

SCIENCE OF LEARNING

CONFERENCE 2025

PLATINUM SPONSORS



GOLD SPONSORS




The Transfer Dilemma

Dr Jared Cooney Horvath



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PhD, MEd, BAMF



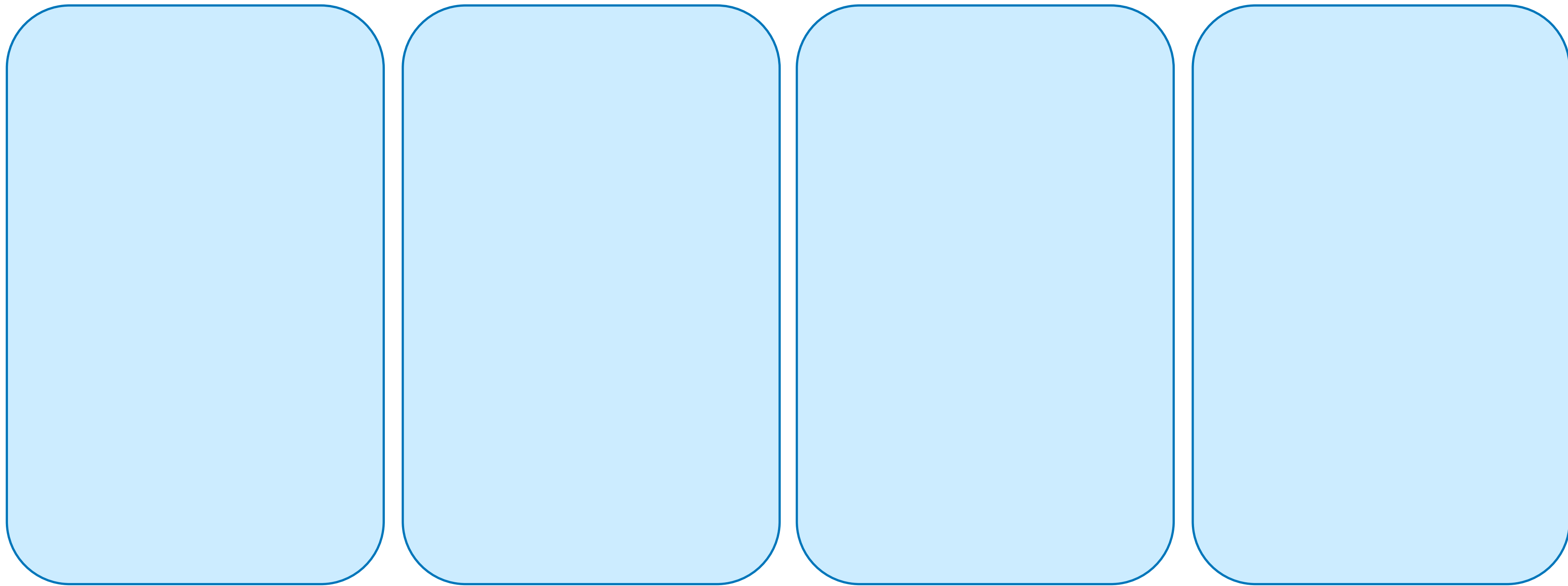


LME GLOBAL

LEARNING MADE EASY



A GAME



A GAME

A

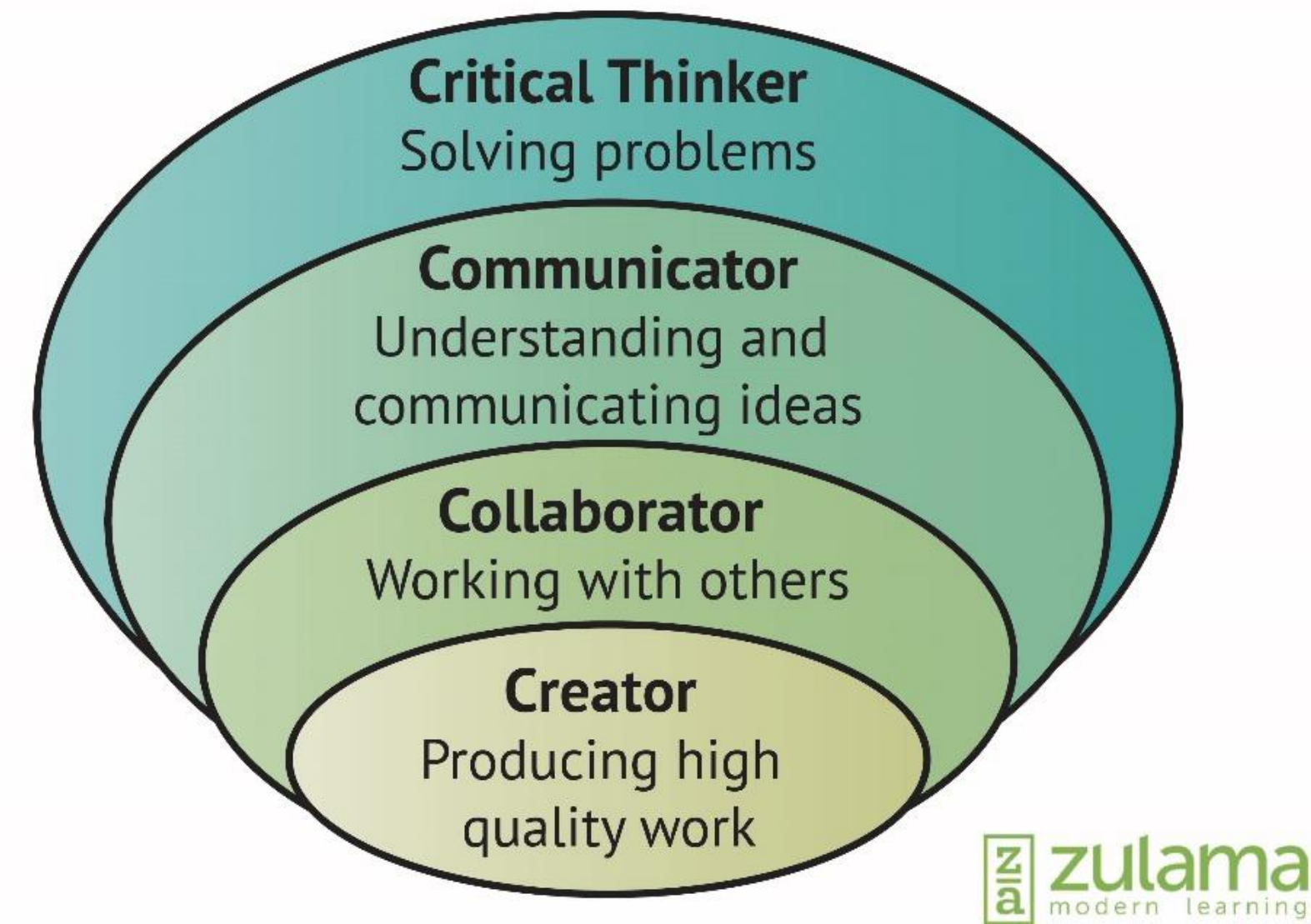
2

B

