



# VISUAL THINKING

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RICHARD FEYNMAN:

# THE GREAT CONSERVATION PRINCIPLES

for DRAMATIC EFFECT

THE GODS PLAY IT FAST.

NATURE = GREAT CHESS GAME

We don't need to watch the INSIDES, but we know something about the GAME ANYWAYS.

CONSERVATION OF ELECTRIC CHARGE

THE TOTAL IN THE WORLD DOESN'T CHANGE

$N \rightarrow p^+ + e^-$

Each particle in NATURE has a CHARGE. They have to BALANCE on either side.

If you lose it HERE

You'll find it OVER HERE

PRINCIPLE OF RELATIVITY [EINSTEIN]

PHENOMENA OF Motion is RELATIVE DEPENDING ON POINT OF VIEW.

A nice round ball quite complicated in detail...

Two guys pass each other in a spaceship

How do you know? You're moving!

WHICH IS MOVING CANNOT BE PROVEN BY ANY EXPERIMENT.

IF ANYTHING IS IT MUST BE CONSERVED LOCALLY

a physicist uses all the ORDINARY WORDS in an UNUSUAL MANNER:

You CAN CALCULATE A NUMBER, ACCORDING TO A RULE COMES OUT THE SAME AFTER, NO MATTER WHAT

ANGULAR MOMENTUM

## Law of conservation of ENERGY

HIDDEN BLOCKS

Number of blocks seen + weight of box - 16oz = 28

abstract calculations

THermal ENERGY

...a bumpy business made out of balls.

...LATIONS LEFT BEHIND STILL SHAKING IN THE FLOOR.

PHYSICISTS & THEIR IRRATIONAL RATIOS.

I have 20 shillings to a pound.

I have 1.618198 shillings to a pound.

THE ONLY UTILITY OF THE SCIENCE IS TO GO ON AND MAKE GUESSES.

So WHAT WE DO ALWAYS IS TO STICK YOUR NECK OUT & THAT OF COURSE MEANS THAT SCIENCE IS UNCERTAIN.

WE HAVE TO PROPOSE LAWS BEYOND THEIR RANGE.

CONSERVED	CHARGE	PARITY	STRANGENESS
YES	YES	YES	NEARLY Y
COMES IN UNITS	YES	YES	NEARLY Y
SOURCE OF A FIELD	YES	?	?

We make these tables because it's a TRICK WAY of GUESSING at NATURE

IF YOU THOUGHT BEFORE THAT SCIENCE WAS CERTAIN, WELL THAT'S JUST AN ERROR ON YOUR PART.

Discovering the laws of physics is like trying to put the pieces together of a JIGSAW PUZZLE.

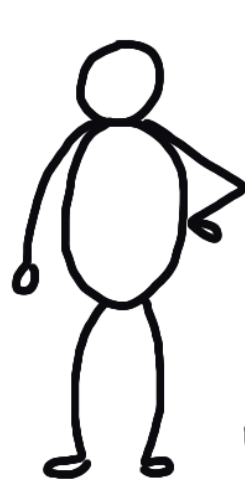
How do we know they're all part of ONE, AT PRESENT INCOMPLETE, picture?

WE'RE NOT SURE, but we get ENCOURAGEMENT from the common characteristics of several pieces - they all show BLUE SKY, or they're all made out of the same kind OF WOOD.

