**Day 1 – Domain Names & IP Addresses**

**Warm-Up Activity**

1. ~~Go to the web page:~~ [~~https://centralops.net/co/~~](https://centralops.net/co/)
2. Go to the web page: <https://mxtoolbox.com/DNSLookup.aspx>
3. Select the “NsLookup” tool and search for the following domains:
   1. [www.peelschools.org](http://www.peelschools.org)
   2. some of your favorite / popular domains
4. ~~Try the “Traceroute” tool for the same domains~~
   1. ~~What is the purpose of this tool?~~
5. ~~Try the “Ping” tool for the same domains~~
   1. ~~What is the purpose of this tool?~~
6. ~~Try the “Whois” tool for~~ [~~www.peelschools.org~~](http://www.peelschools.org)
   1. ~~Who is the owner of this domain?~~
   2. ~~Who is the registrar of this domain?~~
   3. ~~When does the registration expire?~~

**Presentation Notes: Client-Server Model**

1. What is a client?

A client is a piece of computer hardware or software that accesses a service made available by a server.

* + An app that runs on your phone or PC
  + The app provides the Interface
  + The app does not control the data
  + Examples:

1. What is a server?
   * Software that runs on hardware owned by   
     the app company
   * It sends and receives data between multiple clients  
     using internet connections
2. Explain why you need both a client and a server to complete an internet application?

One is useless without the other part

**Presentation Notes: Domain Names & IP Addresses**

1. What is a Domain Name?
   1. An ID for a service on the internet
   2. It is a human readable format
   3. It must be converted to an IP address  
      to be used by a computer
   4. **Note**: Clients do not have Domain Names
2. What is a IP Address?
   1. The id number of a client or server device   
      on the internet.
   2. It is composed of four numbers
   3. It is used to route messages and data   
      between computers (clients and servers)
3. Who can register a domain name?
   * Domain names can be registered by companies and individuals
4. Who controls domain names for countries (i.e. .CA, .UK, etc.)?
   * Government Agencies Control the Registration of Names
     + CIRA (Canada)
     + NOMINET (United Kingdom)
5. Who controls domain names like .COM, .ORG, etc.?
   * + Network Solutions (United States)
6. Who owns and controls IP Addresses?
   * IP Addresses are owned by large Internet Companies
     + IP Addresses are "rented out" to Domain Names for a fee
     + With IPv4 there are a limited number of IP Addresses
7. If you own a Domain Name does that mean you also own an IP Address?

IP Addresses are rented out to domain names for a fee.

With IPv4 there are a limited number of IP addresses.

1. What services do *middleman* companies like GoDaddy.com provide?
   * Companies like GoDaddy.com are *middlemen*  
     that arrange domain registrations and that   
     provide you with an IP Address
2. What are some issues and features related to IPv4?
   * 4 numbers, 64 bits (2^64 combinations)
   * Issues: Limited Speed & Limited Number of Connections
3. What are some issues and features related to IPv6?
   * 8 alpha –numerics, 128 bits (2^128 combinations)
   * Advantages: Higher Speed & Unlimited Number of Connections
4. What are some issues and features related to 5G Networks?
   * Leverages IPv6 technology to provide extreme speeds
   * Every device (e.g. doorbell) will have its own IP address

**Day 2 – Internet Services (Software)**

Questions t.b.d.