

Data Representation

Braille Alphabet



Braille Alphabet

The six dots of
the braille cell are
arranged and numbered:

1 • • 4
2 • • 5
3 • • 6

The capital sign, dot 6,
placed before a letter
makes a capital letter.

1 4
2 5
3 • 6

The number sign, dots 3, 4, 5, 6
placed before the characters
a through j, makes the numbers
1 through 0. For example a preceded
by the number sign is 1, b is 2, etc.

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
:: :: :: :: :: ::

| Capital Sign | Number Sign | Period | Comma | Question Mark | Semi-colon | Exclamation point | Opening quote | Closing quote |
|--------------|-------------|--------|-------|---------------|------------|-------------------|---------------|---------------|
| ••• | :: | :: | :: | :: | :: | :: | :: | :: |

Telegraph Communication



Samuel F.B. Morse, 1835



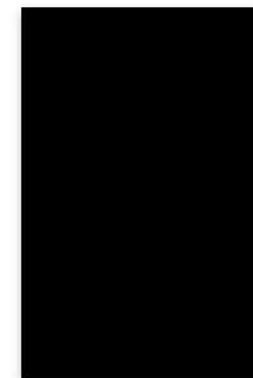
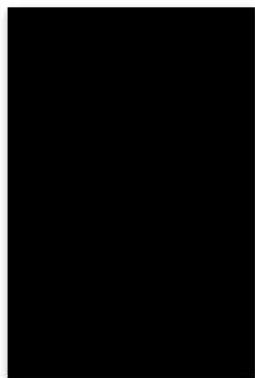
| | |
|---|-----------|
| A | • - |
| B | - - . . |
| C | - - . - |
| D | - - .. |
| E | • |
| F | • . - - . |
| G | - - - . |
| H | • . . . |
| I | • .. |
| J | • - - - - |
| K | - . - |
| L | • - . . |
| M | - - |
| N | - . |
| O | - - - |
| P | • - - . |
| Q | - - - . |
| R | • - . |
| S | • . . |
| T | - |

| | |
|---|---------|
| U | • - . - |
| V | - - . . |
| W | - . - - |
| X | - - . - |
| Y | - . - - |
| Z | - - - . |

| | |
|---|-----------|
| 1 | • - - - - |
| 2 | • - - - - |
| 3 | • - - - - |
| 4 | • - - - - |
| 5 | • - - - - |
| 6 | • - - - - |
| 7 | • - - - - |
| 8 | • - - - - |
| 9 | • - - - - |
| 0 | • - - - - |

Binary Representation

Binary Cards



0 dots are visible

Flip all card sides to:

BLACK

WHITE

Representation of Numbers by Binary Code

$$\begin{array}{cccccccccc} 0 \times 2^5 & + & 0 \times 2^4 & + & 0 \times 2^3 & + & 0 \times 2^2 & + & 0 \times 2^1 & + & 0 \times 2^0 & = & 0 \\ 0 \times 32 & + & 0 \times 16 & + & 0 \times 8 & + & 0 \times 4 & + & 0 \times 2 & + & 0 \times 1 & = & 0 \\ 0 & + & 0 & + & 0 & + & 0 & + & 0 & + & 0 & = & 0 \\ \boxed{0} & \boxed{0} & \boxed{0} & \boxed{0} & \boxed{0} & \boxed{0} & & & & & & \end{array}$$