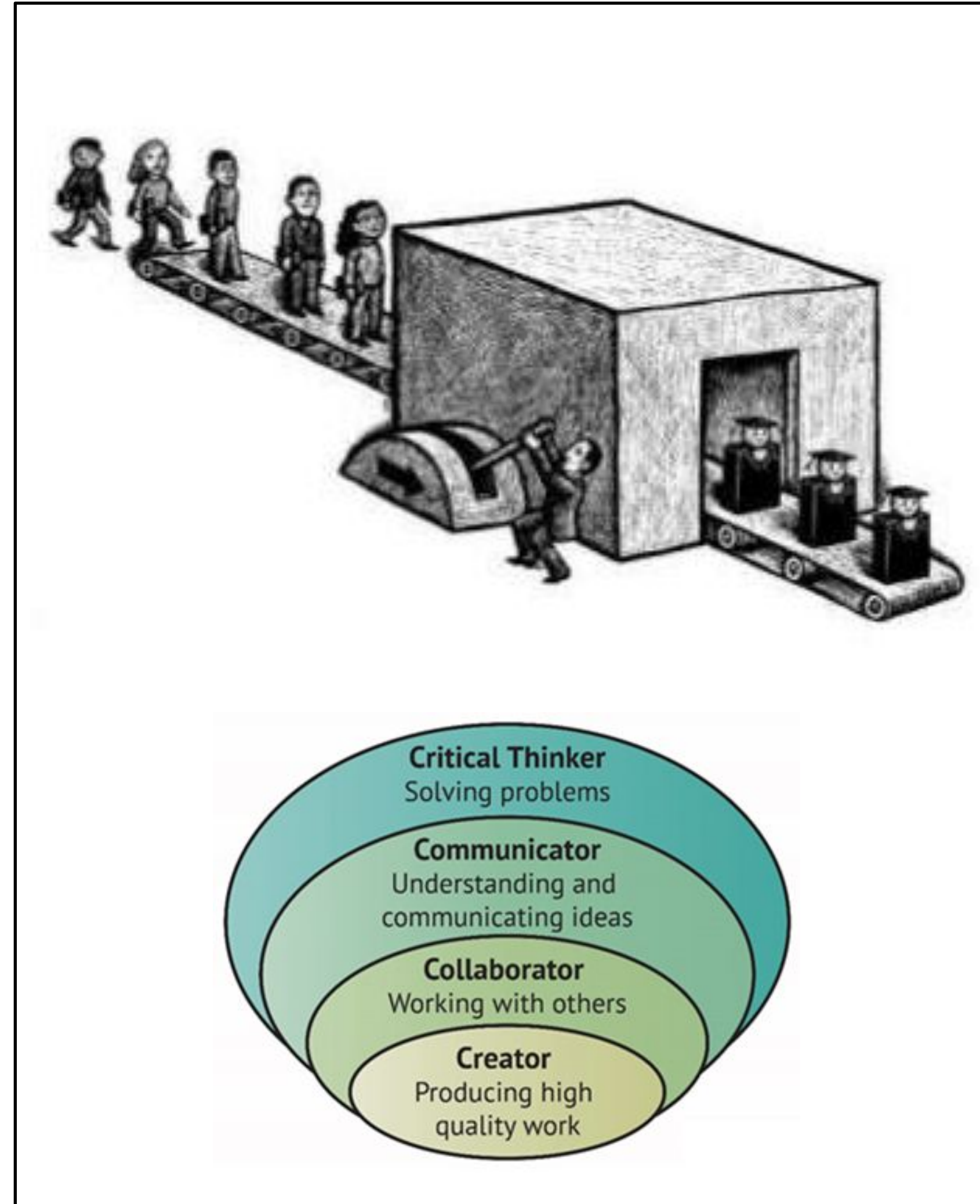
3

Competencies

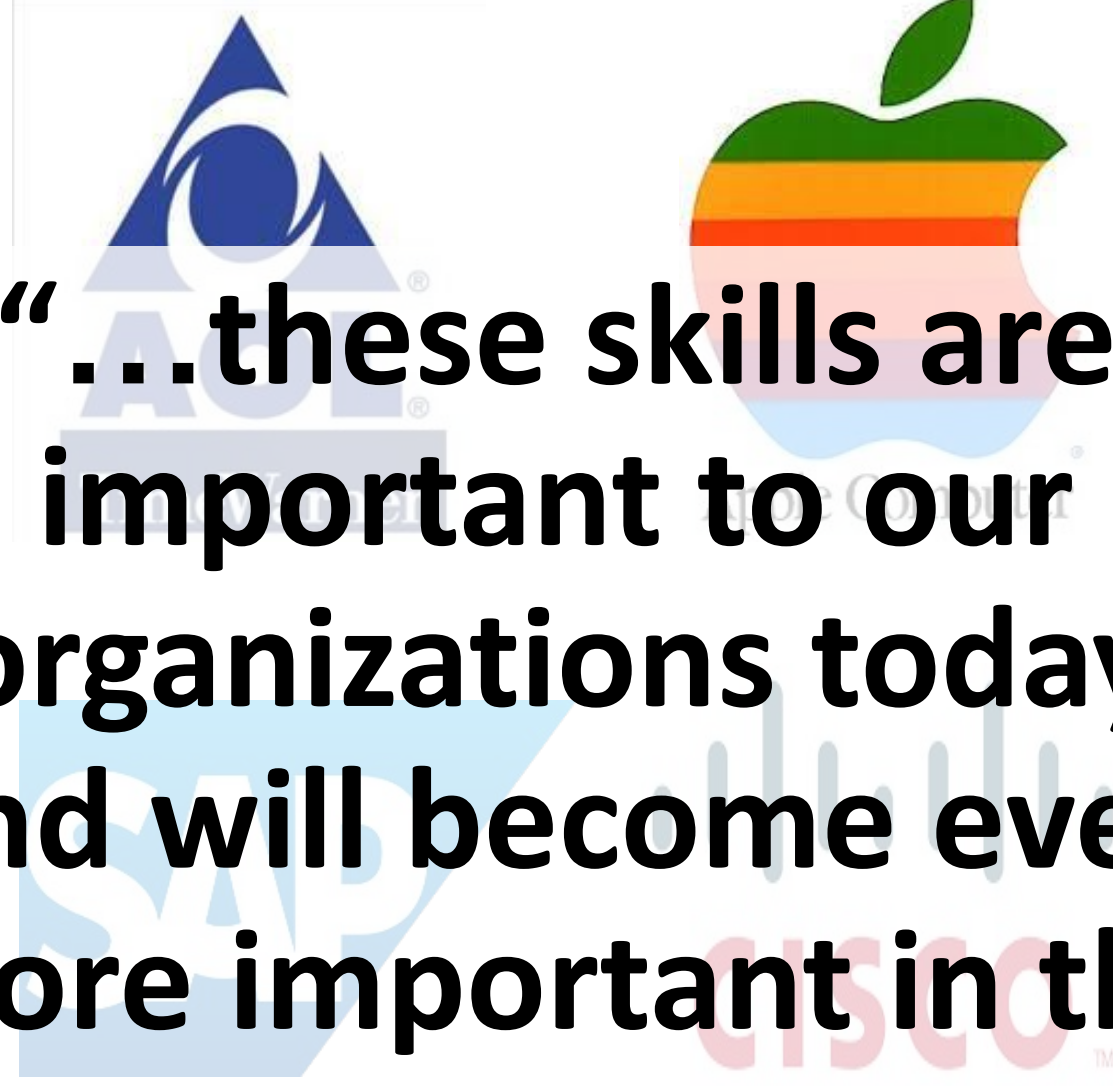
The Four Cs of 21st Century Skills

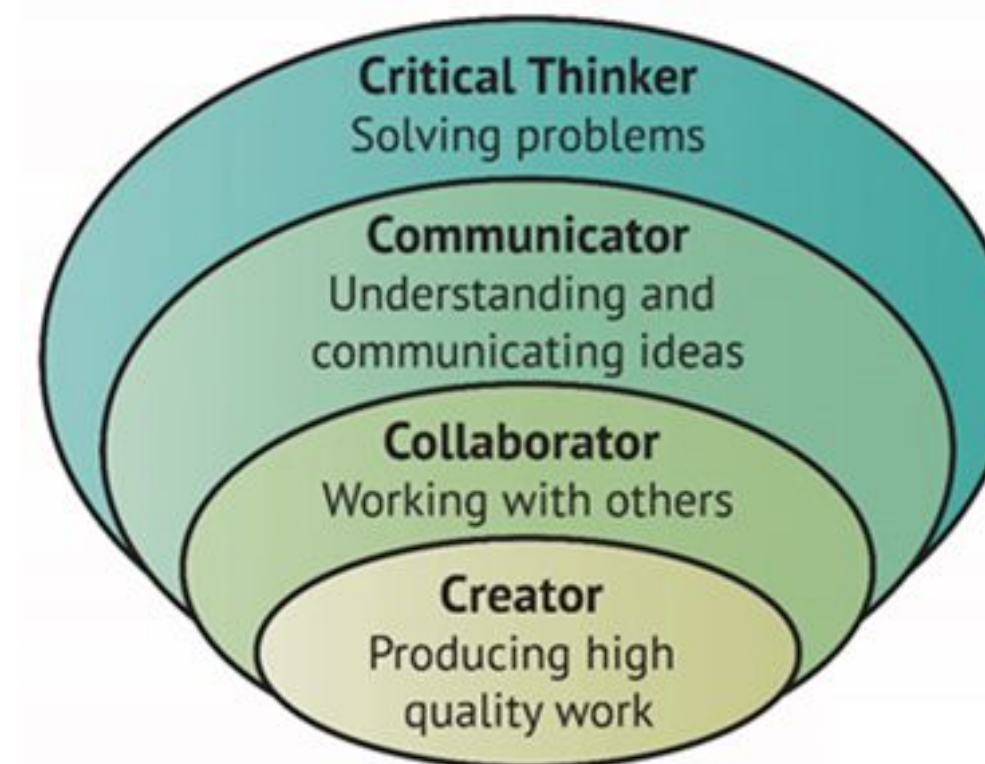


Prussian 'Factory' Model



A New Model

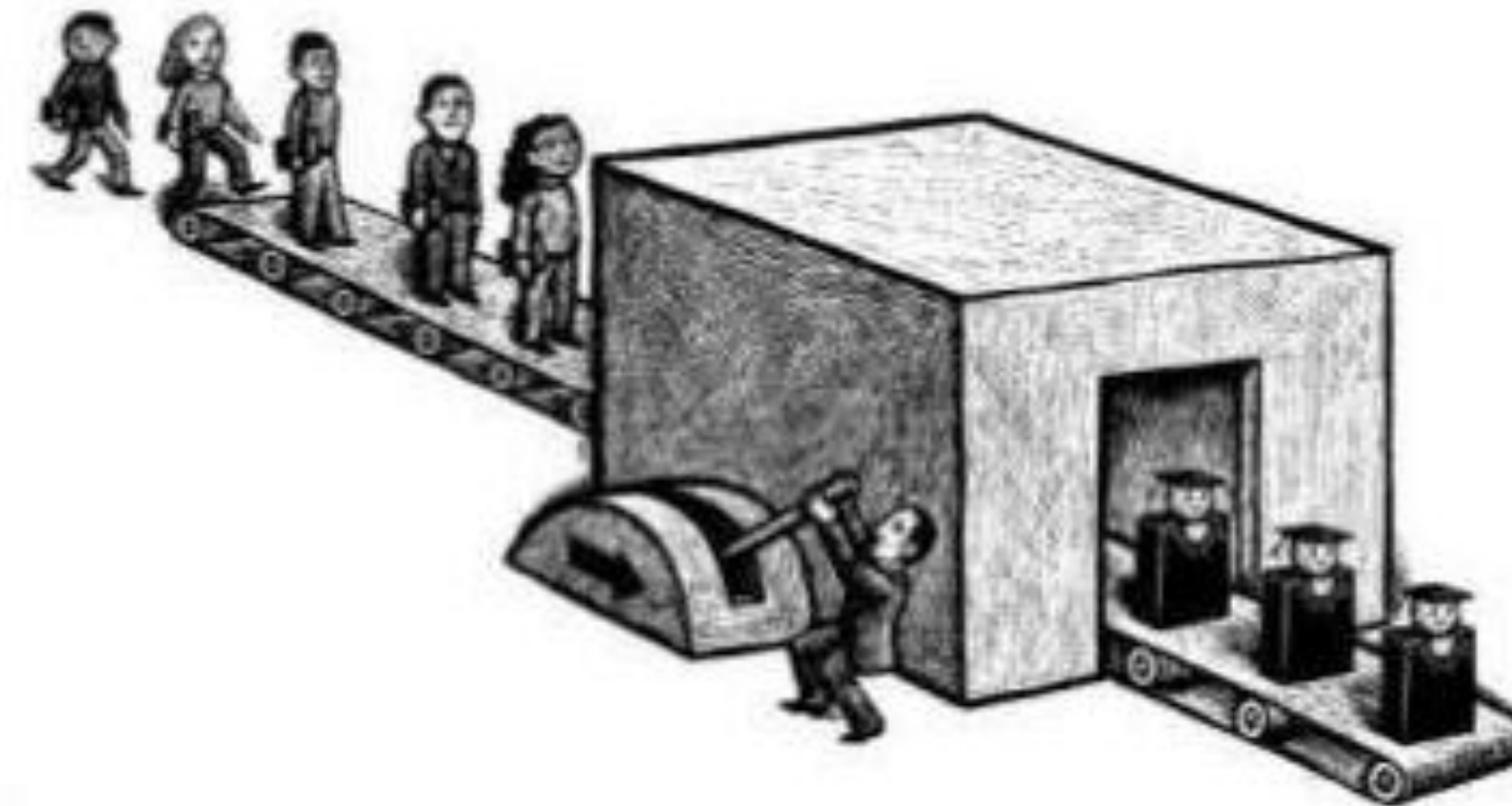

“...these skills are
important to our
organizations today
and will become even
more important in the
