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

**Warm-Up Activity**

1. Go to the web page: <https://centralops.net/co/>
2. 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
3. Try the “Traceroute” tool for the same domains
   1. What is the purpose of this tool?
4. Try the “Ping” tool for the same domains
   1. What is the purpose of this tool?
5. 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?
   1. Where does it run?

An app that runs on your phone or PC

* 1. What does it do?

The app provides the Interface

* 1. List some examples of a client.
* Web browser (chrome)

1. What is a server?
   1. Where does it run?

Software that runs on hardware owned by the app company

* 1. What does it do?

It sends and receives data between multiple clients using internet connections

* 1. List some examples of a server.
* Gaming
* Banking
* Music apps

1. Explain why you need both a client and a server to complete an internet application?

They work together to give you the complete application. One is useless without the other part Examples: On-Line Games, Spotify, MLB At Bat, etc.

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

1. What is a Domain Name?
   1. What is it used for?

An ID for a service on the internet

* 1. Is it for human or computer use?

It is a human readable format. It must be converted to an IP address  
to be used by a computer

* 1. Provide an example of a Domain Name.

**www.peelschools.org**

1. What is a IP Address?

The id number of a client or server device on the internet.

* 1. What does IP stand for?

Internet Protocol

* 1. What is it used for?

It is used to route messages and data between computers (clients and servers)

* 1. Is it for human or computer use?

It is for computer use.

* 1. Provide an example of an IP Address.

**67.21.152.99**

1. Who can register a domain name?

Domain names can be registered by companies and individuals

1. Who controls domain names for countries (i.e. .CA, .UK, etc.)?

Government Agencies Control the Registration of Names

* myname.ca – CIRA (Canada)
* myname.uk – NOMINET (United Kingdom)

1. Who controls domain names like .COM, .ORG, etc.?

Network Solutions is the company that *controls* and *authorizes registrations* for .com/.org domains

1. 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

1. If you own a Domain Name does that mean you also own an IP Address?

No, if you own a Domain Name it doesn’t mean you also own an IP Address.

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

1. What are some issues and features related to IPv4?

IPv4 (1990 to Present)

* 4 numbers, 64 bits (2^64 combinations)
* Issues: Limited Speed & Limited Number of Connections

1. What are some issues and features related to IPv6?

IPv6 (Near Future)

* 8 alpha –numerics, 128 bits (2^128 combinations)
* Advantages: Higher Speed & Unlimited Number of Connections

1. What are some issues and features related to 5G Networks?

5G Networks (Coming Soon)

* + Leverages IPv6 technology to provide extreme speeds
  + Every device (e.g. doorbell) will have its own IP address

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

Questions will be continued .