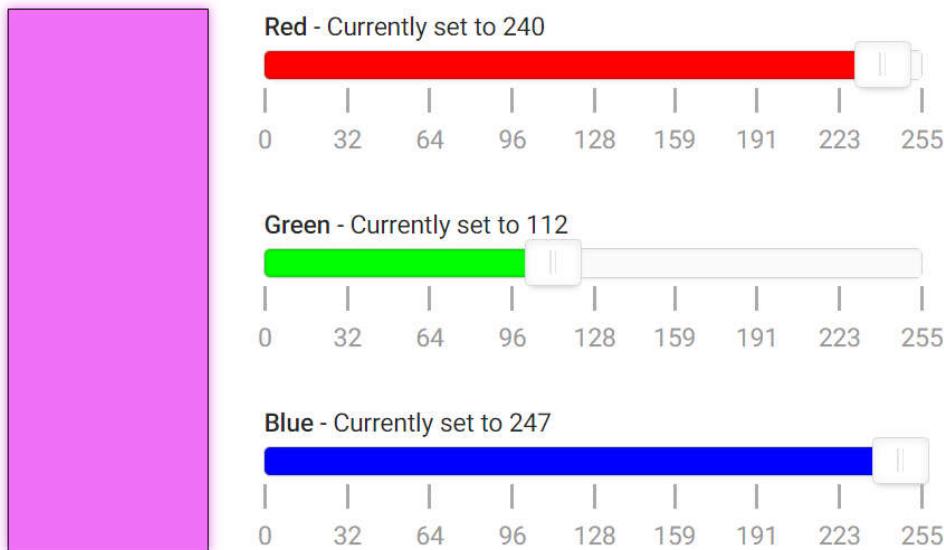
ASCII Code

(American Standard Code for Information Interchange)

| Letter | Binary | Letter | Binary |
|--------|------------------|--------|----------------|
| A | 01000010 | N | 01001100 |
| B | 01000011 | O | 01001101 |
| C | 010000100010 | P | 010011010010 |
| D | 010000100100 | Q | 010011010100 |
| E | 010000100110 | R | 010011010110 |
| F | 010000100111 | S | 010011011000 |
| G | 01000010011100 | T | 010011011010 |
| H | 01000010011101 | U | 010011011100 |
| I | 01000010011110 | V | 010011011110 |
| J | 01000010011111 | W | 010011011111 |
| K | 0100001001111100 | X | 01001101111100 |
| L | 0100001001111101 | Y | 01001101111101 |
| M | 0100001001111110 | Z | 01001101111110 |