future.”



A New Model



PARTNERSHIP FOR
21ST CENTURY LEARNING



Uh-Oh!

48%

~16 Months



Ron Johnson
(Creative Genius)

17 Months

~\$6 **Billion**



Carly Fiorina
(Collaboration Guru)

Divided Board

30,000 Layoffs

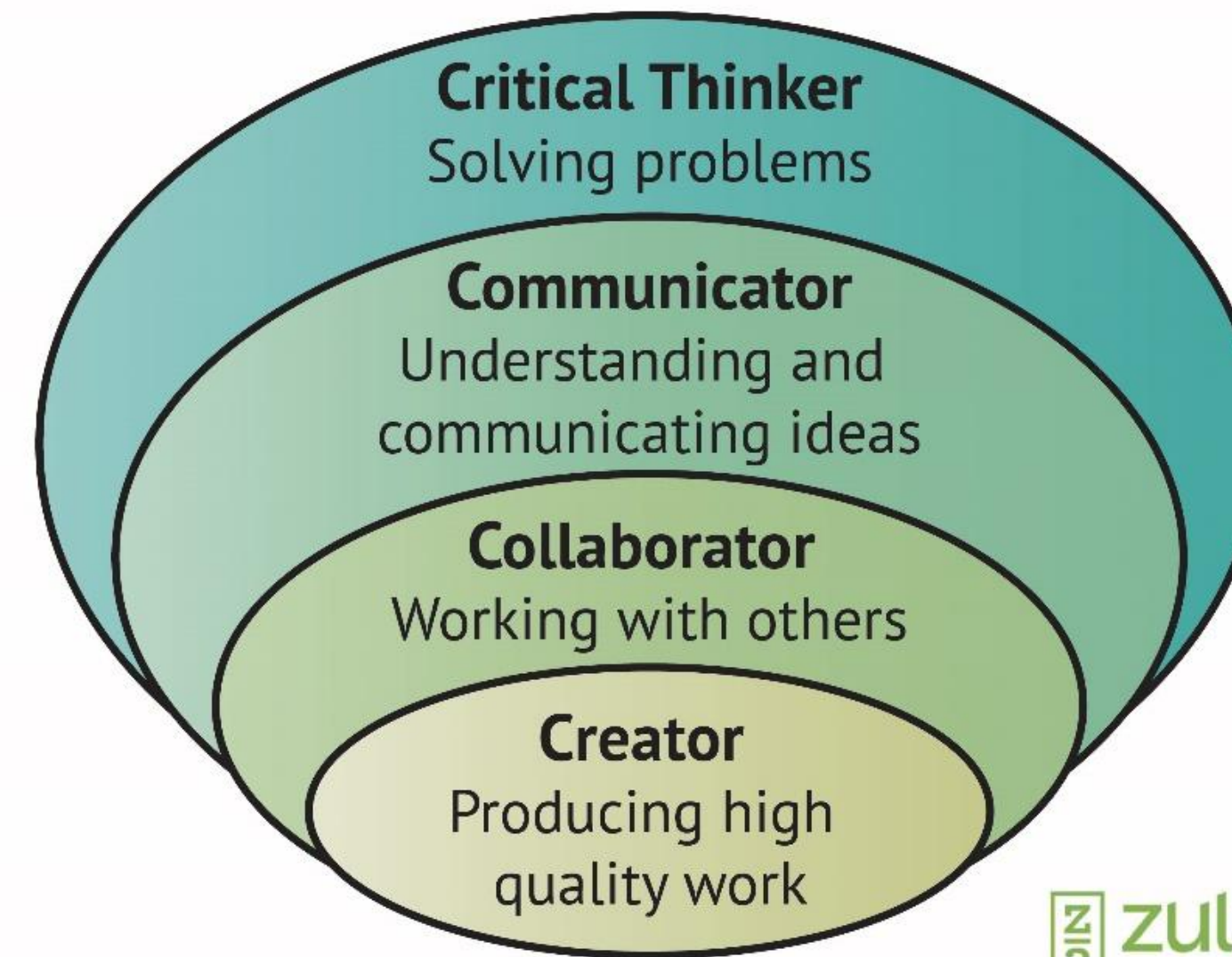


Lucent



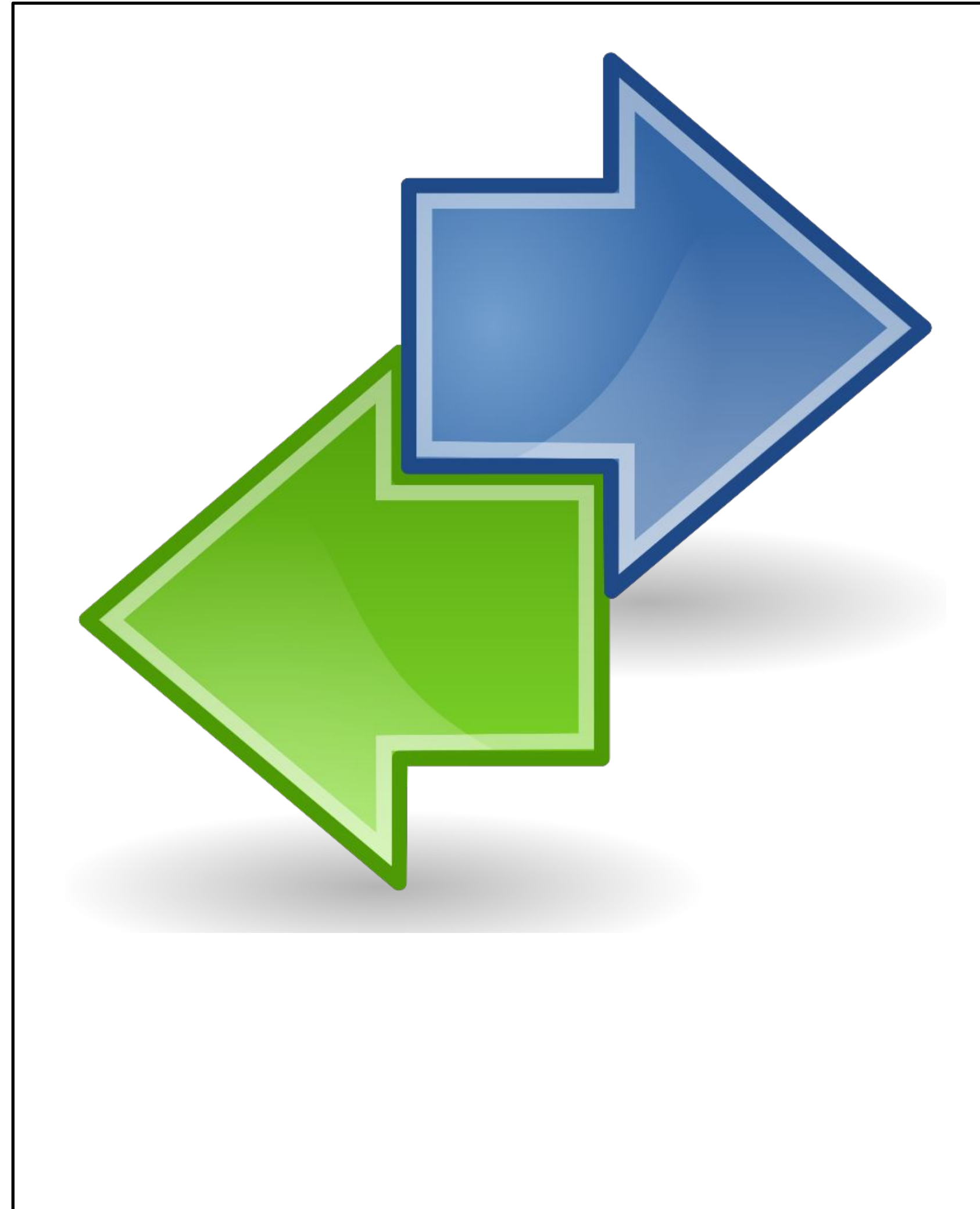
What's Happening?

