

Lesson Plan

Cloud Computing 101

Students learn the basics of how the internet works and why cloud computing is useful, as well as be familiar with several cloud computing sites.

Lesson Objectives

At the end of the class, the student will:

* Understand roughly how the internet works.
* Understand the byte system of measurement of computer files.
* Be familiar with three cloud computing sites or apps.
* Understand the relationship between uploading and downloading.

Lesson Prep Work

(30 min, at a minimum, prior to student arrival)

* get in early to test for technology failure, because it will happen :-)
* pre-create accounts for all the cloud computing sites listed in your handout
  + bring usernames and passwords to class
* pre-sign into accounts
  + sign into a gmail account
* bring flashdrive, smart phone to class
* print handouts. Hands for this class are:
  + 1. Free Online Entertainment
  + 2. Cloud Computing 101: storage, collaboration and productivity

Lesson Prerequisites

Must have taken Computer Basics or know how to use the mouse, keyboard and navigate the internet.

Lesson Outline

The lesson is completed in one 90 minute class session.

*(5)* Introduction

* Introduce instructor, students.
* Let students know it’s okay to take phone calls, but ask them to put their phone on vibrate and answer calls outside the classroom.
* Inform students that they can sit back and watch if the class is too advanced.
* Inform students they can go to the bathroom, they don’t need permission.
* Show order in which class will happen. Explain scope of class.
* Ask students at introduction: Why are you taking this class? to gauge interest and knowledge level of students.

*(10)* Cloud Computing is the Internet

* *Co-Define:* *What is Cloud Computing?*
  + *Discuss*: Ask class to list examples of things they do with computers. Write them on the board.
    - Writing, entertainment, communicating with others, games, spreadsheets, banking, etc.
  + They’ve just defined “computing”.
  + “Cloud” really just means “online.” Ergo, cloud computing simply means doing all the tasks you associate with a computer, online.
* *Explain the difference between “online” and not online.*
  + Some programs live in the physical place that is your computer
    - Direct students to look at the tower under their desk.
    - These are things you might install using a physical disk.
    - These are NOT in the cloud.
    - Demo and discuss: students go to start menu -> all programs and view all of the programs that live on the computer they’re sitting at.
  + Other programs live online- you need an internet connection to access them, and can access them from every single internet-enabled device in the world.
    - Eg: email, online banking, Netflix, streaming music, playing games online, etc.
    - These ARE in the cloud.
    - Anything you DO online is technically “in the cloud”.
  + When they hear the phrase “cloud computing” bandied about, it’s probably in reference to some sort of personalizable service being provided online for which you need to create a username and password.
  + You’d enter your username and password to pull up “your” data that is not living on your physical computer. You’re using the internet to access “your” data that lives the company’s servers.

(20) How the Internet Works (briefly)

* + Think about your email. When you click on a subject line in your inbox, the message from your sister that opens is actually housed someplace physical, just not on your computer. It’s living on a server.
  + *Define* *server:* a large and powerful computer in a basement someplace that stores other people’s info for them.
    - *Demo: Pull up google image results for “server”* or open this picture: <http://neworleansit.com/server.php>
      * Note: I use this picture because it has a visible screen and laptop, which will help students believe that it’s still just a computer.
    - Your sister’s message technically lives on a server, someplace in the world; let’s say Houston, TX. You’re spared the trouble of housing it. Instead, by entering your username and password you are able to remotely see that data (your sister’s message and all of your other emails) living on the Houston server.
  + Why wouldn’t you just house that data yourself?
    - *Explain size of data & write units on the board* while saying “Baby Kings Make Great Tyrants” (to remember the order of units). Option: pull up http://www.hjo3.net/bytes.html
      * Byte ~ roughly one letter
      * Kilobyte ~ a paragraph of typed text
      * Megabyte ~ one Harry Potter book
      * Gigabyte (aka a “gig”) ~ 40 minutes of DVD, or 1.5 CDs of music
        + *Demo*: show how many gigs of space you have remaining in gmail inbox
        + *Demo*: hold up a flashdrive and state how many gigs it has (eg: 4)
      * Terrabyte ~30.5 weeks of high quality audio.
    - *Demo*: hold up a smartphone and state how many gigs it has (eg: 16)
    - *Demo*: point to classroom computers, state how many gigs they have (eg: 60)
      * not that much space when you think of all the emails you’ve ever sent, all the music you want to listen to, all the movies you’ve watched and want to watch. Ergo, housing your data someplace besides your computer. Ergo, cloud servers
    - Cloud servers have terabytes upon terabytes of space. In fact, yottabytes upon yottabytes, whole universes of data storage capacity, and it’s ever growing.
      * In exchange for creating an account, you get several gigs of that space for free, usually between 5-15 GB. Paid accounts get more.
  + *Explain Uploading and Downloading*
    - Cloud servers take the burden of ownership away from you. You can even create things in one place and the move them to the other via a process called uploading or downloading.
      * + *Draw a cloud and a computer* on the board:



* + - * + *Define upload.*

When you take something that lives on a physical computer and upload it to the cloud.