# ScioClimate Scribes



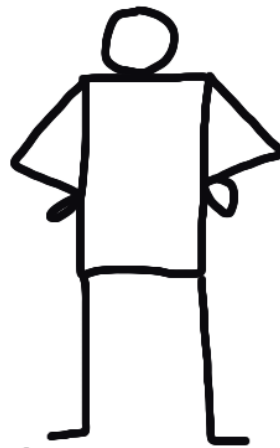
# People



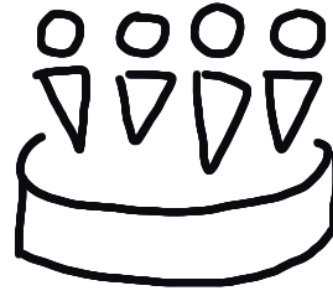
Bean



boulder



box

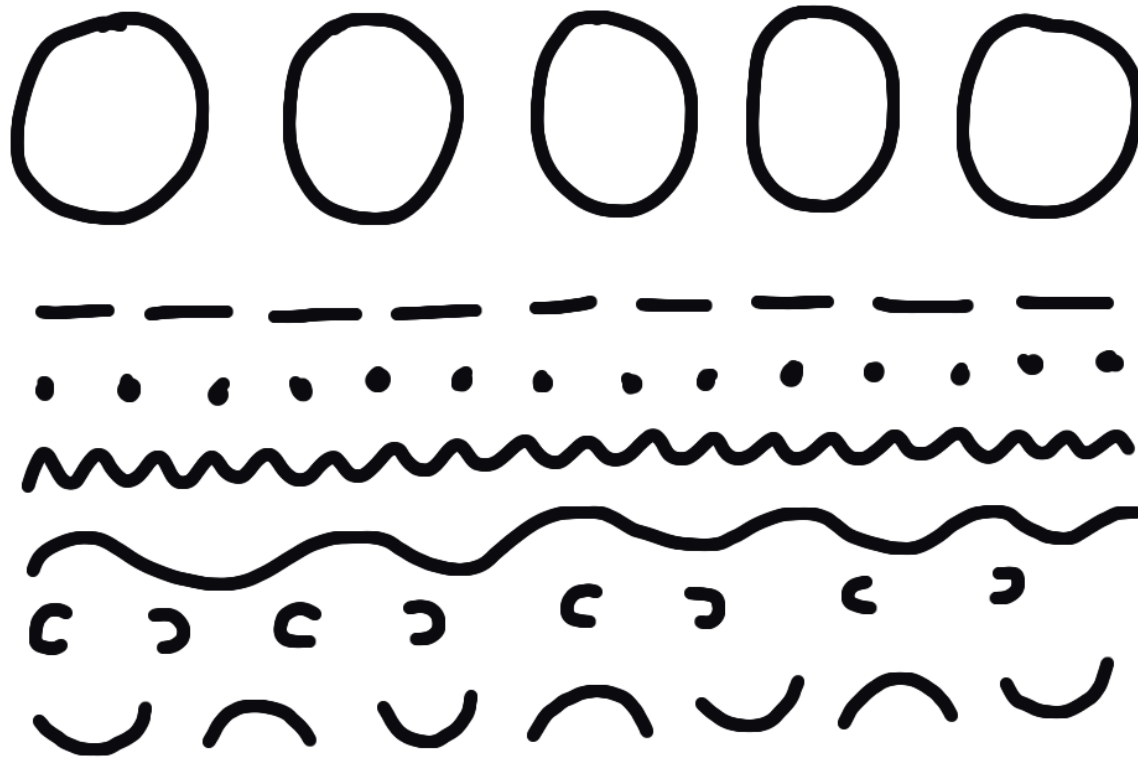


stakeholders