The Four Cs of 21st Century Skills

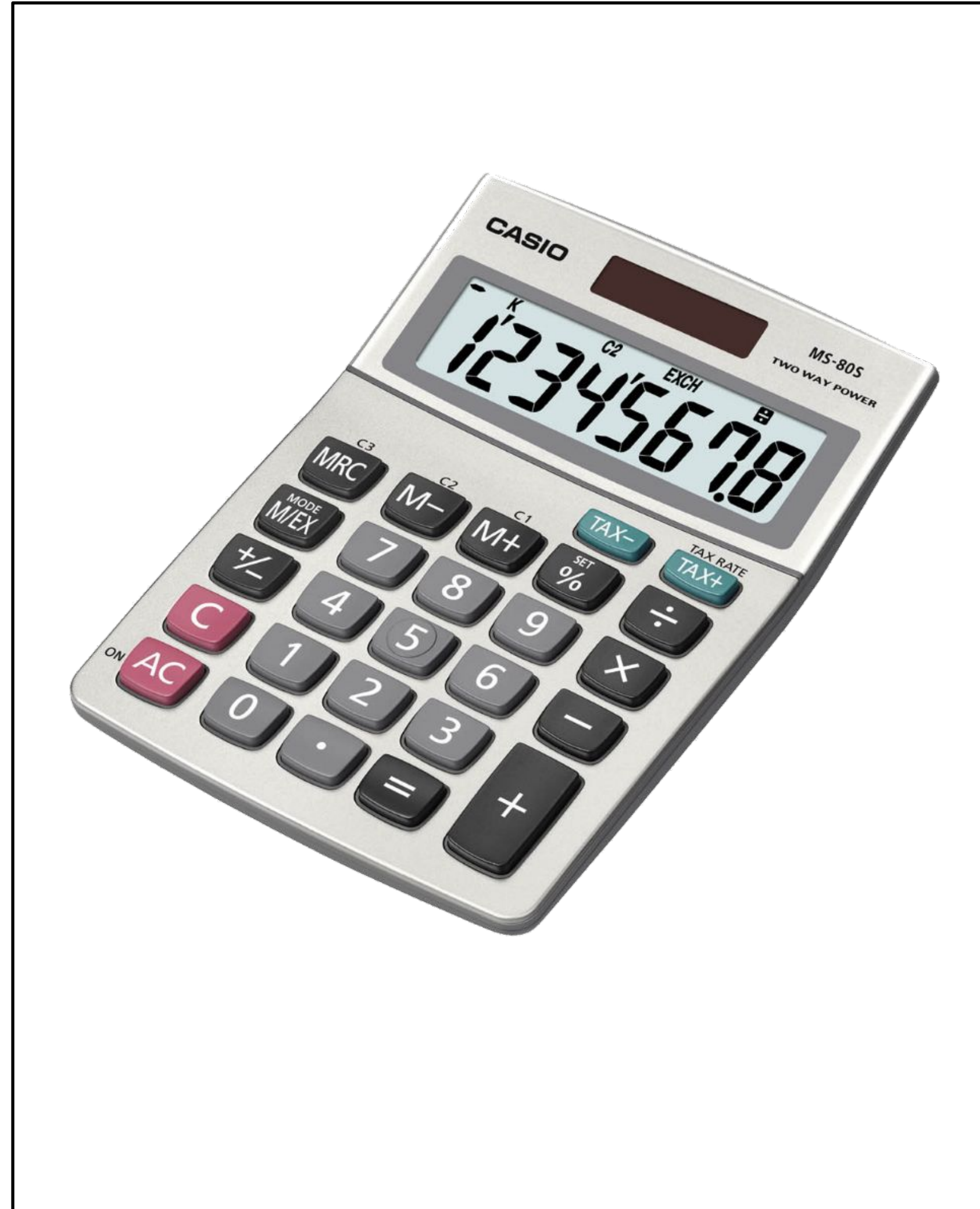


The Transfer Dilemma

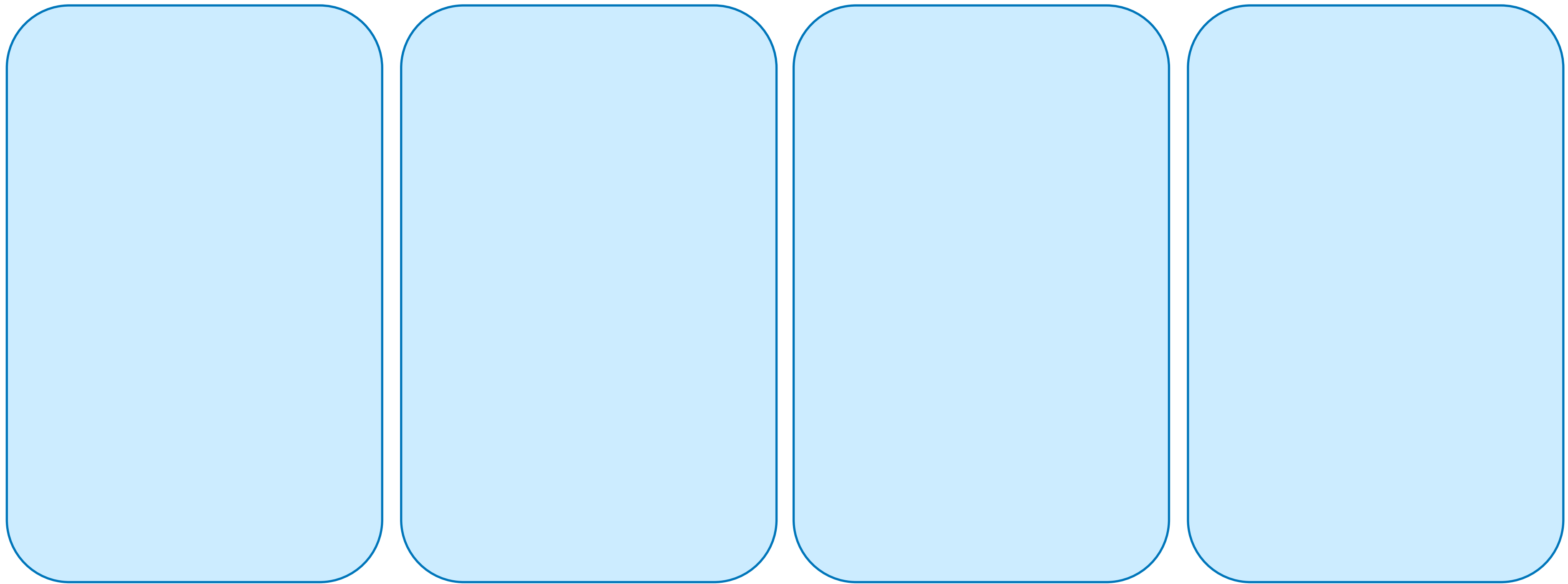
Knowledge



The Big Secret



A GAME



A GAME

BEER

31

COKE

11

A GAME

A

2

B

3

The Big Secret



FACTS

