

CS
UNPLUGGED  at a distance

Information Theory

Key question

- How can information be measured?
- What is entropy?



Claude Shannon

Shannon's prediction and entropy of printed text experiment

Available alphabet

Click the character you expect to be next in the sentence.

Tip: The `␣` character is used to represent the space character between words.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z . ␣

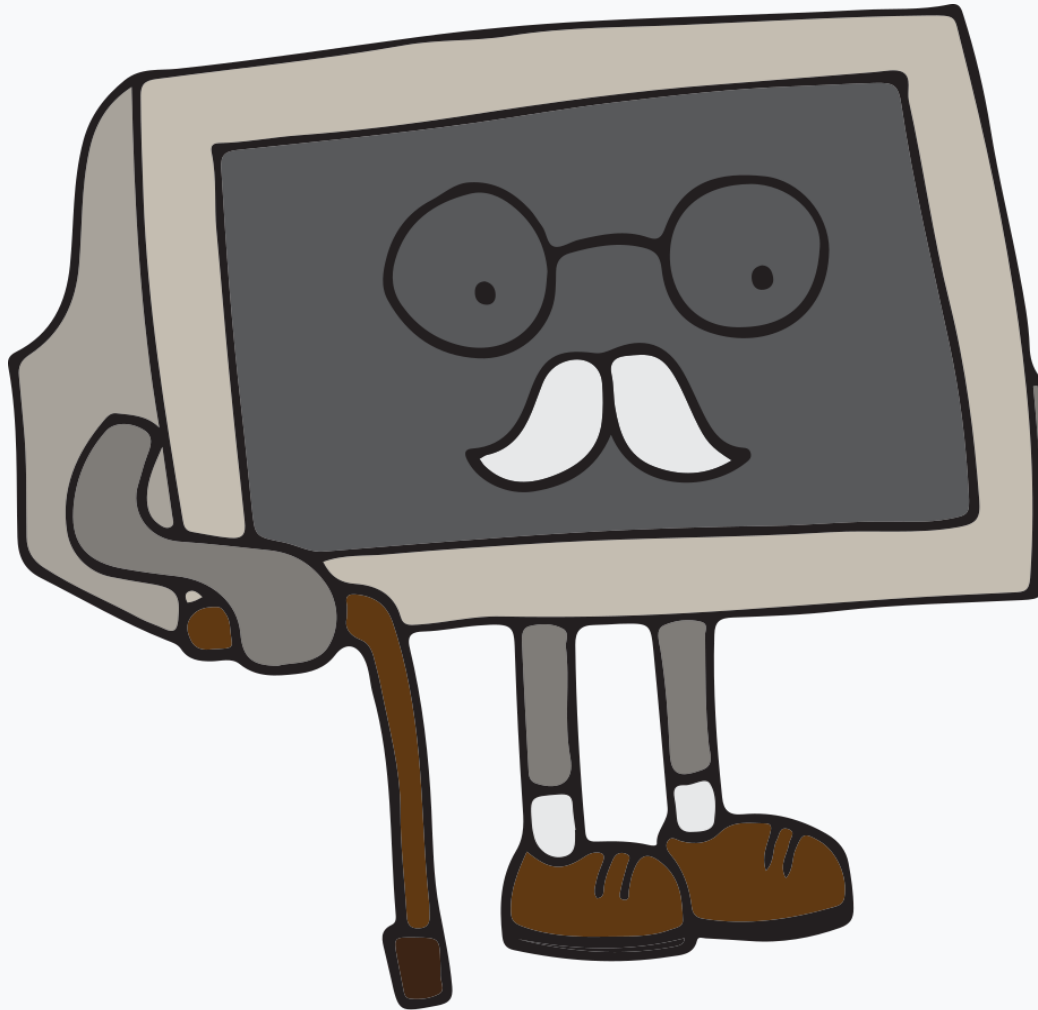
Sentence

?

0

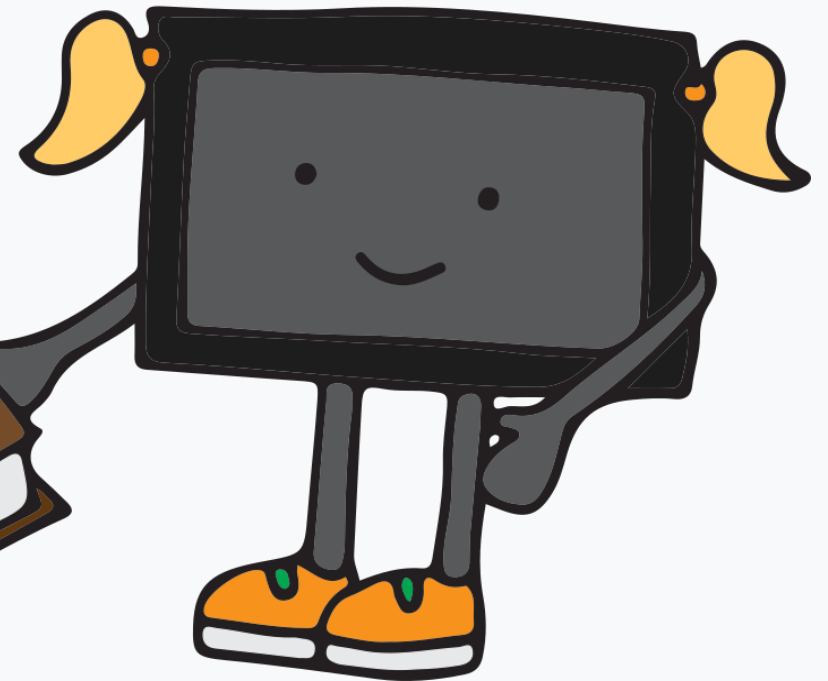
Show statistics

I think I will ask if it is a T.



