apps and websites that are connected to your Google Account (like the Pixlr Express app we connected to our Drive accounts). If there is anything that looks unfamiliar, you can remove them from this list so they can no longer access your Google Account.

Privacy Checkup

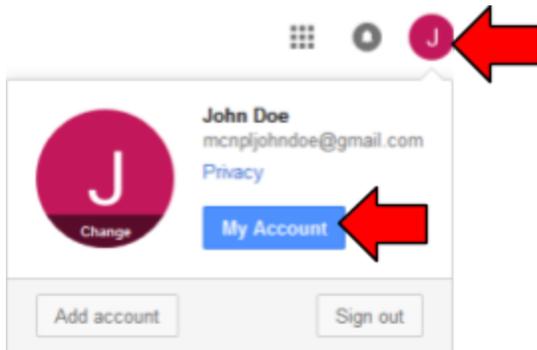
Under the “Personal info & privacy” header, **notice** the “Privacy Checkup” section. Clicking this will take you through a number of steps that will allow you to adjust the kind of information Google stores about you. For example, did you know that Google keeps track of your geographical location over time? You can turn this off from this screen.



Downloading all your Drive files (supplemental)

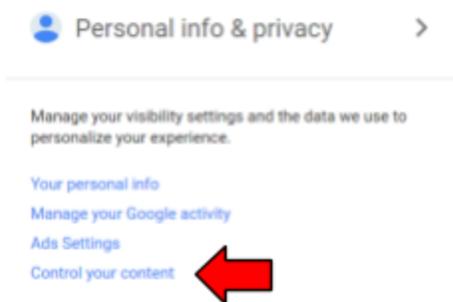
Google provides the ability to download all of the data in your Google Account, including your Drive files. This is useful if you want to create a backup of your data, or switch to a different cloud service.

1. **Click** on your profile picture in the Google Account Bar.
2. **Click** on the blue “My Account” button.

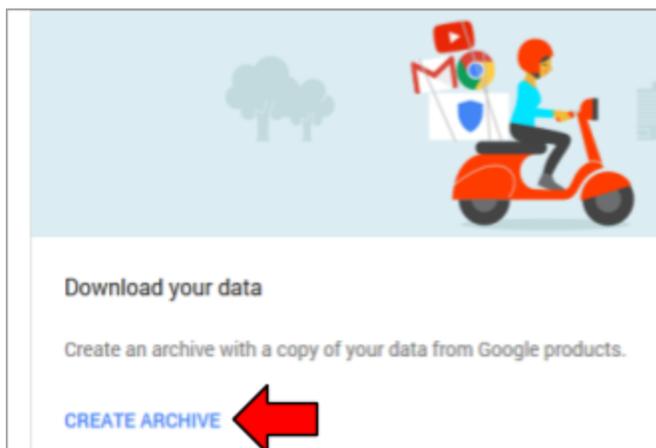


Note:
Any files that were **shared** with you (in other words, files that you are not the owner of), will **NOT** be downloaded using this utility!

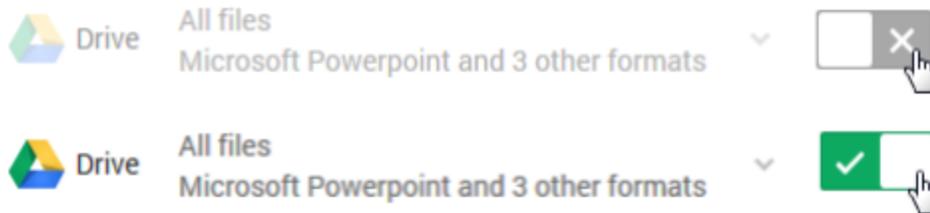
3. Under the “Personal info & privacy” section, **click** “Control your content”.