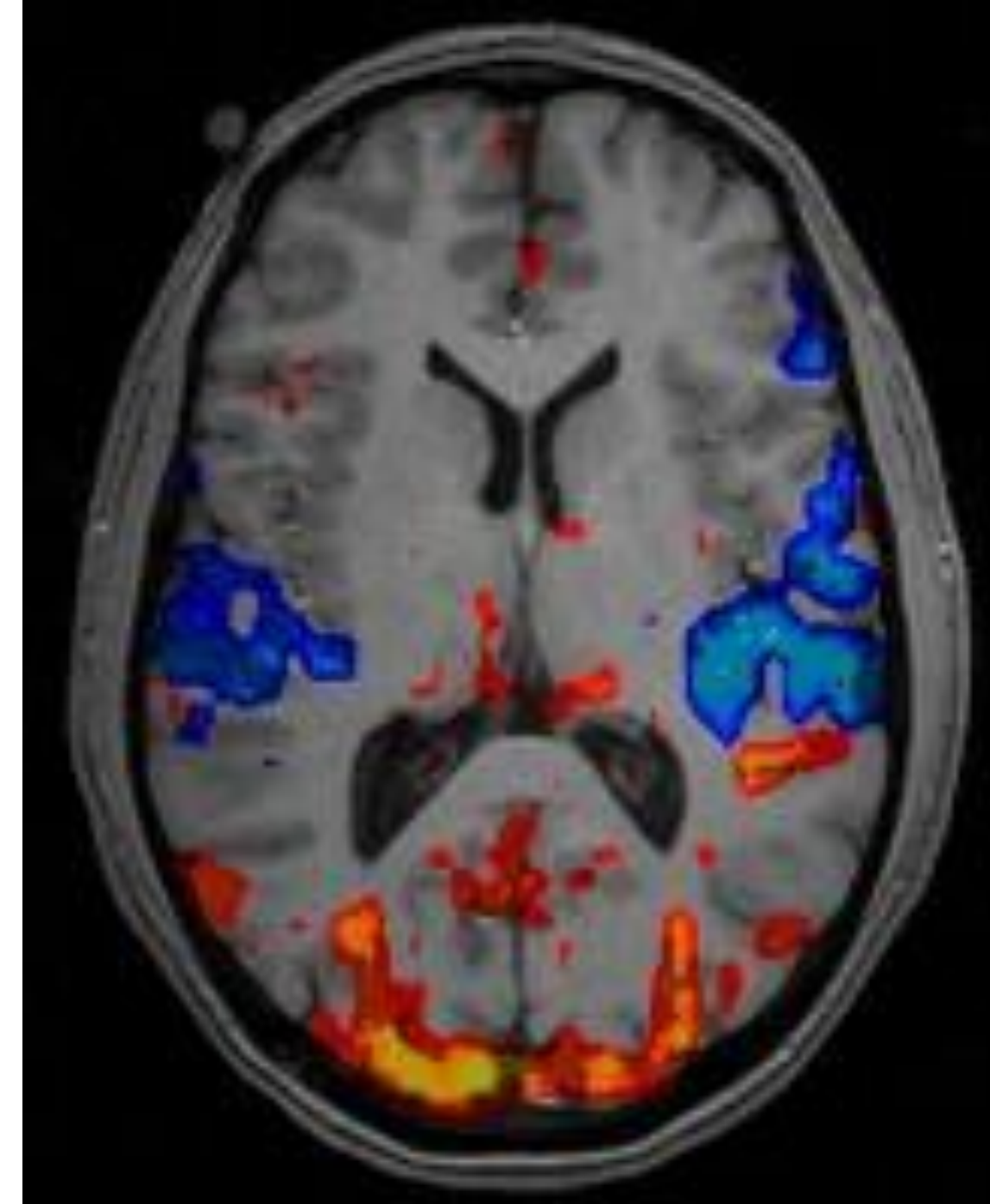
ALWAYS

PRECED

E

OWNS

Critical Thinking



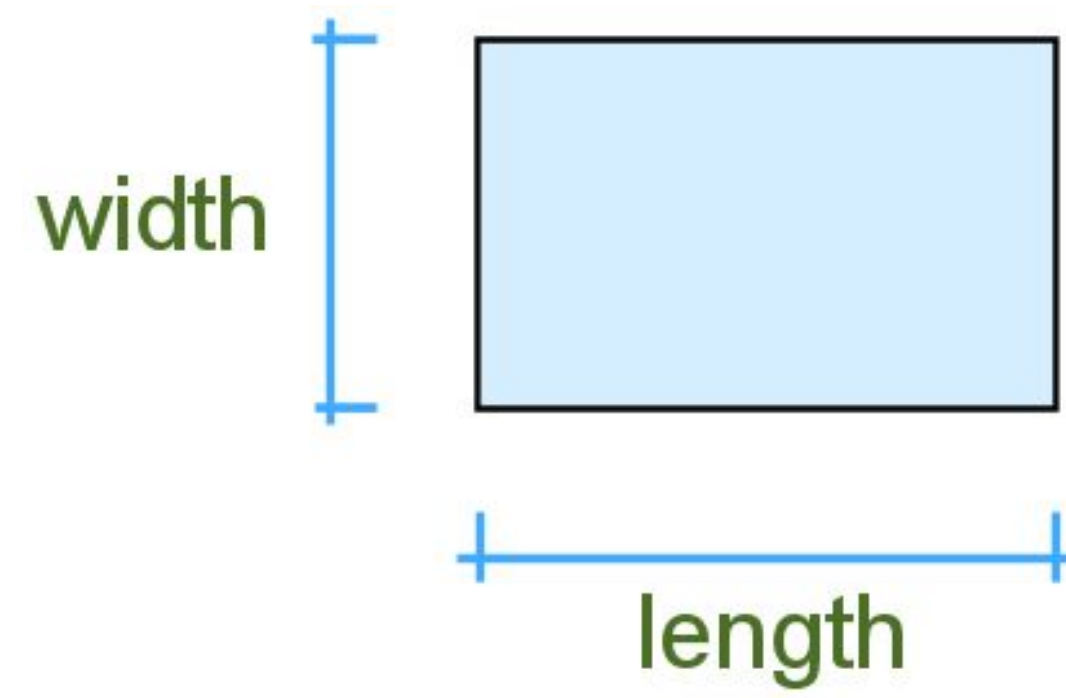
Transfer Lessons

- 1) *Skill transfer requires new domain knowledge.*

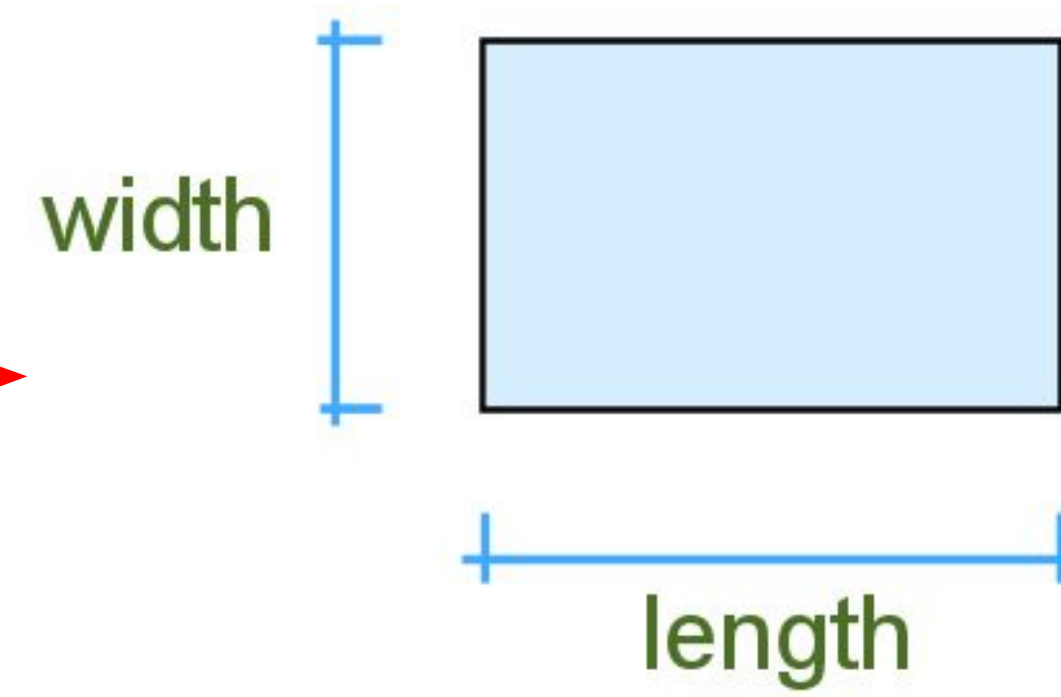


Two Questions...