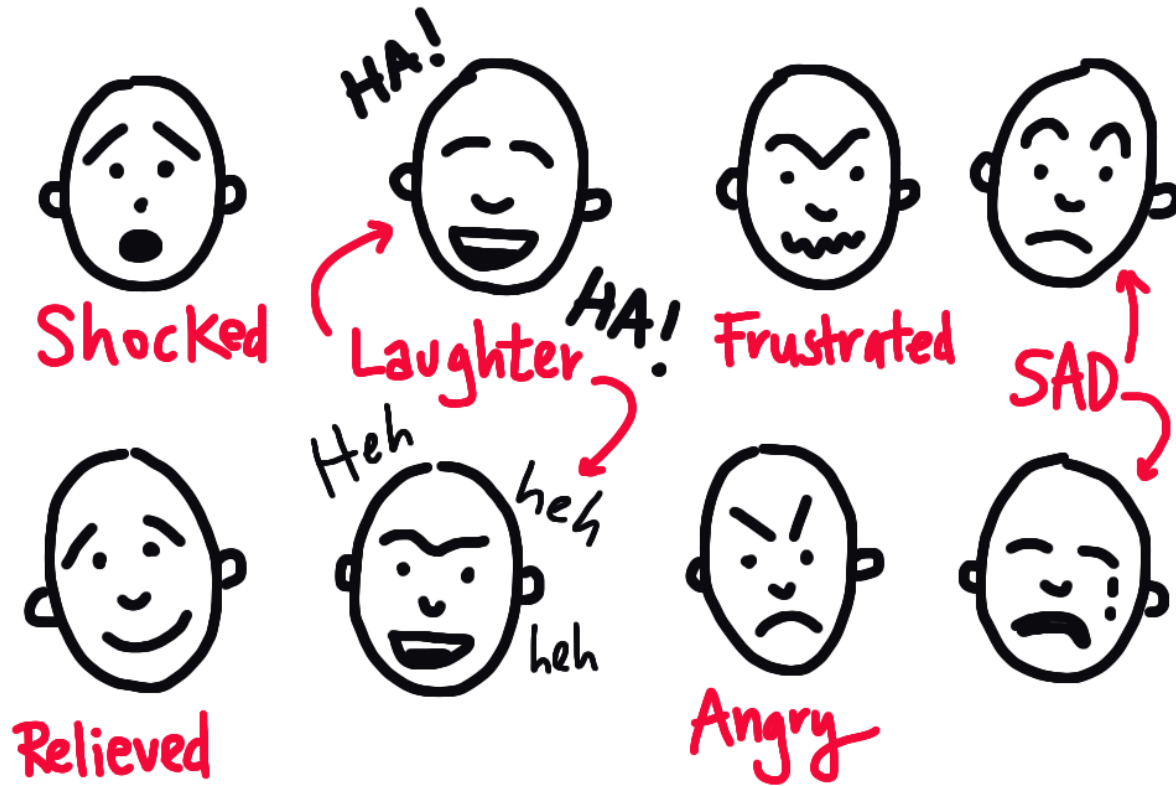
# Star People



# Emotion with Basic Shapes



# Emotions with Basic Shapes

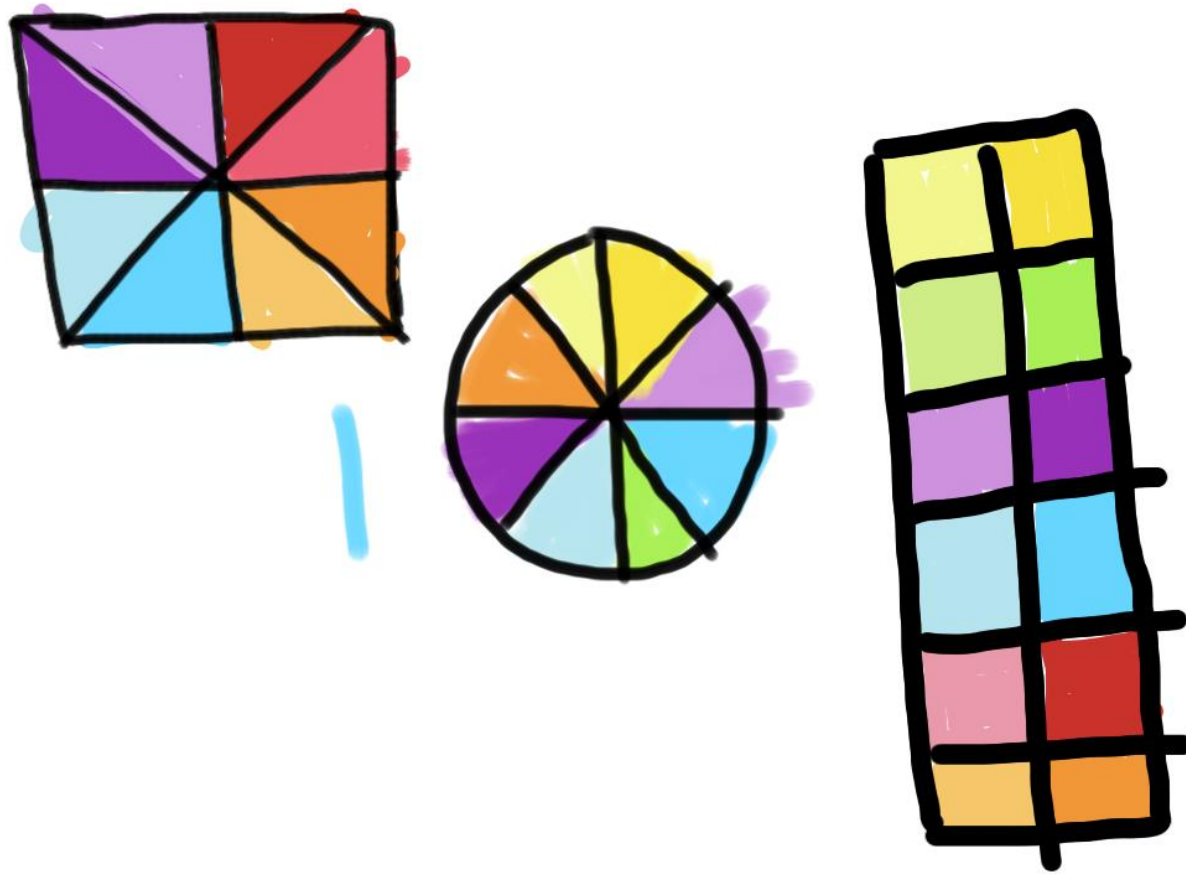


# Color





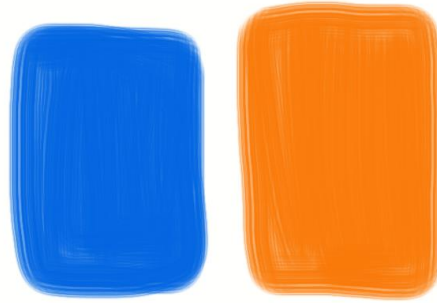