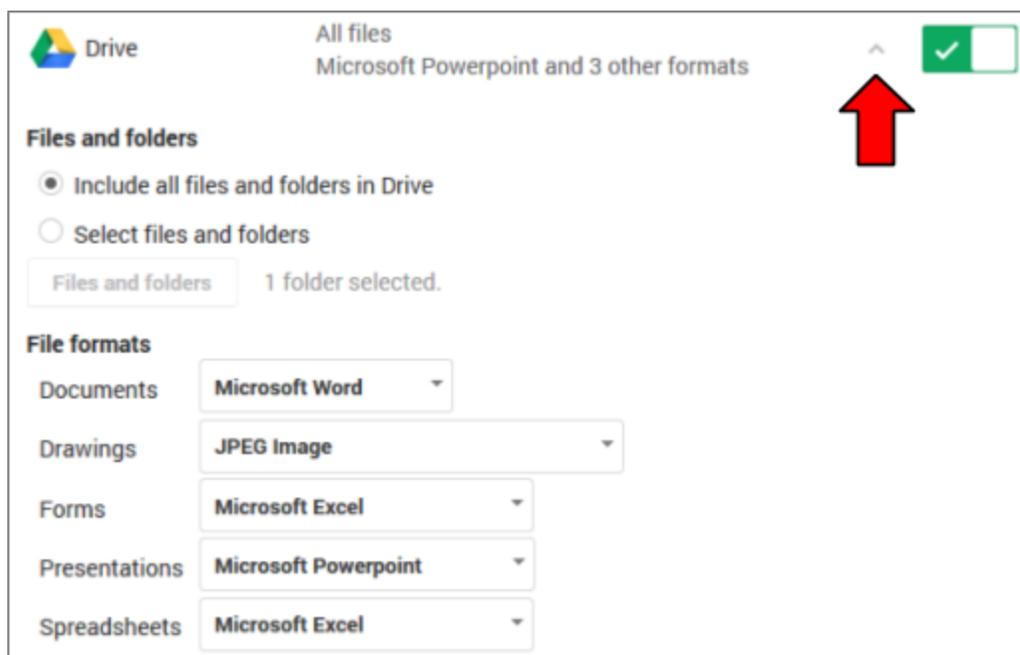
4. Under the “Download your data” header, **click** “Create Archive”.



5. The next screen lets you choose which Google services you want to download data from. By default, all services are selected. We are just going to download our Google Drive data, [click](#) **"Select none"** to deselect everything.
6. Next, [click](#) on the "X" next to Google Drive to enable it.



7. [Click](#) on the chevron to the left of the green checkmark to see additional options.
 - a. **Files and Folders:** Lets you select specific files and folders to download if you don't want to download everything. We will leave "Include all files and folders in Drive" selected.
 - b. **File Formats:** Lets you choose what file formats to convert various Google app files to, such as Google Docs files. We will leave the currently selected options selected.
 - i. Documents: Google Docs files
 - ii. Drawings: Google Drawings files
 - iii. Forms: Google Forms files
 - iv. Presentations: Google Slides files
 - v. Spreadsheets: Google Sheets files



8. [Click](#) "Next" at the bottom of the page.

9. The next screen allows you to customize the archive file that is generated.
 - a. **File type:** All of our Drive files will be compressed into a **single file**, called an **archive**. There are many different archive file formats. The most common one is ZIP, which is the currently selected option.
 - b. **Delivery method:** Allows you to choose how Google will give you the final archive file. You can have it delivered to your email, or even have Google upload it to another cloud service, such as Microsoft OneDrive or Dropbox. We will leave “Send download link via email” selected.

Customize archive format

Choose your archive's file type and whether you want to download it or save it in the cloud.

File type

.zip ▾

Zip files can be opened on almost any computer. Archives larger than 2GB will be split into multiple .zip files.

Delivery method

Send download link via email ▾

After we finish creating your archive, we'll email a link so you can download it to your personal device. You will have one week to retrieve your archive.

Create archive

10. **Click** “Create archive”.
11. The next screen shows you the progress of the archive. Because we hardly have anything in our Drive accounts, let's **wait** for it to finish. It should take less than a minute. If we had a lot of data, then we could close this tab and wait for Google to send us an email notification when it's done.

Almost there...

We're preparing your archive.

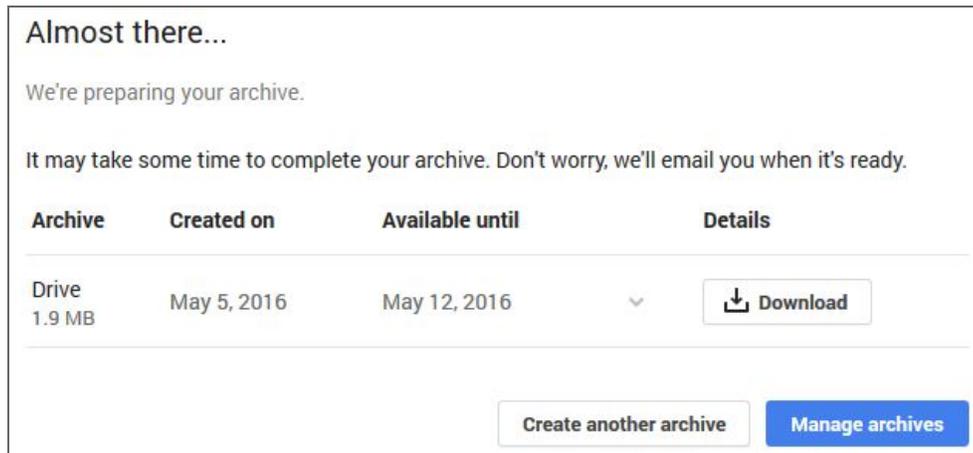
It may take some time to complete your archive. Don't worry, we'll email you when it's ready.

