Lesson 6: Sending Numbers

"There are 10 kinds of people in the world, those who understand binary and those who don't"

One quick point:

- Binary odometer (check it out)

Warm-up (5 minutes)

- Let's review binary numbers
  - How many more numbers can be represented with 4 bits as opposed to 3?
  - What is the highest value I can count to using 3 bits? What about with 4?
  - Justify the following claim: Regardless of the number of bits in our binary number system, the first value we represent is 0

Communication Protocol

- Recall: In computer science, and when talking about transmitting information between computing devices, a **protocol is a set of rules that tell us how to encode, communicate and exchange information.**

- Today, you and a partner will invent a communication protocol that allows you to send a list of numbers to represent a drawing.

- … with a new Internet Simulator (new and improved)

Video: New Version of the Internet Simulator

- https://www.youtube.com/watch?v=cIk2R0QuXkI&feature=youtu.be&list=PLzdnOPI1iJNdVYhNyXeP4FsbSH_AkUhxB

- 5-minute discovery: what is different?

Develop a Number Sending Protocol:

- I'll pass out "Sending Numbers" and "Sending Numbers for Graphing"
- Challenge: Groups must develop a protocol or set of rules for communicating a drawing to their partners using only bits.
- Pay attention to the challenge rules
- Hint: keep the drawing simple (3-5 points)

Wrap-Up: Does it work?

- I'm going to give my drawing to half of the class, the other half needs to re-create it.

- What went well?

- What went wrong?

- Answer the two questions on Code Studio for Stage 6

Homework

- Finish the Activity Guide