# Play with Colors



# Color and Emotion

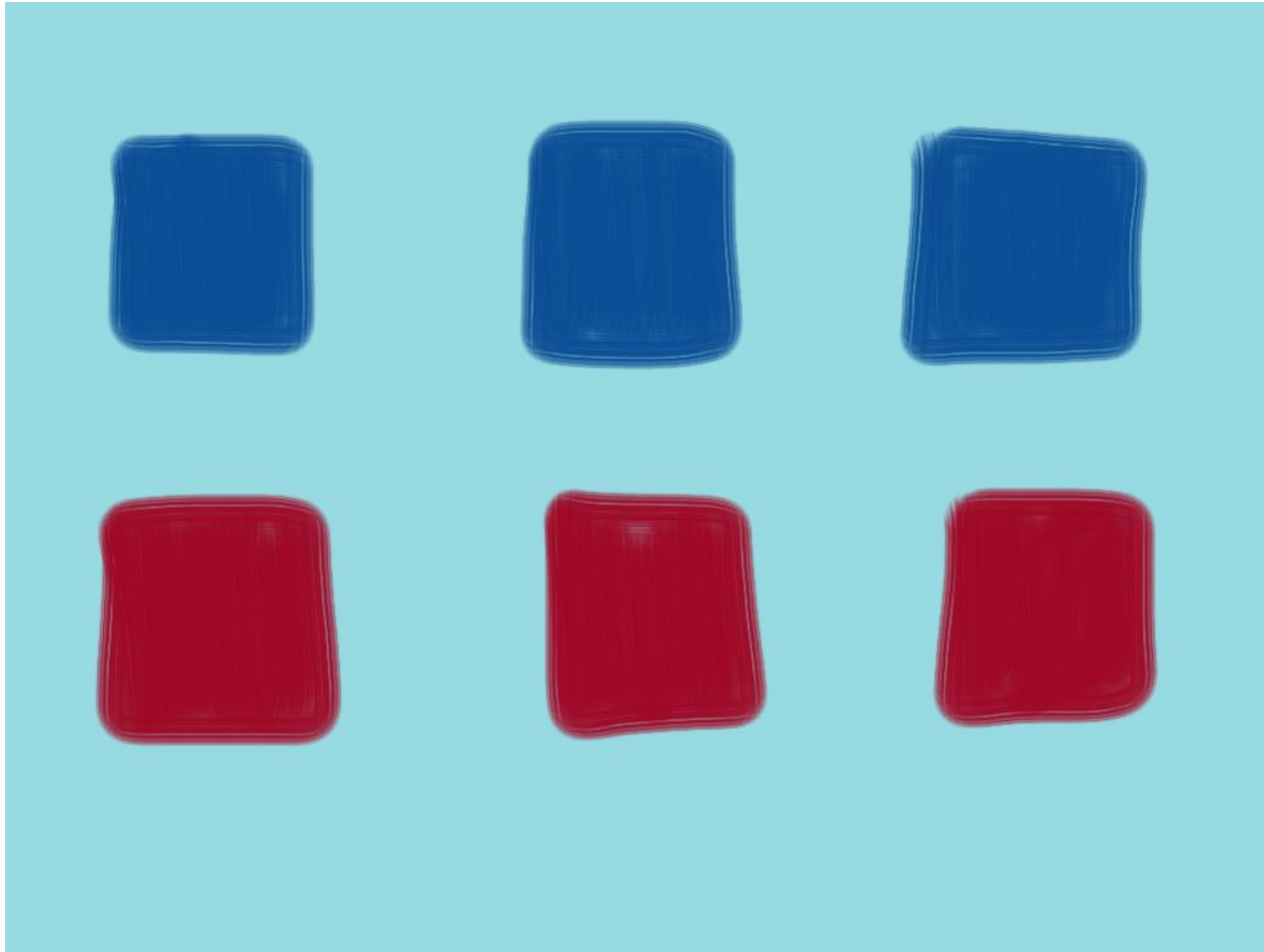


# Contrast

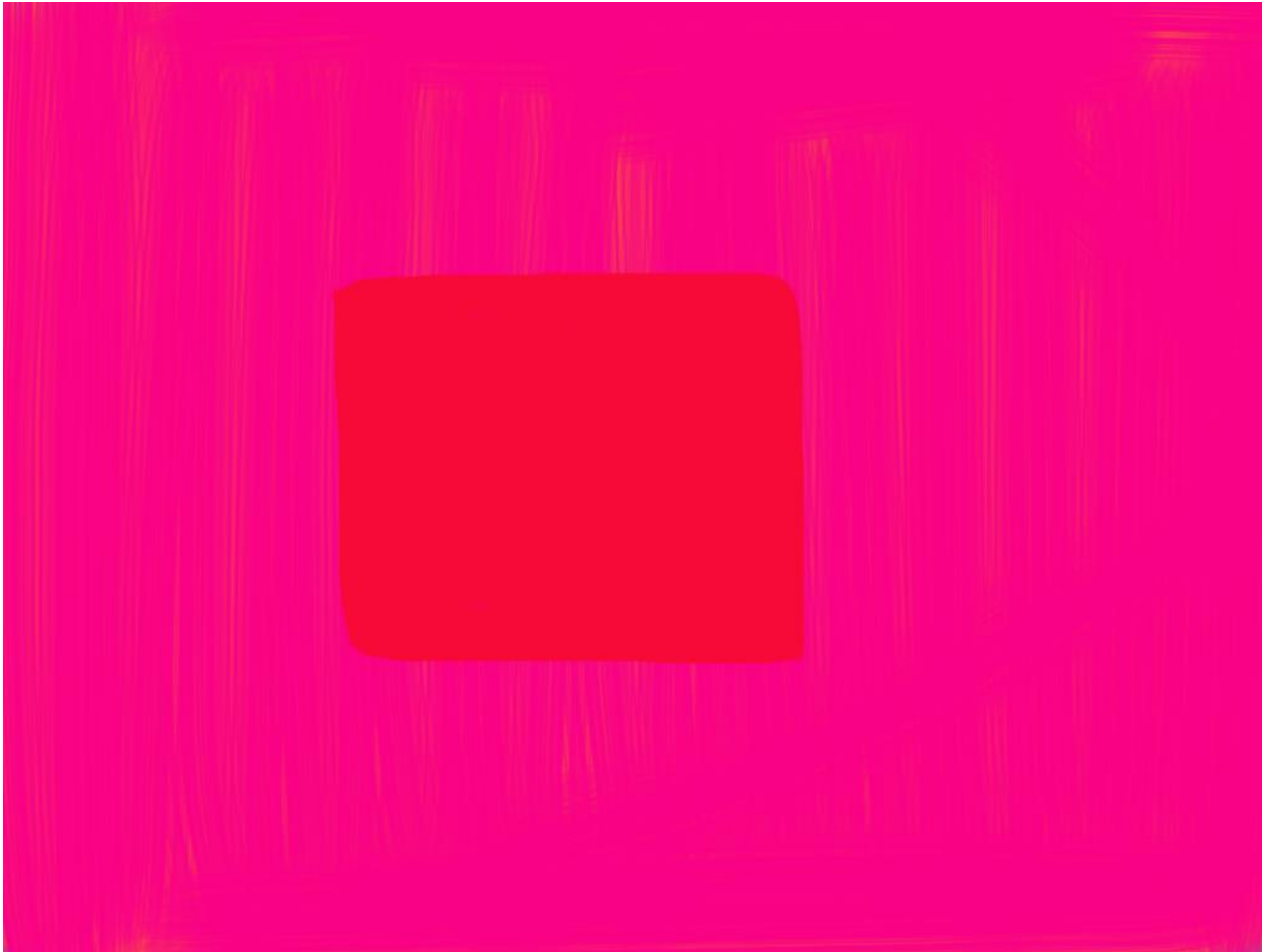


**BOLD**

# Color and Background

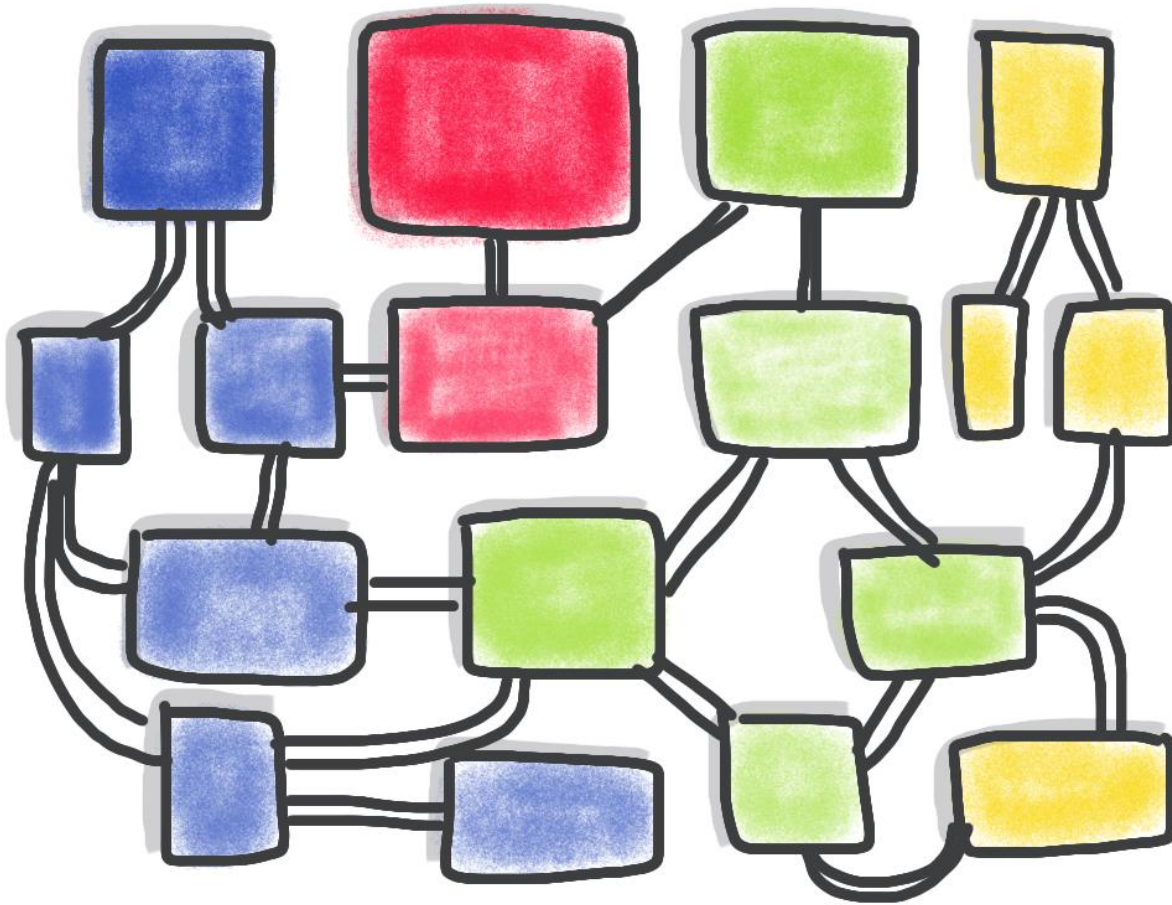