Archive	Created on	Available until	Details
<div style="display: flex; align-items: center;"> <div style="border: 1px solid #ccc; border-radius: 50%; width: 15px; height: 15px; margin-right: 5px; display: flex; align-items: center; justify-content: center; font-size: 8px;">L</div> <div> <p>An archive of your Drive data is currently being prepared</p> <div style="border: 1px solid #ccc; width: 100%; height: 10px; margin-bottom: 2px;"></div> <p>0% complete · Data collected: less than 1 MB</p> </div> </div>			

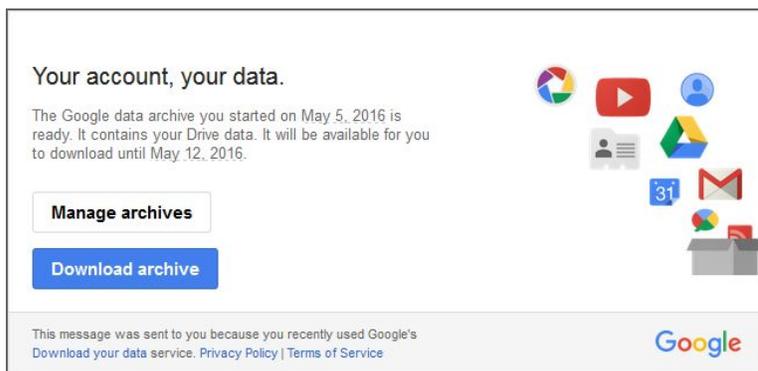
Create another archive

Manage archives

12. When it's finished, it shows you details about the archive file.
 - a. **Archive:** Shows you how large the archive file is.
 - b. **Created on:** When the archive was created.
 - c. **Available until:** Google will delete this archive file from their servers on this date.
 - d. **Download button:** Downloads the archive when clicked.



13. **Click** "Download". For security reasons, you will have to **type** your password again.
14. **Save** it to the Temporary Patron Drive.
15. **Open** the Temporary Patron Drive.
 - a. **Click** the Start Menu and select Computer.
 - b. **Click** "Temporary Patron Drive" on the left.
16. **Double click** on the archive file to open it.
17. **Open** the "Takeout" folder, then the "Drive" folder. This folder contains your Drive files.
18. **Open** the "Library Photos" folder. **Notice** how the photo that our partner shared with us is not there. **Files that are not owned by you are not included in the archive!**
19. When Google finished creating our archive, they also sent us an email notification. **Go back** to the web browser and **open** Gmail. The notification email should be at the top of your inbox.



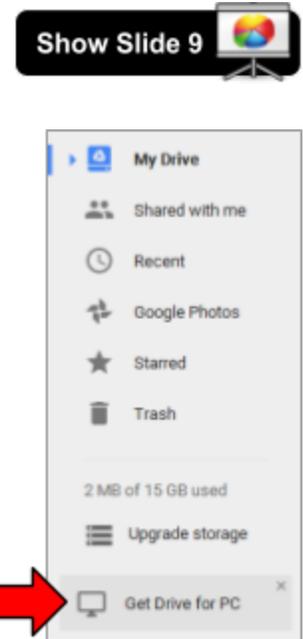
Drive for PC (supplemental)

If you are accustomed to working with files on your computer hard drive, there is a program you can install on your computer that lets you interact with your Google Drive files in a similar way.

