

Name: _____ Period: _____

Text compression allows you to reduce a file size and the un-compress back to the original file. This is a type of lossless compression. When you “zip” a file, you are compressing the file size so that requires less memory to store or is able to be transported/emailed more efficiently. There are three types of text compression that you should be aware of...

1. **Keyword encoding**
2. **Run length encoding**
3. **Huffman encoding**

The **compression ratio** is a measure of how compressed a file is. The formula for determining the compression ratio is:

Compressed size / original size = compression ratio

This will result in a number between 0 and 1. The closer the ratio is to 0, the tighter the compression.

KEYWORD ENCODING: REPLACING FREQUENTLY USED WORDS WITH SINGLE CHARACTERS.

Use a keyword encoding algorithm to reduce the size of this message from Dr. Seuss:

Think left and think right and think low and think high. Oh, the thinks you can think up if only you try!

** Note: spaces count as characters. You can replace a word & its surrounding spaces as one character to further reduce the file size.

Write your encoding system here. Let’s see who can get the best compression ratio.

Compressed size: _____

Original size: _____

Compression ratio: _____

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RUN LENGTH ENCODING: Replacing long series of characters with a count of repetition. Characters are replaced by a * followed by the repeated character and then the single digit count of the amount of repetition. Compression only happens on repetition strings that are between 4 – 9 (inclusive of both).

Example: AAAAAAA ----> *A7

Use run length encoding to compress the following strings...

NnnnnnnxxxxxxxxccchhhhhhVVV -----? _____

Compressed size: _____

Original size: _____

Compression ratio: _____

Huffman encoding: A type of encoding that assigns a smaller binary value to frequently used characters and a higher binary value to less frequently used characters. Use the following video to complete a Huffman encoding algorithm on “Mississippi River”. Include the original size, compressed size and compression ratio. Complete your work on the attached page.

Video link: <https://goo.gl/UWPgaV>