# Legibility

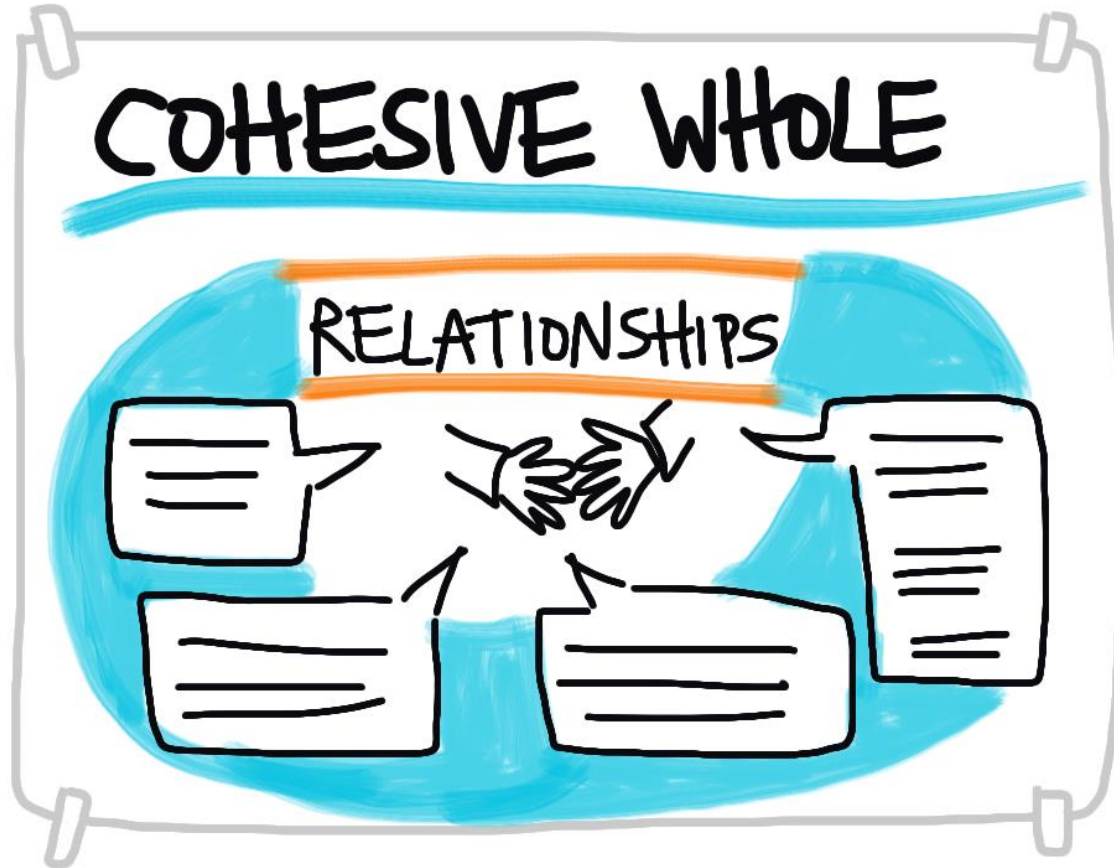


To Be  
Read

# Using color to guide the eye

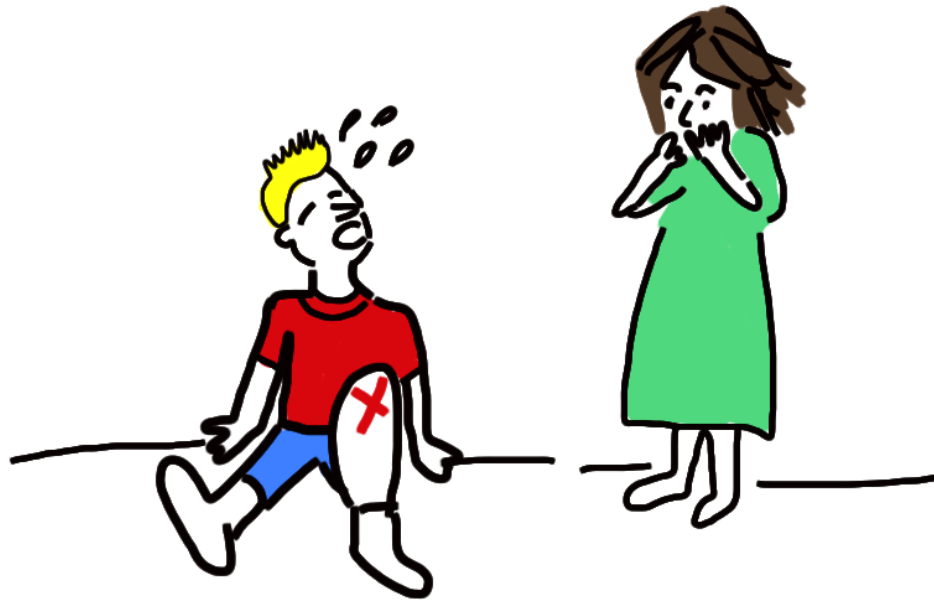


# Using Color for Unity

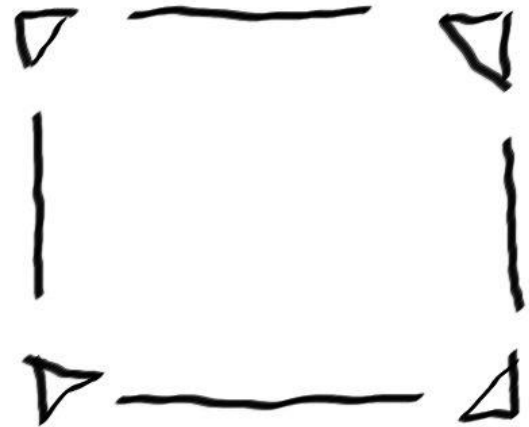