*Draw arrow* from computer to cloud.

*Example:* A resume you made in MS Word (not cloud).

*Ask*: Why would you want to upload it to the cloud?

For storage, in order to access it from anywhere, and to back it up.

* + - * + *Define download.*

Ask: What do you think download might mean, since you now know what upload means?

When you take something that lives on the internet and download it onto the physical computer you are using (or a flashdrive, hard drive or disk).

Draw arrow from cloud to computer.

Example: A picture, song or movie from a website.

Ask: Why would you want to download something?

To have it be “yours”. To access it when not online. To change it. For storage purposes, and to back it up.

Note: downloading can be a legal grey area, especially when it comes to things you would otherwise be asked to pay for like music and movies. “free” downloads can also have security threats like viruses in them, so be very cautious when downloading. If you don’t 100% trust the source, don’t do it.

Plug upcoming Staying Safe Online class.

* + - Lots Of Copies Keep Stuff Safe
      * Write LOCKSS on board
        + Many cloud computing services offer data storage. It’s a good idea to back up anything of value because…
        + Lots of copies keep stuff safe!
  + Benefits and Drawbacks of Cloud Computing
    - *Ask*: “What are the benefits of using cloud services?”
      * Space you don’t have to own, access from anyplace with internet, access from all devices, wider selection of options eg hulu or Netflix, as a backup.
      * Take notes on the whiteboard.
    - *Ask*: “What are the potential drawbacks of cloud computing?”
      * Security and Privacy! If you lose your password you lose your data, potentially. Your data lives at someone else’s property/is their property. No internet=no access.
      * Take notes on the whiteboard.

(50) Examples of popular cloud computing services

* + *(10) Instructor demonstrations*
    - DropBox
      * An online tool for storage and sharing of anything.
      * *Demo DropBox storage and sharing (briefly).* 
        + Stress that you’ll be able to access contents of your dropbox from any device with internet.
        + Note: you are also demoing how to explore a site you’ve never been to before, to prep students for the next activity. So conduct this demo as a new user rather than as an experienced teacher.
    - TeuxDeux
      * An online to do list that you can access and change from any internet-enabled device.
      * *Demo a task in TeuxDeux.com*
        + Add a task (taxes?) to the demo on the homepage. Then double click it to cross it off. Drag it around to a different day.
        + *Ask*: “do you think this would be practical to have as an app on my smart phone, in my pocket all the time?”
  + *(40) Activity: group exploration & report back on cloud computing sites.*
    - Students break into groups of 2-3 people each; assign each group one of the following sites (also listed on handout); teacher signs them into that site w/ pre-created password. Have them flip over their handouts so they can’t just read the answers from there.
      * Google Calendar, Google Drive, Pandora, Hulu
      * *Note: you can also assign one cloud site to each person and have this be a solo exploration activity, depending on how many people are in the class and if you sense they’ll be amenable to group work.*
    - Students explore the site, answer the below questions, and record their answers because they’ll share out later. Point out that they may need to Google the company to find out more, and may need to head to the About section or Help section of the website.
      * 1. What is the primary function of this site?
      * 2. How do you get an account?
      * 3. Would you find this site useful personally? Why or why not.
    - Write the questions on the board or pull up a Word doc listing them.
    - *Report Back* – each group shares out their answers while the teacher brings up each site to demo on the big screen as they explain.
    - Make sure the following points are hit for each site:
      * Google Drive: online creation, collaboration and storage of documents including word and spreadsheets.
        + Briefly demo creation, storage and sharing of a word doc
        + Plug upcoming Google Drive class
      * Google Calendar: online calendar that syncs automatically and can be edited on any internet device
        + Stress the ease of the app for smartphones
        + Plug upcoming Google Calendar class
      * Pandora: online customizable radio
        + Just show the user interface and search box
        + Note that there’s an option to pay
        + Point out you don’t need an account to use the service ☺
        + Plug Free Online Entertainment class
      * Hulu: online TV watching
        + Just show the user interface and search box
        + Note that there’s an option to pay

You get more content and can watch from more devices

* + - * + Plug Free Online Entertainment class
* Final usability and comprehension check-in
  + *Discuss*: which of the sites demoed do you think you might use? Do you feel you know what cloud computing is? Call for a volunteer to define it in their own words.

**(5)** **Conclusion**

* Go over handout, review material, and emphasize contact info & further resources on handout.
* Any questions? Final comments?
* Remind patrons to practice; assign take-home-practice - remind them they can ask for help
* Remind to take survey.