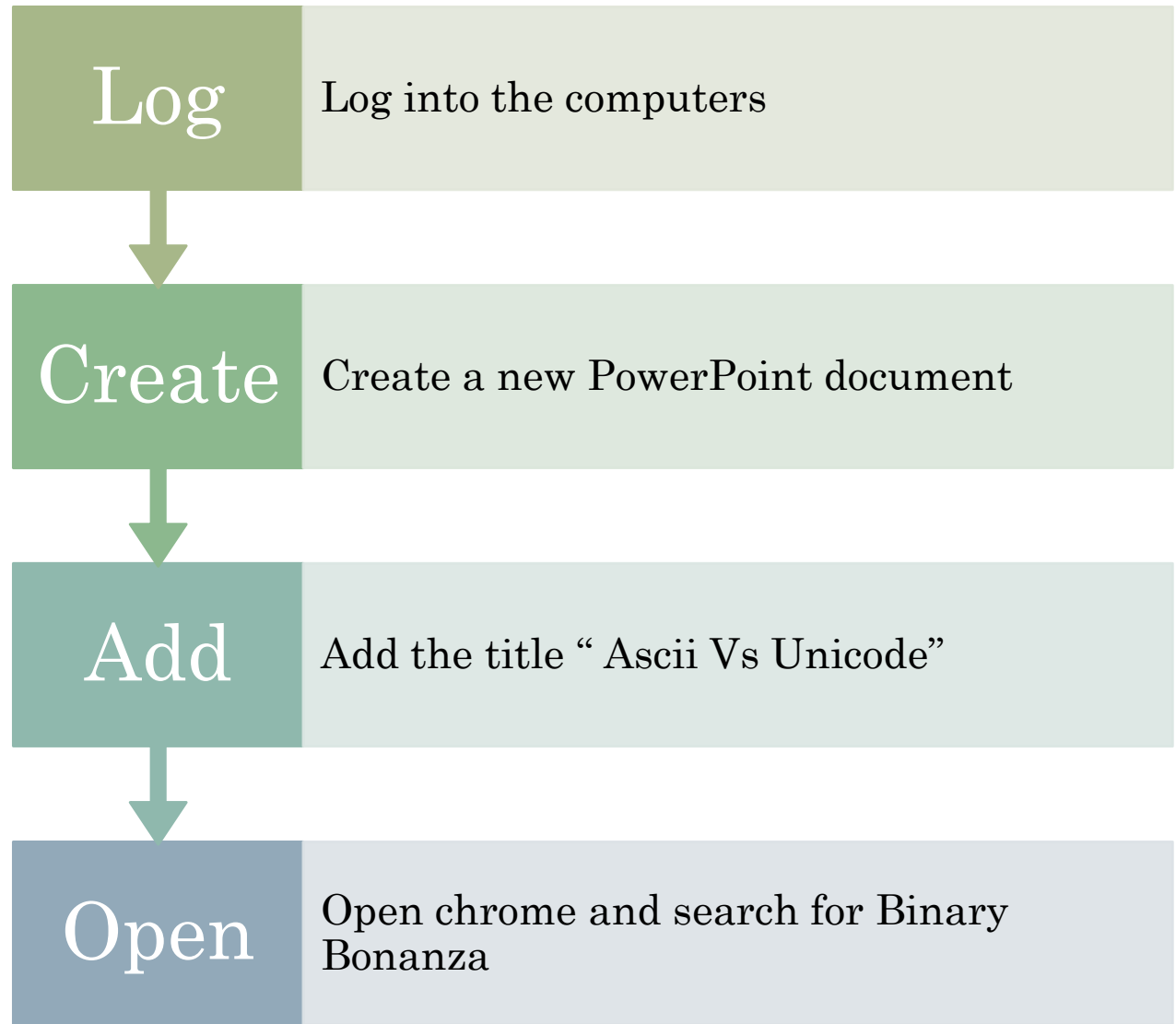
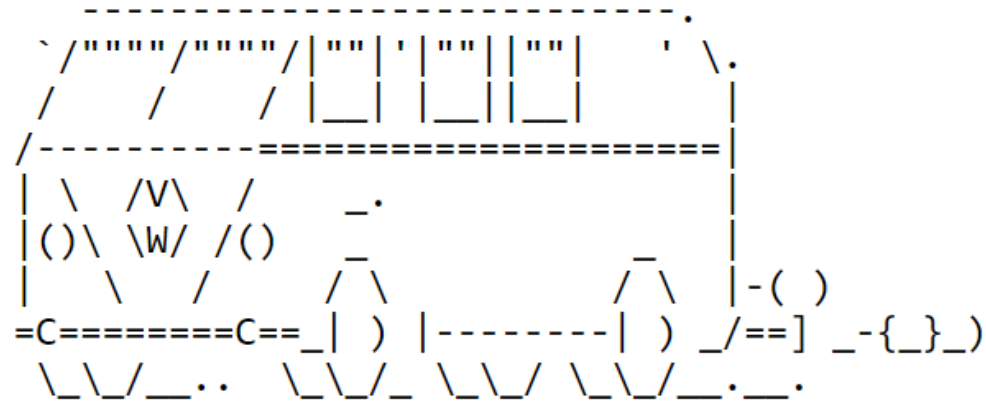