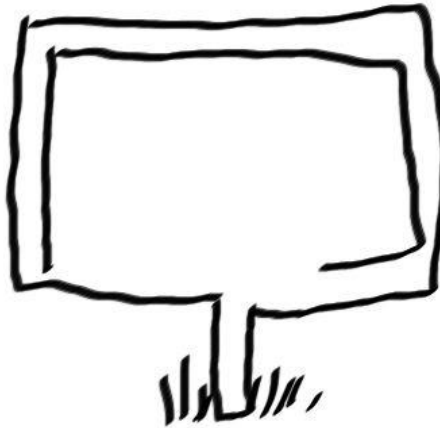
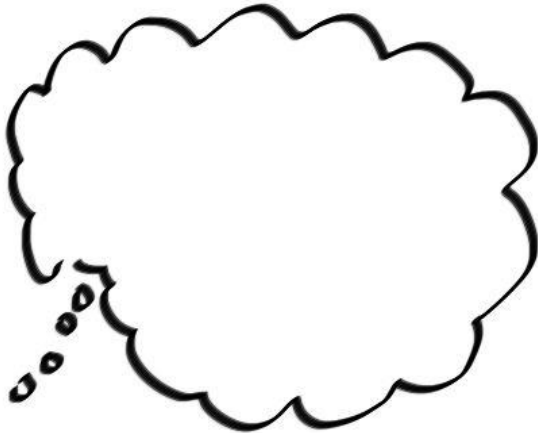
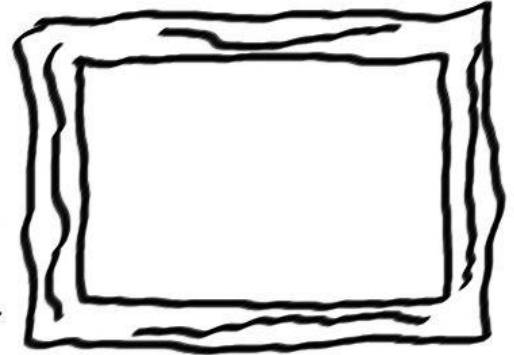
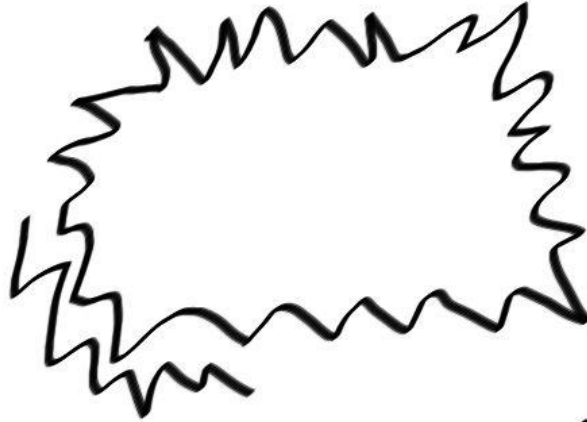
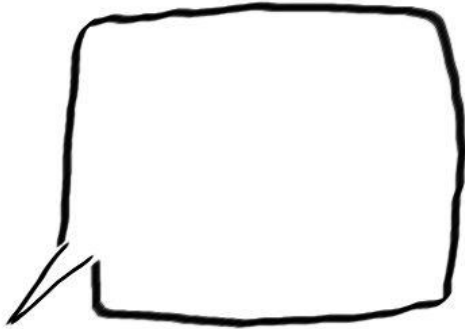