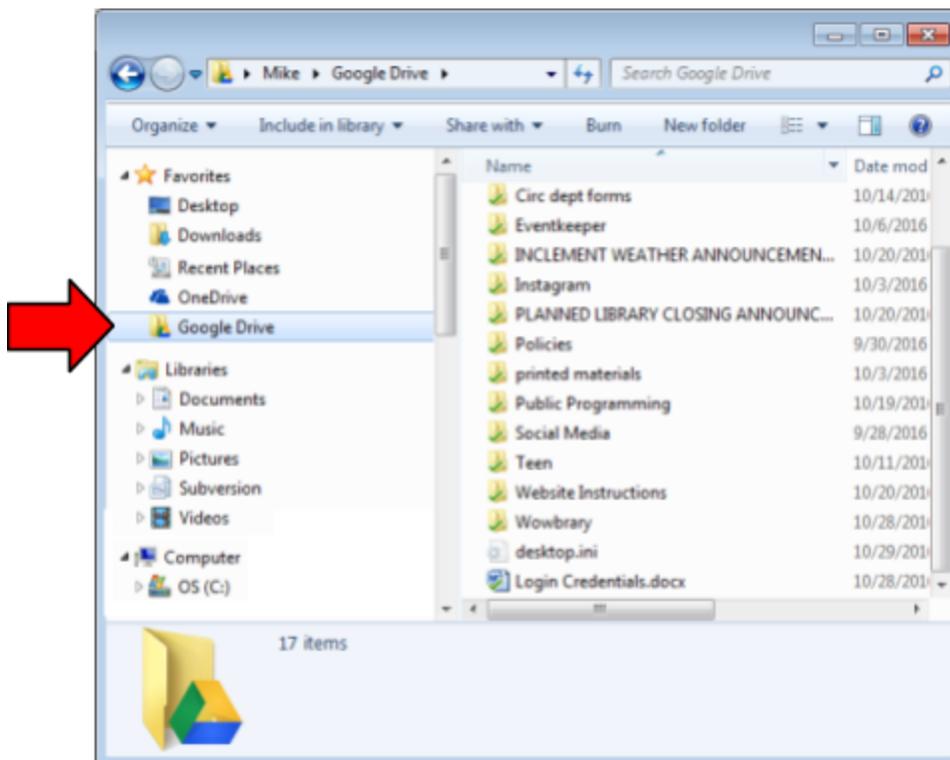
The program downloads all of your Google Drive files to a specific folder on your hard drive. Whenever you edit one of those files on your computer, the changes automatically get uploaded to your Drive. Similarly, whenever one of the files is changed in the cloud, the changes get downloaded to your computer automatically. This process is called **Syncing**

This program can be downloaded by clicking the “Get Drive for PC” button in the Side Navigation Pane.

There are also apps available for mobile devices that do that same thing. They let you access your Drive files on your smartphone or tablet.



This is one of the benefits of the “cloud”. You can access your files from any device or computer that is connected to the Internet.



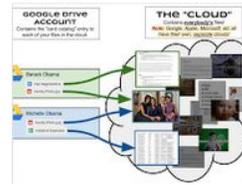
Resources



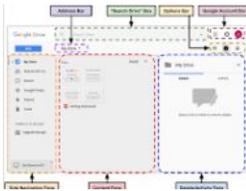
This lesson plan, as well as several of its diagrams, were made using Google Drive apps. Each file is publicly viewable. The table below contains shortened URLs to each file.



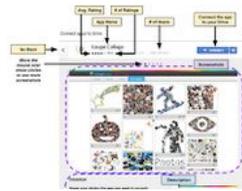
Lesson Plan
goo.gl/ufdMa4



The Cloud: Demystified
goo.gl/JEMrdw



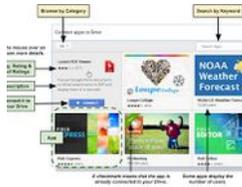
Drive Home Screen
goo.gl/QihSS5



App Dialog
goo.gl/qeQX76



Library of Congress.jpg
goo.gl/TX4eUy



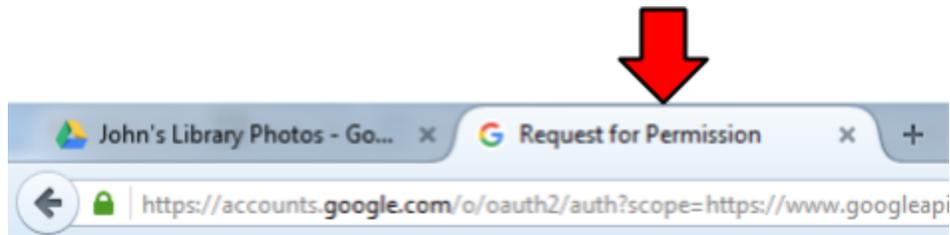
Third Party Apps Dialog
goo.gl/lvcfbZ



Preview Window
goo.gl/VfzHSF

Appendix A: Connecting to a Third-Party App (using Pixlr Editor)

1. **Double-click** on our image again to open it in **preview mode**.
2. **Click** on “**Open with**” at the top of the screen. Google Drive gives us some suggestions as to what third-party apps we can use to open our image.
3. **Click** on “**Pixlr Editor**”. This will **connect** the “Pixlr Editor” app to our Drive account, then **open** our image with the app.
4. **Note** that a **new browser tab** has opened. **When you open a file in your Drive with an app, it opens in a new browser tab.** The tab will contain an icon for the app you are using. We haven’t authorized the app yet, so it’s just showing the Google logo.