# Do Now Task





# ASCII vs Unicode

Storing Text in Binary

# Topic Goals

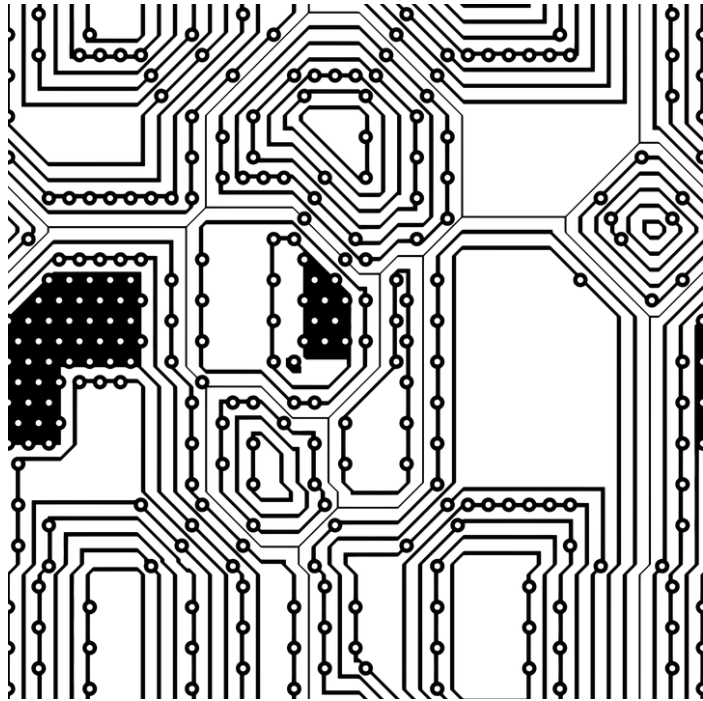
## Investigate binary shift

- ~~Review the terms “Overflow” and “Drop off” in binary~~
- ~~Answering some binary exam questions.~~

## Investigate character coding models within computing

- Review ASCII
  - Benefits and limitations
  - Translating binary into text using ASCII
- Review Unicode
  - Benefits and limitations

