Tracing the Internet

LO To see how the Internet sends packets around the world. To see how the same route can take a different number of routers as the Internet directs packets along different routes. To see the approximate location of some famous websites.

Computing National Curriculum

Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration

Useful Background Information

The Internet comprises of all of the wires and routers (boxes that route information) connecting networks around the world. Routers direct traffic around the Internet via the quickest route. Websites are based on large, always on, computers called servers which can be reached via routers. We can trace these routes around the world using a traceroute program.

Prior Learning
This module is best done after mapping the Internet and playing the packets game

Introduction

Remind pupils of the mapping the Internet lesson and the packet game if you used these. Explain that they are now going to send a packet of data out from a host server to popular websites that they choose. This will show which route it takes on a Google map.

Collect web addresses

Give pupils 10 minutes to collect the names of popular websites and paste the address into a blank Word or Google Doc. If they are using **Montis** they need to keep the whole web address (http://code-it.co.uk). If the are using **GSuite** then they need to strip it down to the name and domain (code-it.co.uk)
Load up the which ever system you have chosen to use.

Using the Traceroute online tools

Demonstrate how to copy the a web link into your chosen Traceroute search box. Click trace and a string of routers will appear below after a few seconds. Ask the pupils how many hops it has taken this time? Explain that we could trace from our own computer but this is normally blocked in schools so we are tracing from a computer in another part of the world. Show them how to zoom into the google map to discover the approximate location of the web server. If you are recording where things are and how many hops they take demonstrate this as well.

Tracing the Internet 2

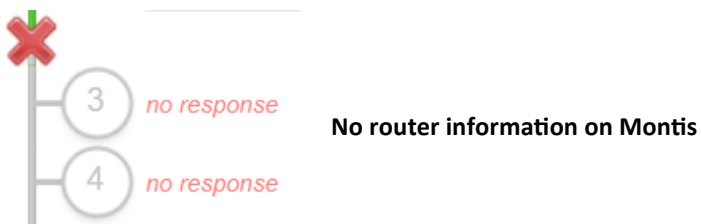**Activity**

Pupils now use the Traceroute site to find the location of websites on their list and record information about these on the sheet.

Pointers

At some point it is good to stop pupils and ask how many hops for x website. When pupils give varying numbers you can ask them why they think this is? You may have to explain/remind about routers routing packets by the fastest route.

Ask pupils why there are some sites with no details on them? You may need to explain that some routers give less information to protect their security and prevent them being hacked (broken into online)

No router information on Montis

On task

Pupils love this simple activity but can be easily distracted by using the Google street view feature of the google map. I always ban this as it doesn't add anything extra to the lesson.

Approximate Time to do
30 minutes depending on detail of Internet maps