$$\text{Area} = \text{length} \times \text{width}$$



$$\text{Area} = \text{length} \times \text{width}$$



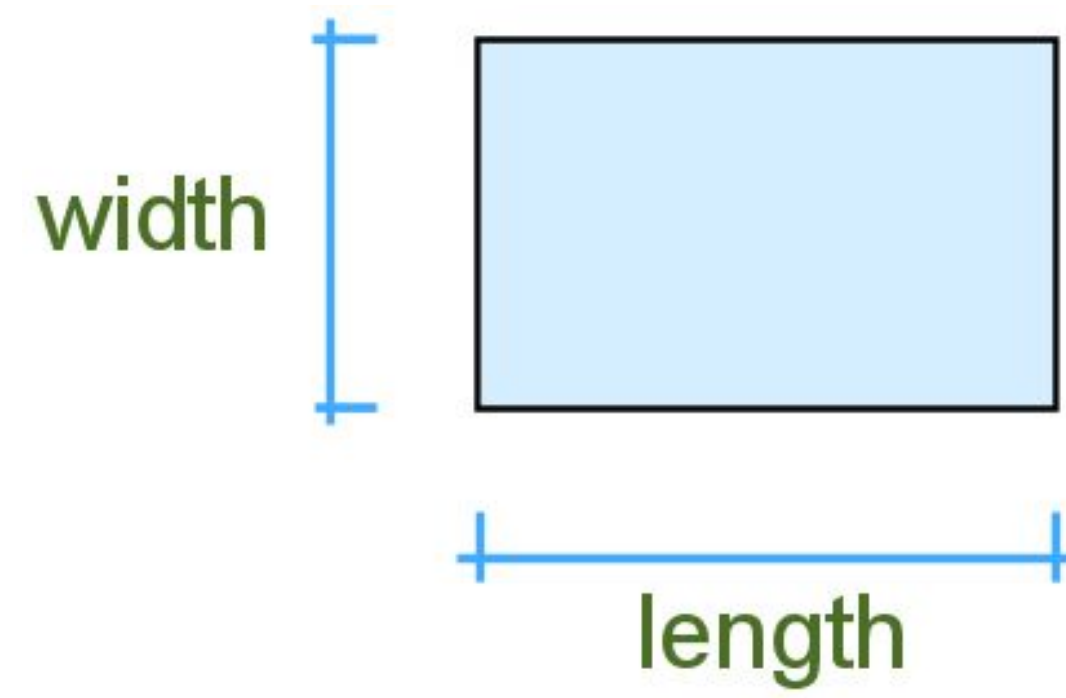
FACTS

ALWAYS

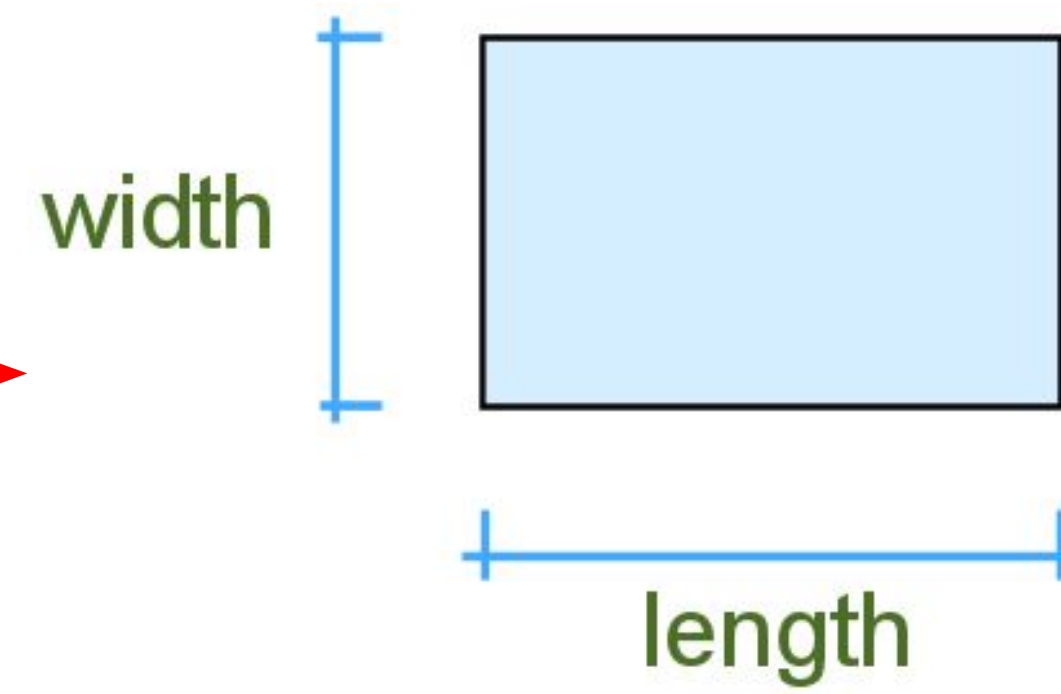
PRECED

E

OWING



$$\text{Area} = \text{length} \times \text{width}$$

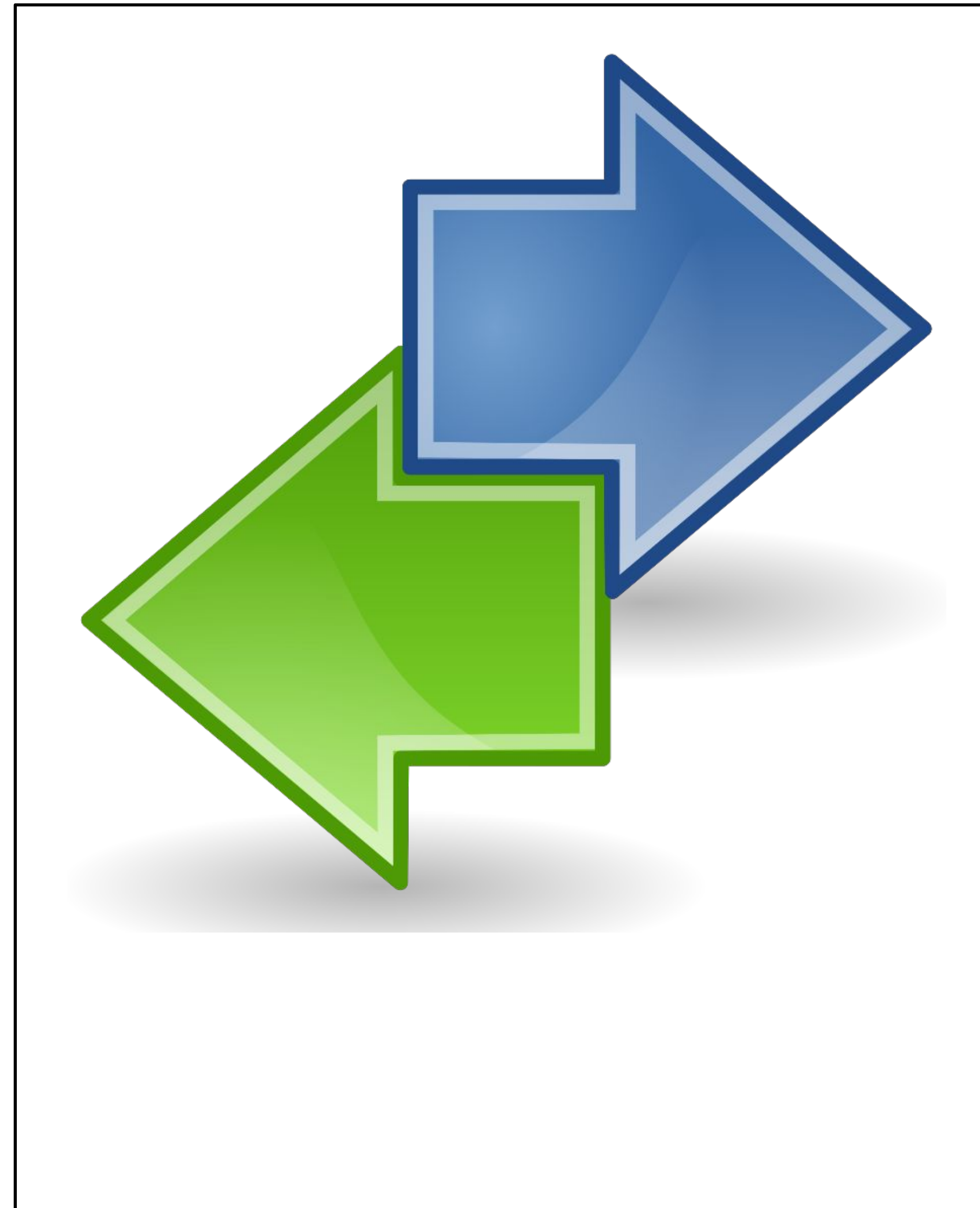


$$\text{Area} = \text{length} \times \text{width}$$

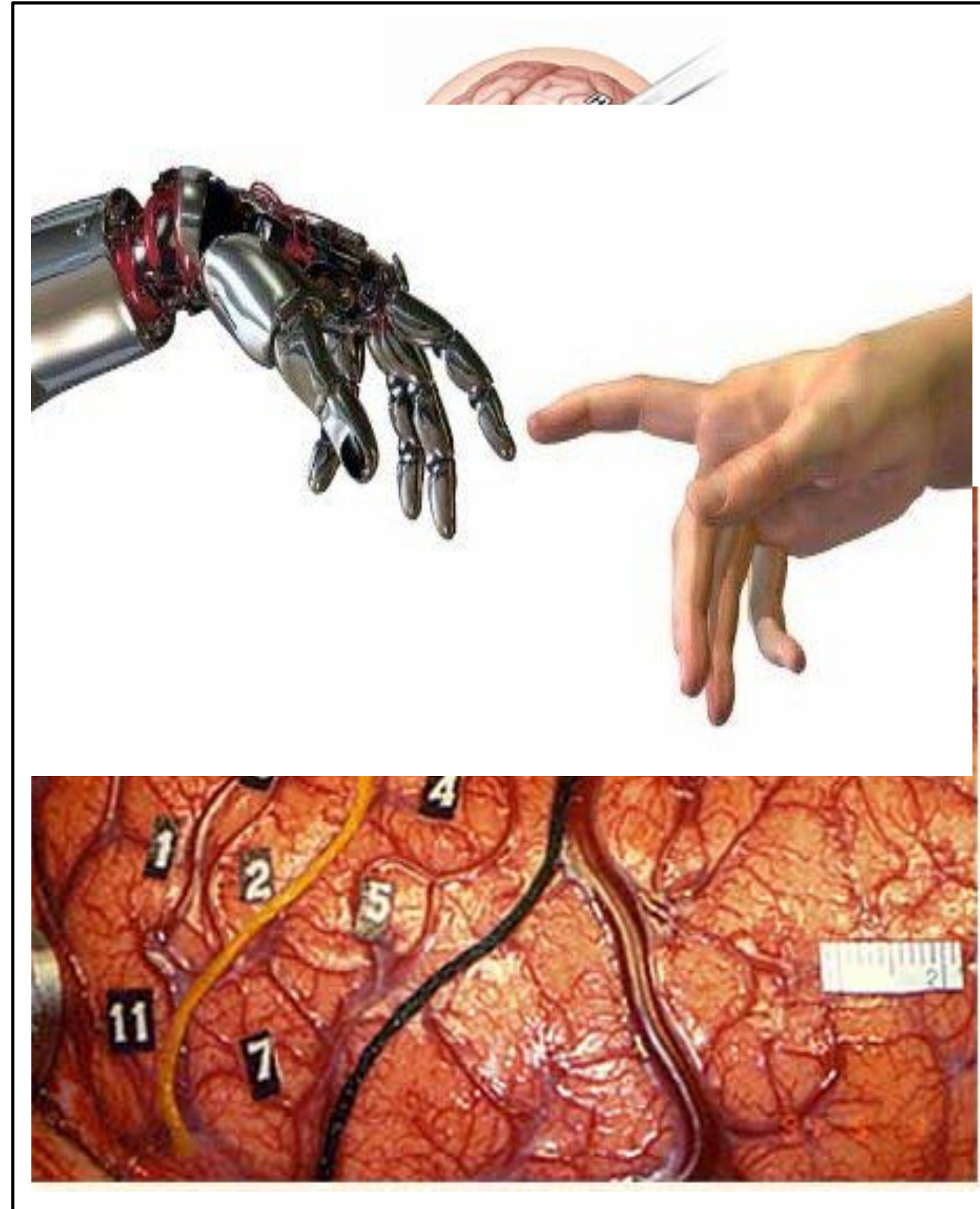
The Transfer Problem

Knowledge

Contextualization



Collaboration



Transfer Lessons

- 1) *Skill transfer requires new domain knowledge.*
- 2) *Domain knowledge is used to select and re-define skills.*