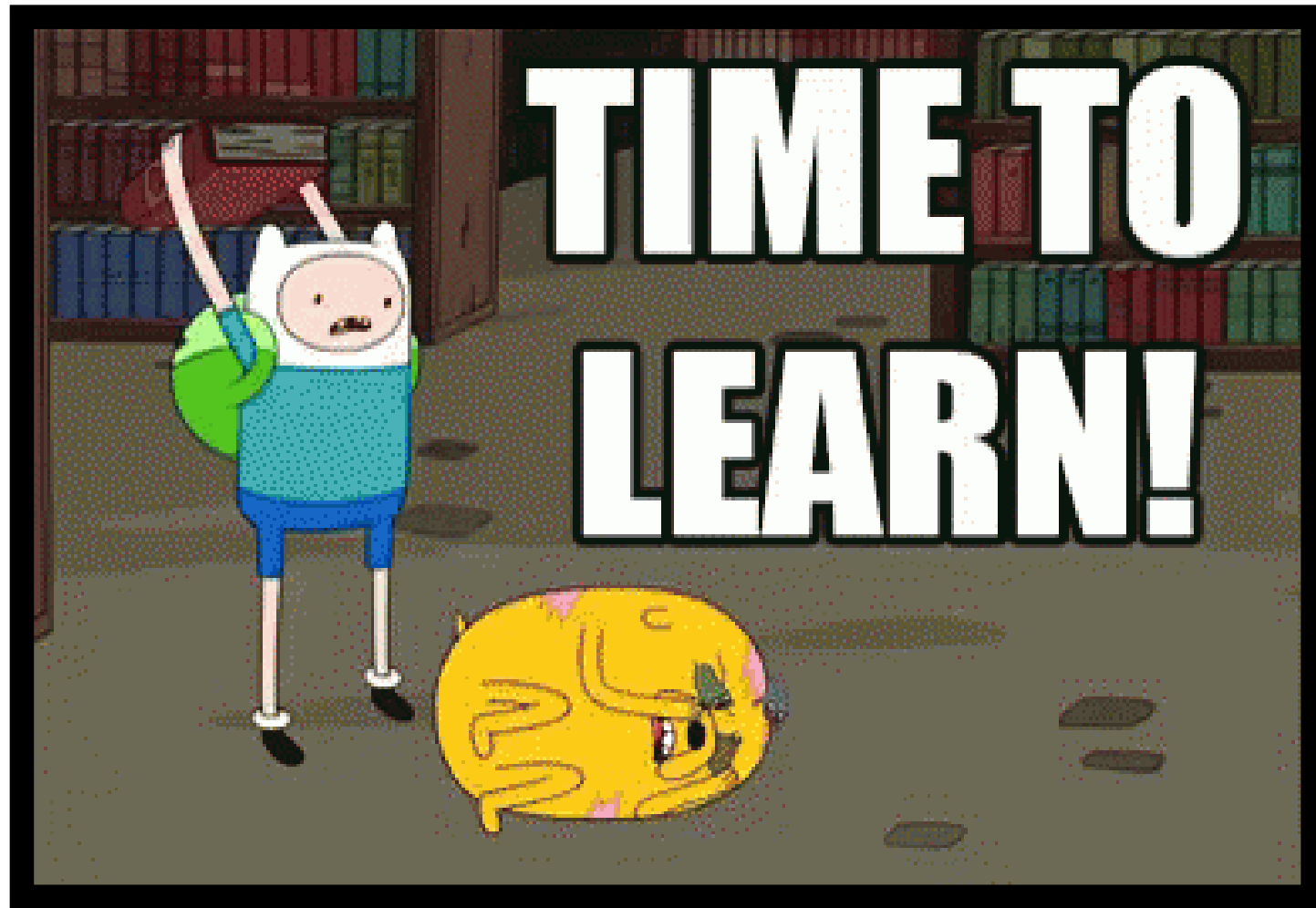
# Going Digital



Ultimately all data within a computer is stored digitally – On or Off.

Which means all kinds of data must be represented in this format. This means we must encode in some how.