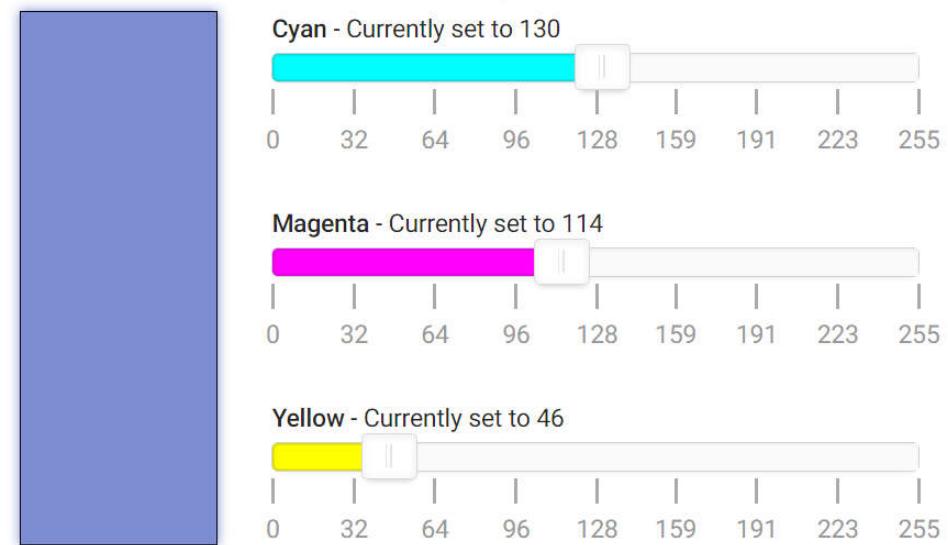
Color Representations

RGB Colour Mixer - Used by Screens



RGB : Red-Green-Blue

CMY Colour Mixer - Used by Printers

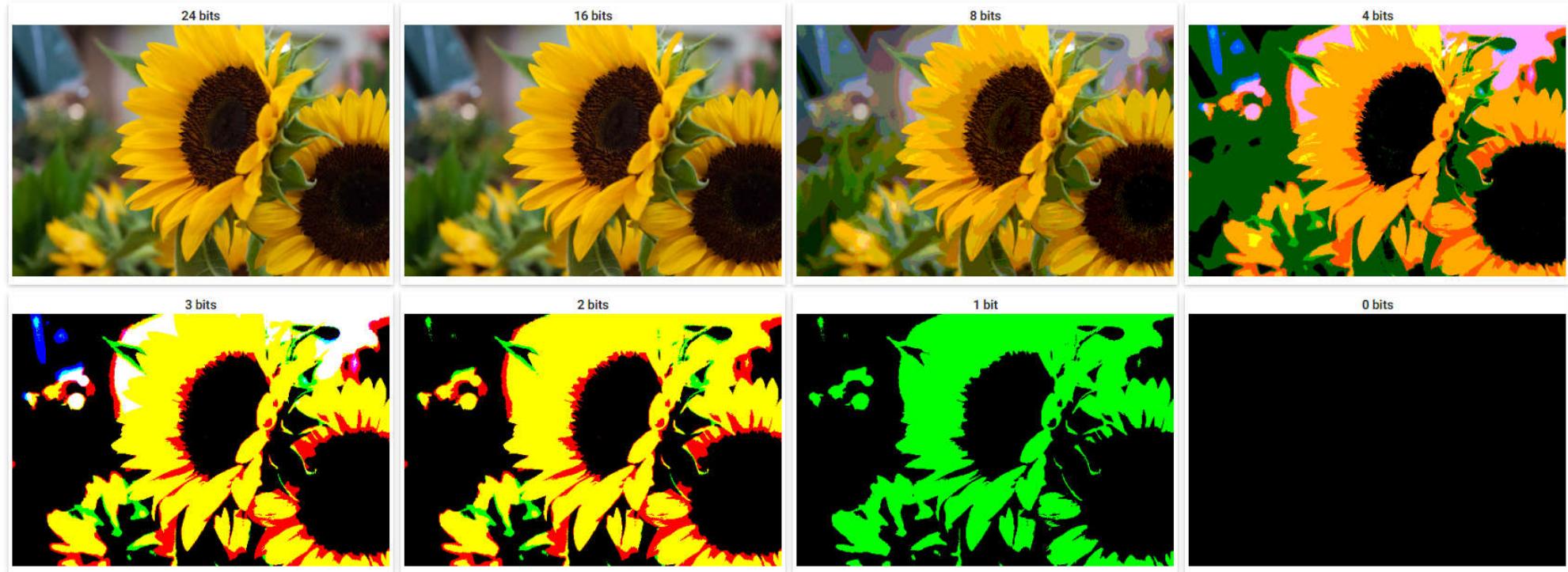


CMY : Cyan-Magenta-Yellow

Image Representation

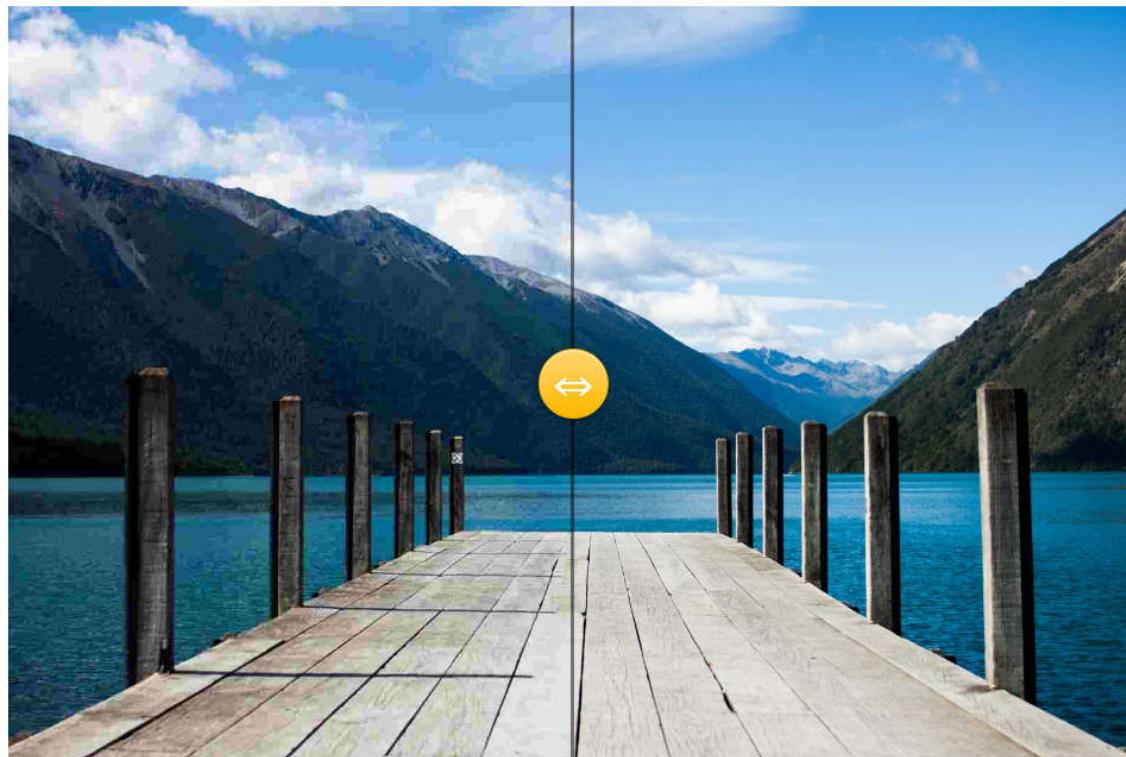


Image Depths



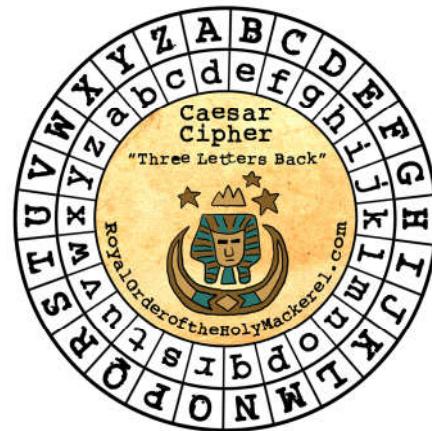
Data Compression

Move the slider to compare the two images



Data Encryption

Caesar Cipher



Plaintext

JEERAYUT

ENCRYPT

Rotation Amount

3

Ciphertext

MHHUDBXW

DECRYPT

Data Decryption



Egyptian Hieroglyphs

THE BOOK OF THE DEAD.

PLATE I.

1. tua Rā χeſt uben - f em χut abtet ent pet
Adoration of Rā when riseth he in horizon eastern of heaven.

ān Ausir ān neter hetep en neteru nebu Ani t'et - f
Behold Osiris, the scribe of the holy offerings of the gods all, Ani ! Saith he,

ānet' - h̄rā - k i - θā em χeþerā χeþerā em gemam neteru