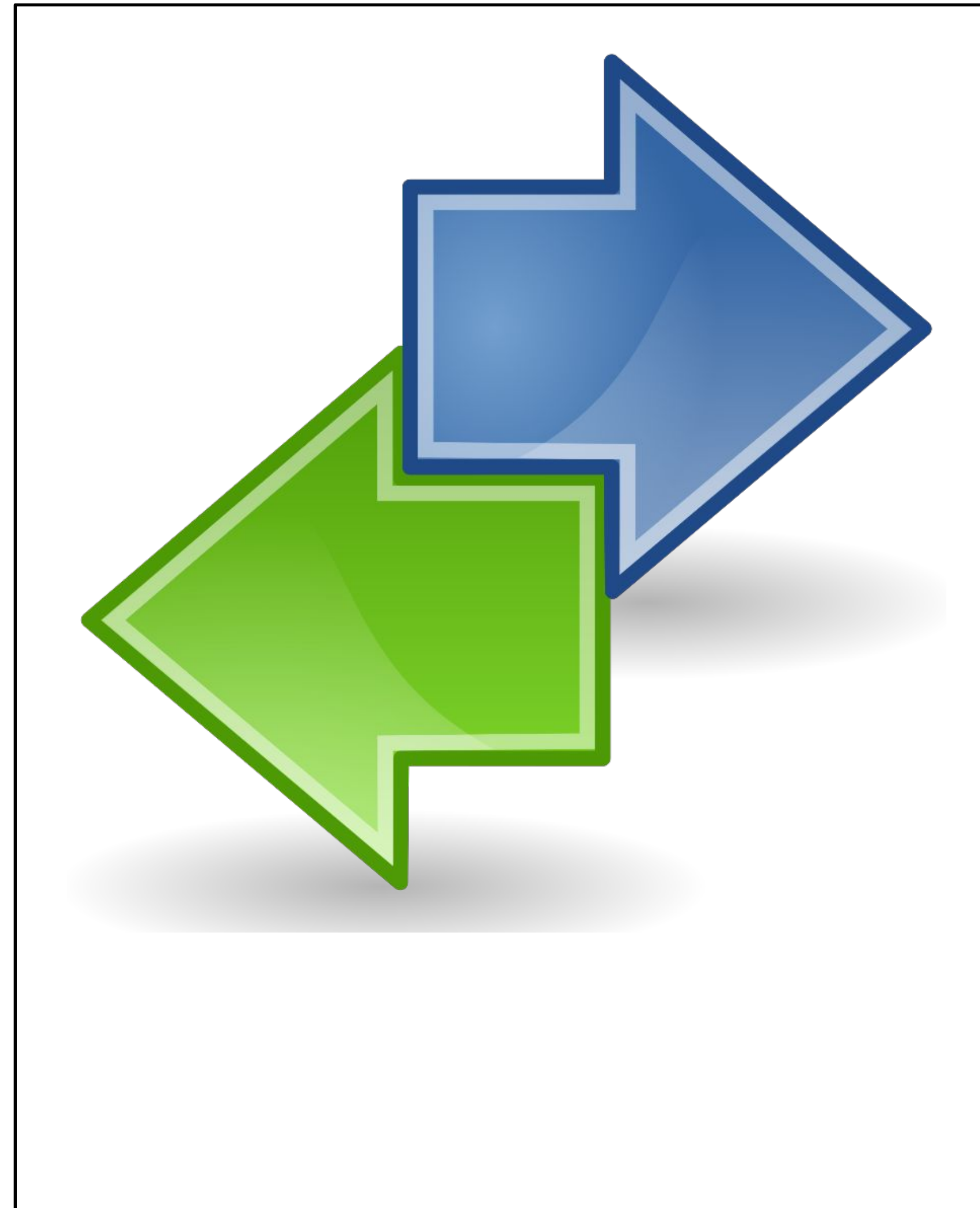


The Transfer Problem

Knowledge

Contextualization

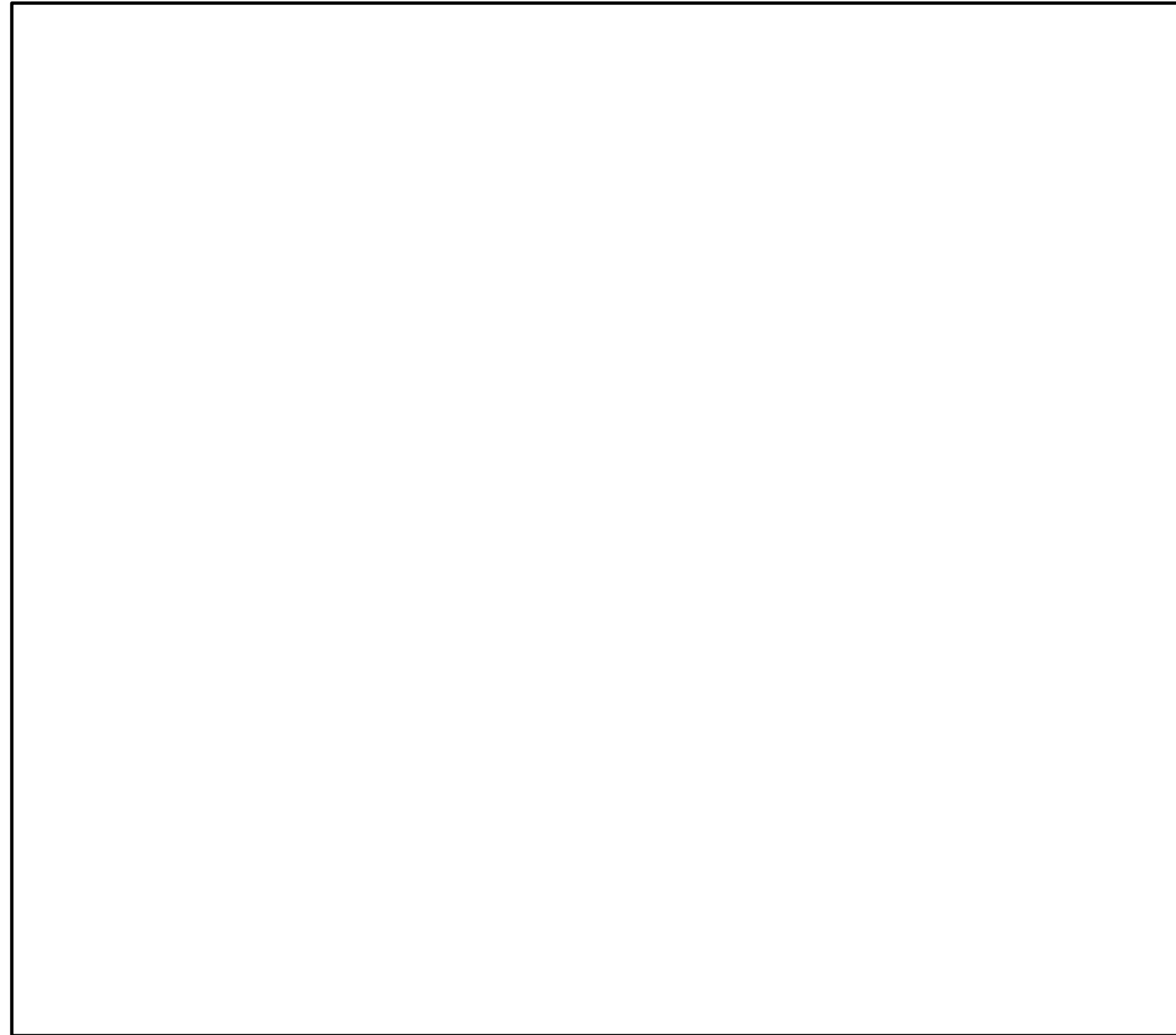
Adaptation



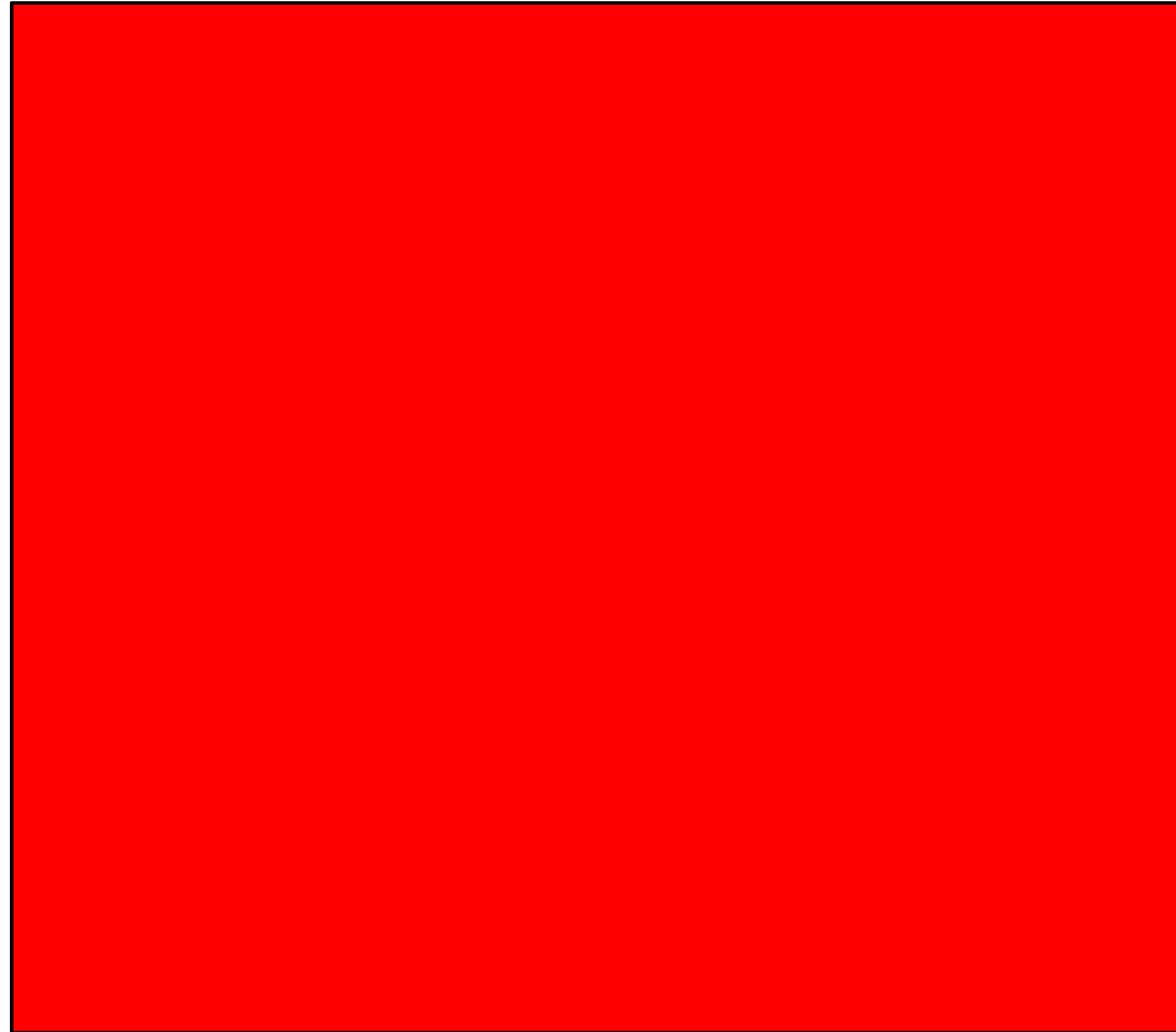
3 Foundations



Know Your Colors?