They will first ask me if it is a T. It is, so I will just say "Yes".

Yes!





Message:

a a a a a a a a a

What comes next?

Message:

z q a v

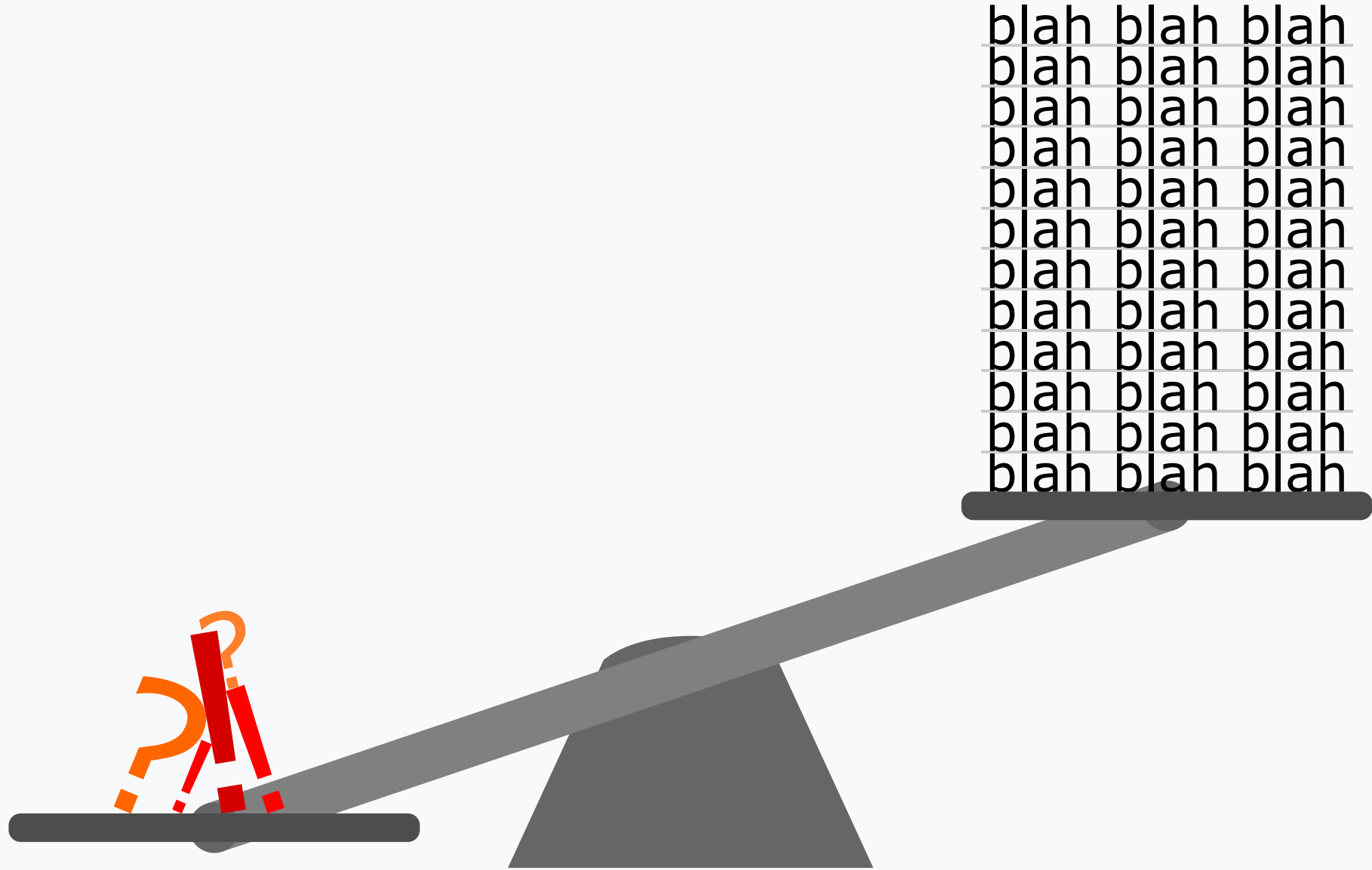
What comes next?

Message:

a b c a b c a b c

What comes next?

							?	?	?	?
?	?	?	?	?	?	?	?	?	?	?



blah blah blah
blah blah blah
blah blah blah
blah blah blah
blah blah blah
blah blah blah
blah blah blah
blah blah blah
blah blah blah
blah blah blah
blah blah blah
blah blah blah



Supporting Resources

- **Original CS Unplugged activity**

<https://classic.csunplugged.org/activities/information-theory/>

- **Computer Science Field Guide: Shannon interactive**

<https://www.csfieldguide.org.nz/en/interactives/shannon-experiment/>

- **CS Unplugged at home: Guess the sentence**

<https://www.csunplugged.org/en/at-home/guess-the-sentence/>