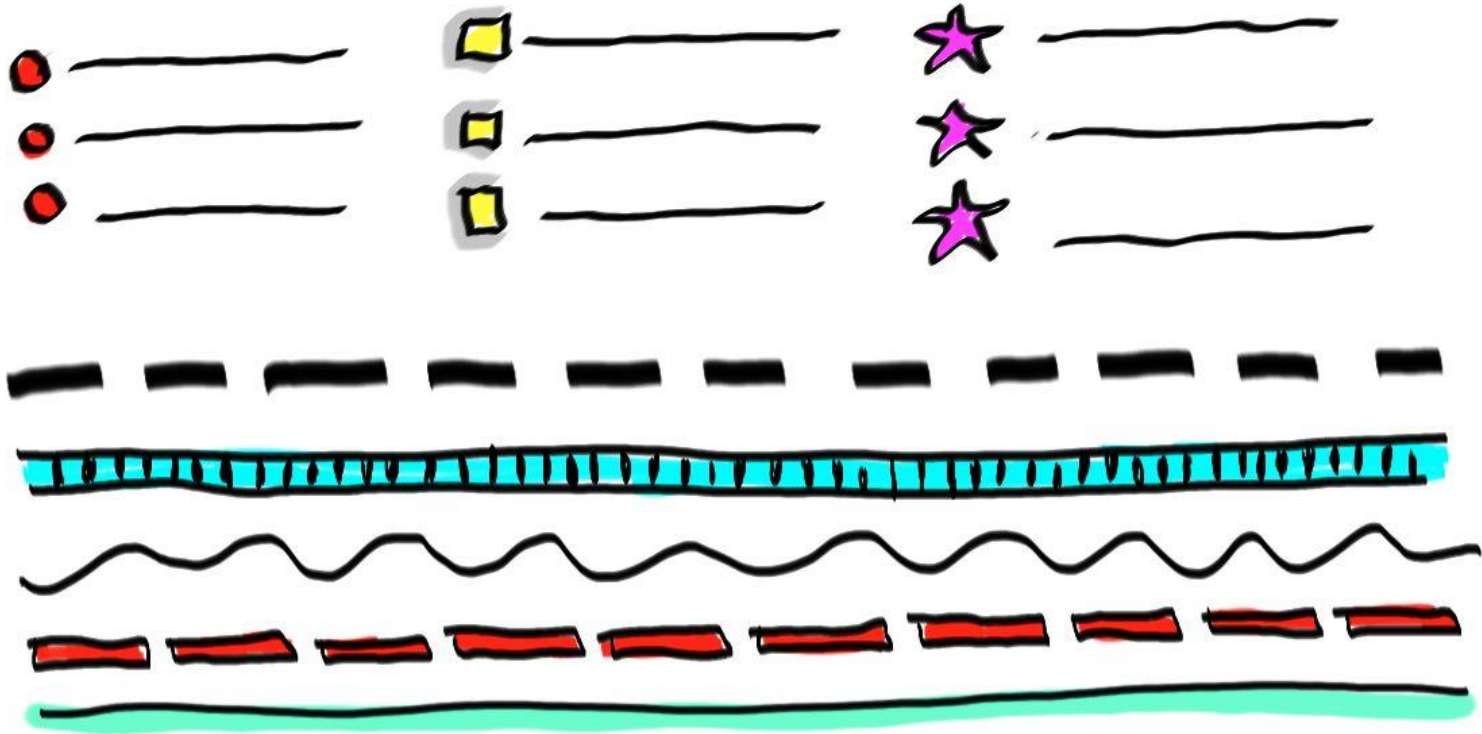
# Emotion



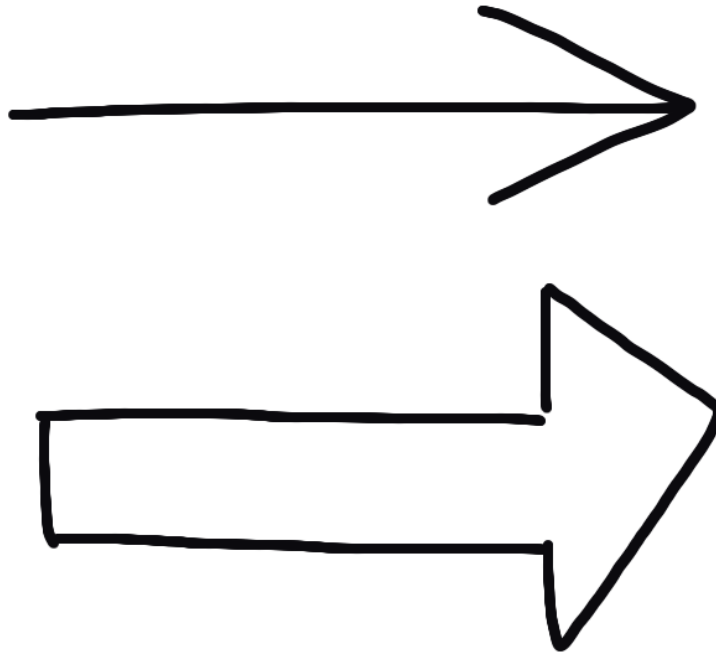
# Frames



# Bullets/Dividers



# Directional Devices Using Basic Shapes



# Directional Devices

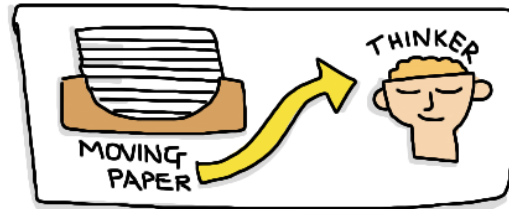


# Speech and Thought Bubbles

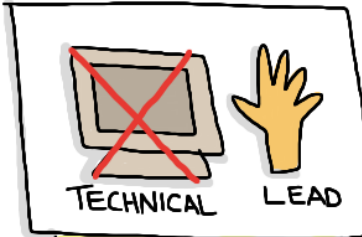


# Visual Hierarchy

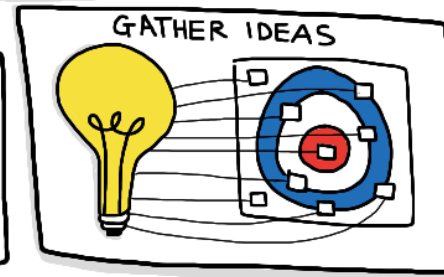