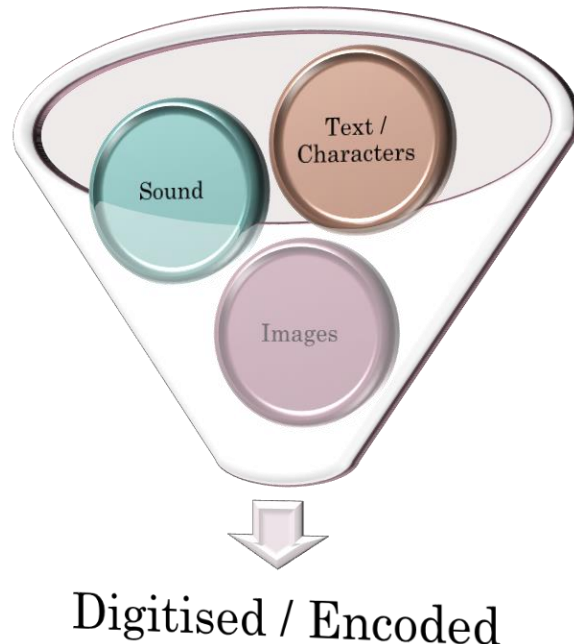
What kinds of data can we store?



... But  
first ...

Kahoot!

# As we have identified we will need to encode into a digital format...



We do this differently depending on what the data is.

- Text – We encode using a table, a map of each character and how its represented.
- Images we ... ?
  - Pixelate. Break the image up into cells called pixels and each pixel is given a value. (Raster / bitmap graphics)
- Sound we ... ?
  - Sample the sound wave. Much like turning a curving line chart into a bar chart at set points.



# Encoding Text.

What is this?

## Task - Morse Code

**Remember:** This is a PowerPoint which means it's a presentation. Must be easy to read and visual as if you are going to present it....

In your PowerPoint produce a slide answering the following questions:

1. What is morse code and how is it used?
2. What is the character map?
3. What are the limitations?
4. Does it support only English characters?
5. Is it binary?



ASCII was the agreed format for text encoding. Originally it was based on 7bits with allowed for 128 permutations (character) however this was changed to 8bits (1 Byte) which would allow for \_\_\_ characters?

ACII table / Map would represent every character a computer would use for text.

Why would 7bit and later 8bit not offer enough permutations?

# American Standard Code for Information Interchange ... ASCII

## Task - ASCII

**Remember:** This is a PowerPoint which means it's a presentation. Must be easy to read and visual as if you are going to present it....

In a few slides in your presentations please answer/address the following points about ASCII.

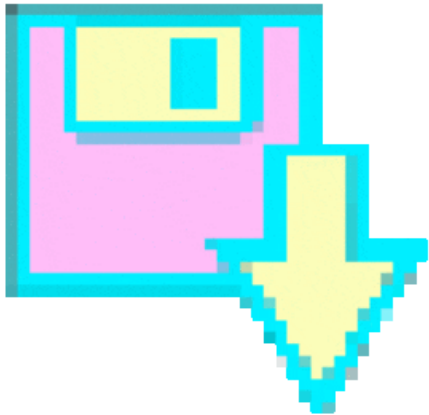
1. What is ASCII and how it come about?
2. What is the character map for ASCII.
3. What do the first 32 permutations represent / referred to as?
4. What comes first symbols & numbers, lower case or upper case numbers?
5. Is the English alphabet represented in order? In bother upper case and lower case?
  1. What implications might this have if you where given B which is 66 in the map?
6. What's the language problem with ascii?

# Task - Unicode

In your presentation answer the following

1. What is Unicode?
2. Does it use more or less memory to represent text?
3. How many bits does it use?
4. Is this a problem with modern day storage?
5. What is the benefits of this method of encoding over ASCII?
6. What are the first 128 codes of Unicode?

# Save your presentation.



Extension Task: Error Checking methods of text.

Research and describe the following error detection methods.

1. **Parity bit** method of error detection in Unicode.
2. **Majority voting** is another common method of identifying errors during data transfer.
3. **Check Digits** method.