5. After a few moments, you will see a **permissions** screen. Before you can start using an app, you have to give the app permission to access your account. Some apps require more permissions, some apps require less. You have to accept **ALL** the permissions in order to use the app—you cannot pick and choose. This screen only appears the **first** time you use an app.
6. The permissions Pixlr Editor is requesting are reasonable. Later, we will show you what unreasonable permissions look like. Pixlr Editor needs:
 - a. **Our email address.** Most apps require this.
 - b. **Our basic profile info**, such as our full name and any information we made public on our Google+ profile (Google+ is Google’s version of Facebook). Most apps require this as well.
 - c. The ability to **open and edit** the Google Drive files that we tell it to open and edit. This is reasonable. Without this permission, we couldn’t open any files with Pixlr Editor.

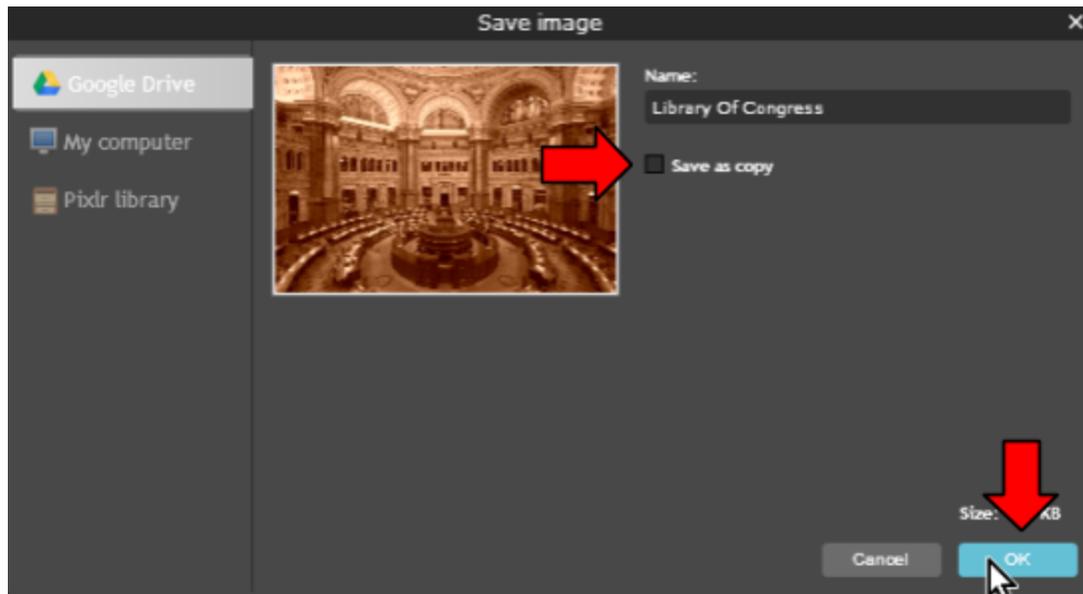
7. **Click** on one of the “More info” icons . These give you more information about a permission. **Click** the **OK** button to **dismiss** the dialog.
8. When you are ready, **click** “**Allow**”. If you don’t do this, you simply can’t use the app. Most apps require the kinds of permissions you see now.



9. Because this course is about Google Drive, we’re not going to go into too much detail about how Pixlr Editor works. It’s important to note that **a banner advertisement is at the right side of the screen**, so don’t let it confuse you!
10. **Click** on the “**Adjustment**” menu option. This menu contains effects that you can apply to the image.
Person on the LEFT: Pick Sepia
Person on the RIGHT: Pick Desaturate



11. **Click** the “File” menu option and **select** “Save” to save your changes.
12. A dialog box appears. **Uncheck** the “Save as copy” checkbox and **click** OK.



13. Once it has finished saving, **close** the **browser tab**. This will return us to the browser tab that has our Google Drive home screen in it.
14. The web browser may want you to confirm that you want to close the tab. **Click** “Leave Page.”



15. The preview window for our image should still be open. **Notice** how the image hasn’t changed. **This is a Google Drive bug** that happens when you edit an image file. The preview **should** update with our changes, but it hasn’t. We’re going to **ignore** it for now, since it requires a page refresh to remedy.
16. **Close** the preview to return to the Drive home screen.
17. **Notice** how the image file thumbnail has updated to show the changes we just made to our image (it may take a few seconds to update). This confirms that our changes were indeed saved.



continue on with the “Sharing” section