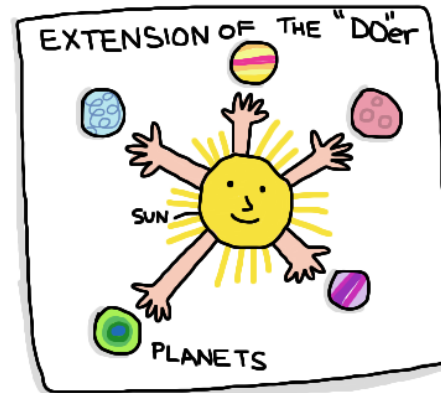
WHAT EXTRAORDINARY EXECUTIVES DO?



UNDERSTAND THE ESSENCE  
↓  
SHARE YOUR VISION  
↓  
CULTIVATE THE CULTURE



SKILLS!!!



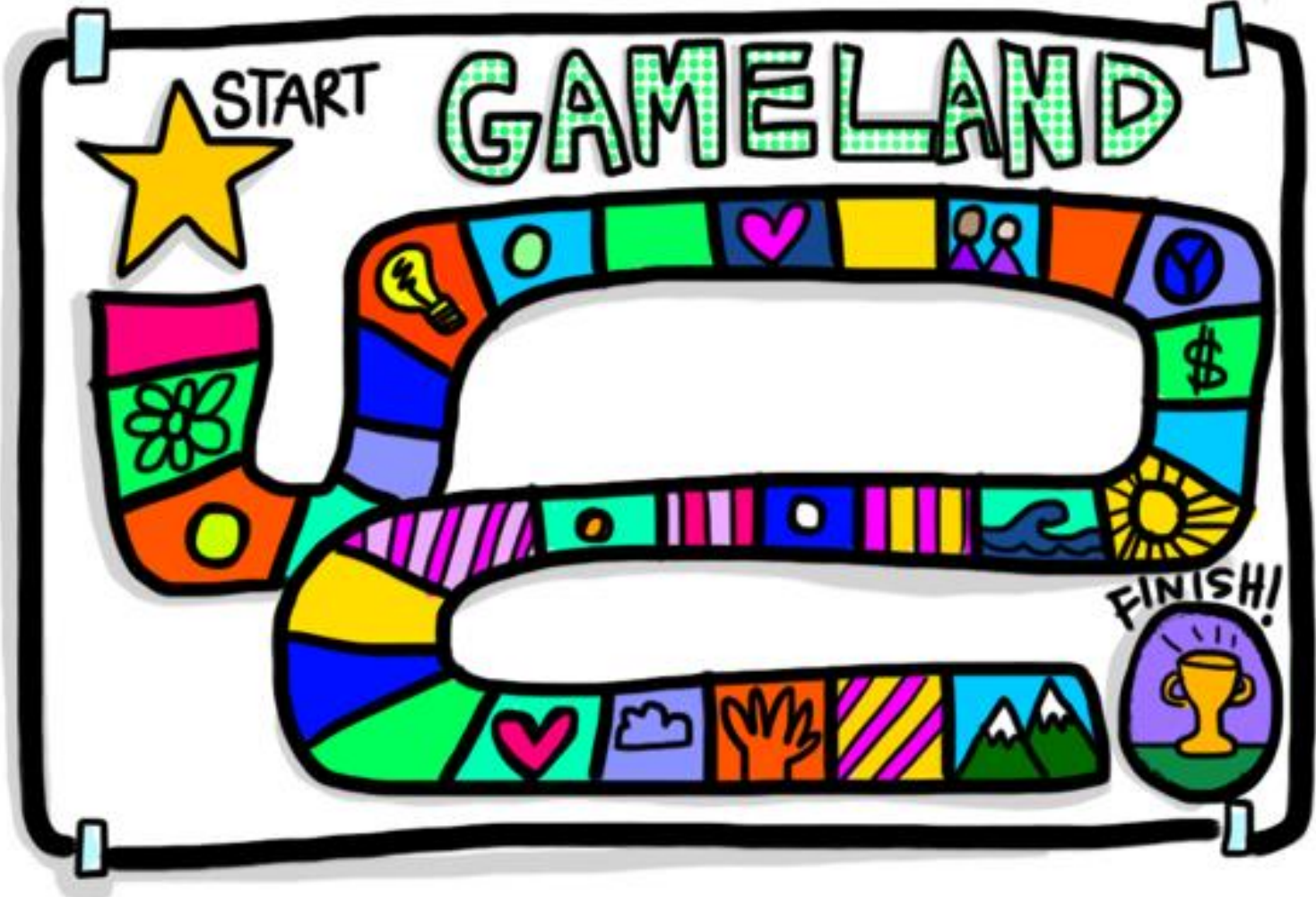
# Storytelling/Timeline



**THE HERO'S**  
JOURNEY



# Gameboard



# #SciSciComm: Data-Based Communication



#SciSciComm  
#Sci04

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