Homage to thee, who hast come as Kheperā, Kheperā as the creator of the gods.

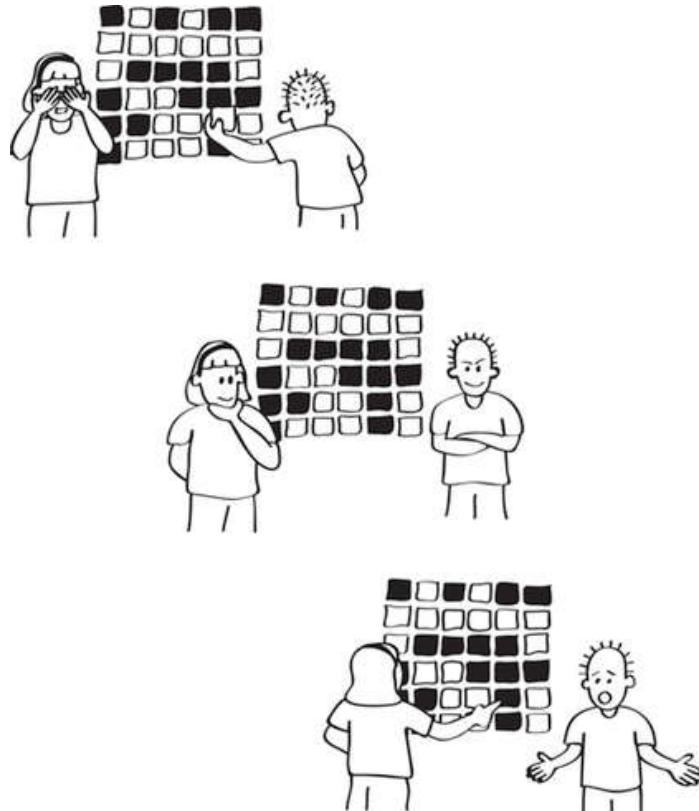
χāā - k uben - k pest mut - k χāā - θā em suten neteru
Thou risest, thou shinest, making bright thy mother, crowned as king of the gods,

āri - nek mut Nut āāui - s em árit nini seþep - tu
doeth to thee mother Nut [with] her two hands the act of worship. Receiveth thee

Manu em hetep hept - tu Maät er tra tā - f χu
Manu with content, embraceth thee Maät at the double season. May he give splendour

us em maā - χeru pert em ba āñxi er maa
and power together with triumph, [and] a coming forth as a soul living to see

Data Error Detection



Parity Trick

Setting Parity

The grid is considered valid if each row and column has an even number of white squares.

Click the parity bits in the last row and column to set them correctly. Click the 'Flip a bit' button when you are done.

FLIP A BIT

Grid Size:

6

START OVER

