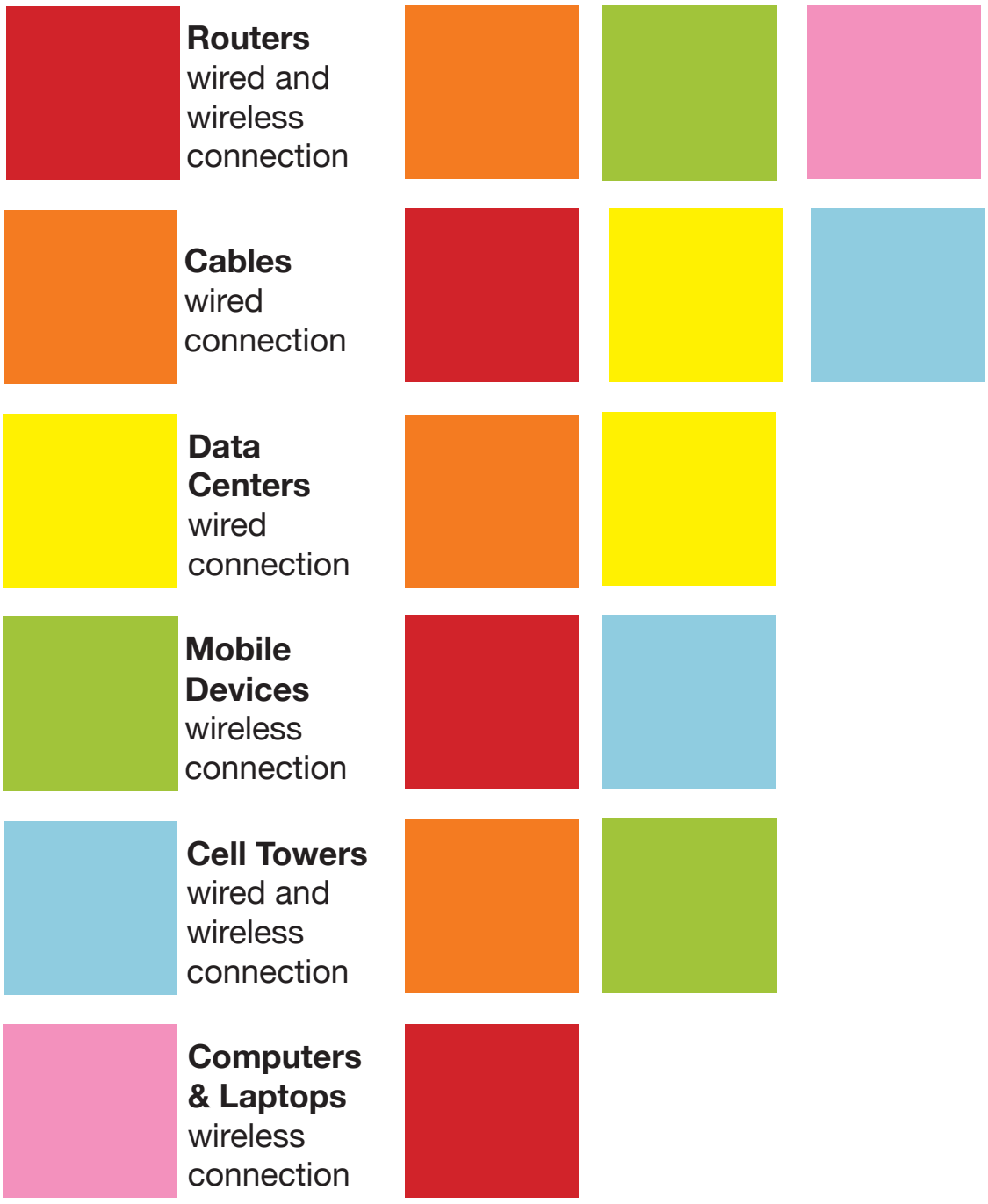
Network Modeling: Which Objects Can Talk To Each Other and How Do They Talk?



What is the Internet? Brainstorming Questions

Name: _____

What do you use the internet for? What do you do on the internet?

What do you already know about how the internet works?

What are questions you have about how the internet works?

What is the Internet? Things To Look For

At home and at school

Routers

Wifi signals travel through the air between routers and devices (like computers or phones). Routers connect to the internet via a modem, which connects to the internet either via what would be a TV cable or a phone line.

Computers or Laptops

Most computers today can either connect to the internet wirelessly via a router or directly with a wired connection to an ethernet port on the computer.

Smart Phones or Tablets

Mobile devices connect to the internet wirelessly, either using Wifi from a router or using a connection to a cell tower.

What is the Internet? Things To Look For

On the street

Junction Boxes

Within these boxes are thousands of wires and cables for telephone, television, and internet, all coming from nearby buildings. Those cables get connected to terminals in the box that are themselves spliced into the underground cable network.

Spraypaint Markings

Before workers dig up a street for construction, all the other companies with things buried around that street have to mark out where their buried things are so workers don't end up knocking out power lines or the internet by mistake. All of these markings are color-coded for specific kinds of utilities. Orange is for all telecommunications.

Manhole Covers

These are entry points to underground ducts. The design or name of the company on the manhole cover can give some indication of what's buried underneath or who owns whatever is buried there. Lots of the telecommunications manholes in New York City have this hexagon design.

Cables on Telephone Poles

Although they tend to just look like thick black cables, one way to recognize them is to look for big black cylinders or boxes handing along the cables. These are amplifiers, which are basically devices that convert the cable's signal from optical to electrical, and then back into optical.

What is the Internet? Things To Look For

On top of buildings

Cell Towers

Cell towers are how most mobile devices wirelessly connect to the internet when they're being used on the street. In New York, cell towers are mainly on the tops of buildings. They're also often disguised, although their New York disguises (bricks on buildings, like the picture above left) are pretty simple compared to cell tower disguises in other places (like the palm tree and cactus pictured below).

Microwave Antennae

These are used for what's called point-to-point communication, which works like a relay system. When one antenna in the microwave network receives a signal, it passes that signal on to the next nearest antenna, which then passes the signal on to the *next* nearest antenna, and so on until it reaches its destination.