

Think:

*What is your personal definition of
“information?”*

Work with a neighbor

Go to todaysmeet.com/information to submit
your response

HAVE YOU EVER HEARD OF BINARY?

YES OR NO?

THIS IS A BINARY QUESTION

WHERE SHOULD WE GO FOR
LUNCH?

EITHER MOES OR KITCHEN
KABERET

THIS IS ALSO BINARY QUESTION

Imagine that you and your friend have not been able to communicate for the entire summer, and you have a chance to ask her one binary question that she will answer. What binary question do you want to ask?

Think about yes/no questions or either/or questions (Coke or pepsi?)

Scenario

You are going to use signals to send information to a classmate on the other side of the room.

There are some basic rules and constraints:

- **Stay on your side.** You may not walk to the other side of the room.
- **No language.** That means no writing or talking to communicate.
- **No projectiles!**

Where should we go
for lunch?

Either

Moes

or

Kitchen Kaberet

Please include
directions so that
someone else could
use your system

This is called your
“protocol”

Challenge 1: Simple Binary Message (state A or B)

Time Limit: 5 mins

- Choose the **binary question** your device will be used to answer.
- **Create a device** using classroom items to send a simple binary message - state A or B.
- **Try to make it fail-proof.** Consider a few obstacles. Would it still work if...
 - There was something in between you and your partner?
 - You couldn't see your partner?
 - You were in a loud room?
 - Your partner wasn't paying attention?

Where should we go for lunch?

Either

Moes

or

Kitchen Kaberet

or

Burger King

or

Bobos Kitchen

Challenge 2: Complex Messages (4 possible messages)

Your new **challenge is to invent a way** to use your device to send an answer to a question that has **4 possible answers!** Think about these things:

- Should you modify your device?
- Should you use it in a different way?
- Should you make a new device entirely?

Challenge 3: Complex Messages (8 possible messages)

What if you wanted to ask an even more complex question with 8 possible answers?

Just as before update your device and test it out.

Challenge 4: Complex Messages (16 - n possible messages)

Could we keep increasing the number of messages forever?
Could our devices be used for questions with 16, 32, or
1,000,000 possible responses? Some things to think about...

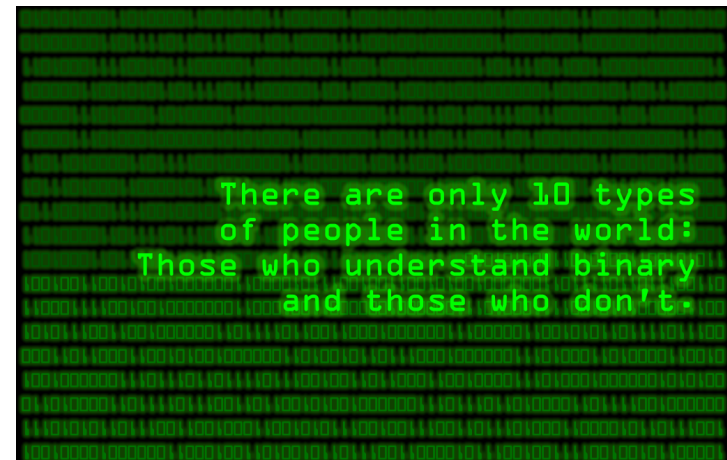
- Our alphabet only has 26-letters, yet we can spell many words
- Our number system only has 10 digits yet we can represent many numbers
- Think back to your simple two-state device. Could you simply use it differently, rather than modifying it?

Wrap-up

1. Could you use another group's device to send your set of messages? Why or why not? What would you need to know from the other groups?
2. Based on what you've seen in today's activity what do you think are the limitations on the kinds of information we can send with binary messages?

Vocabulary

- Binary - A way of representing information using only two options.
- Bit - A contraction of "Binary Digit"; the single unit of information in a computer, typically represented as a 0 or 1



Is this a pipe?