Know Your Colors?



GOOD!



Know Your Words?



Know Your Words?

RED

Know Your Words?

GREEN

Know Your Words?

RED

Know Your Words?

PURPLE

Know Your Words?

BLUE

Know Your Words?

GREEN

Know Your Words?

RED

Know Your Words?

BLUE

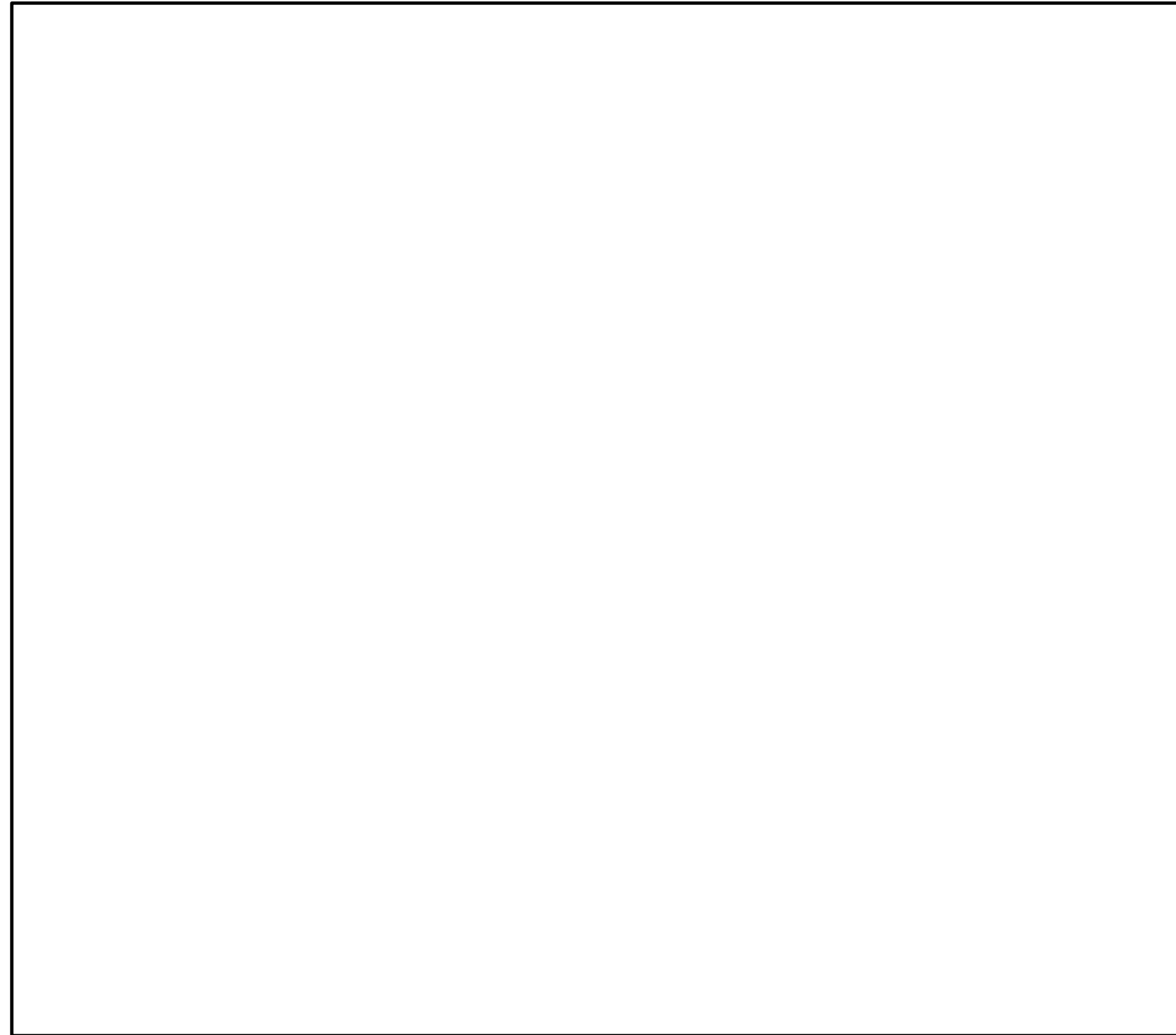
Know Your Words?

PURPLE

GOOD!



Know Your Color Words?



Know Your Color Words?

RED

Know Your Color Words?

GREEN

Know Your Color Words?



RED

Know Your Color Words?

PURPLE

Know Your Color Words?

BLUE

Know Your Color Words?

GREEN

Know Your Color Words?



RED

Know Your Color Words?

BLUE

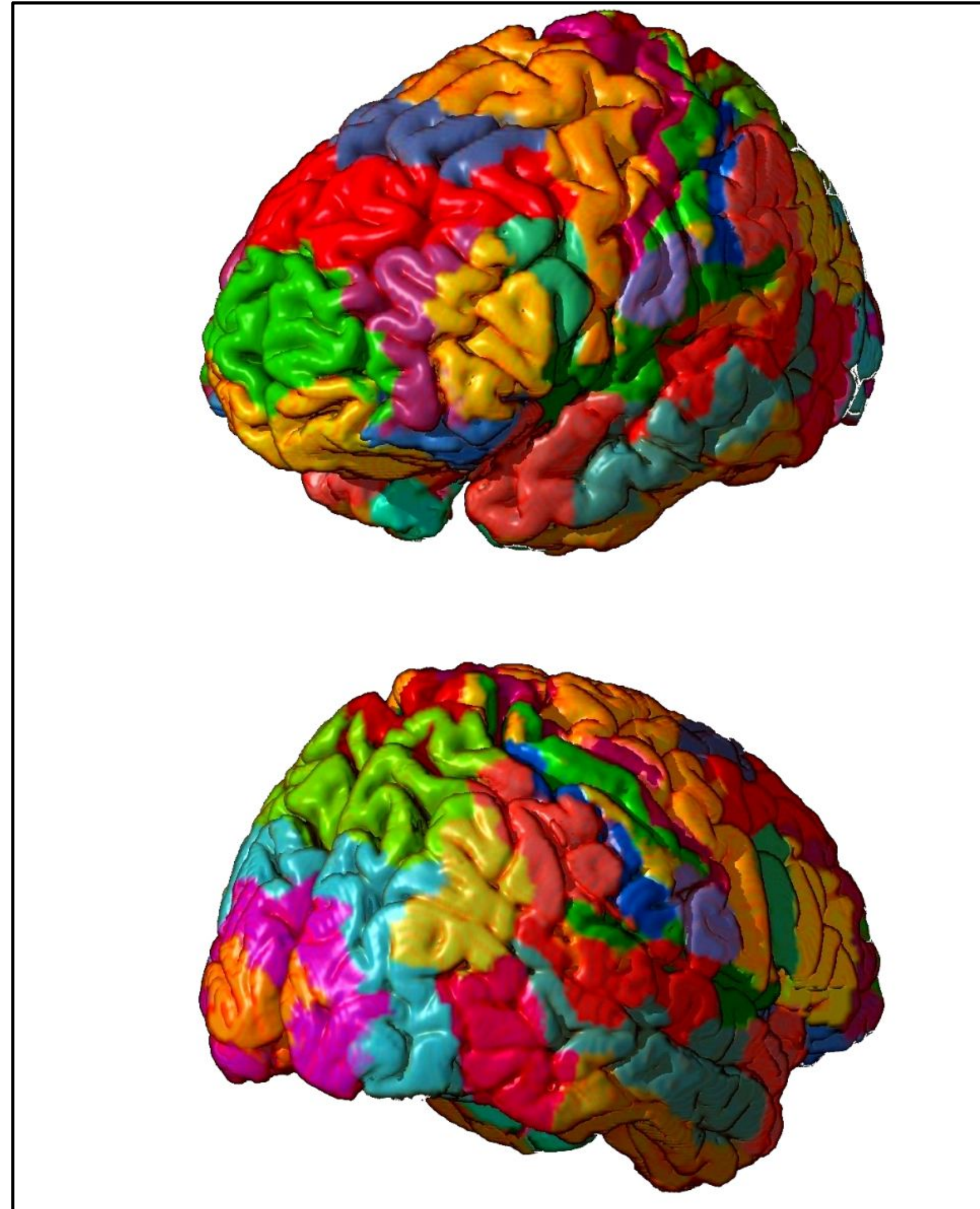
Know Your Color Words?

PURPLE

D'Oh....

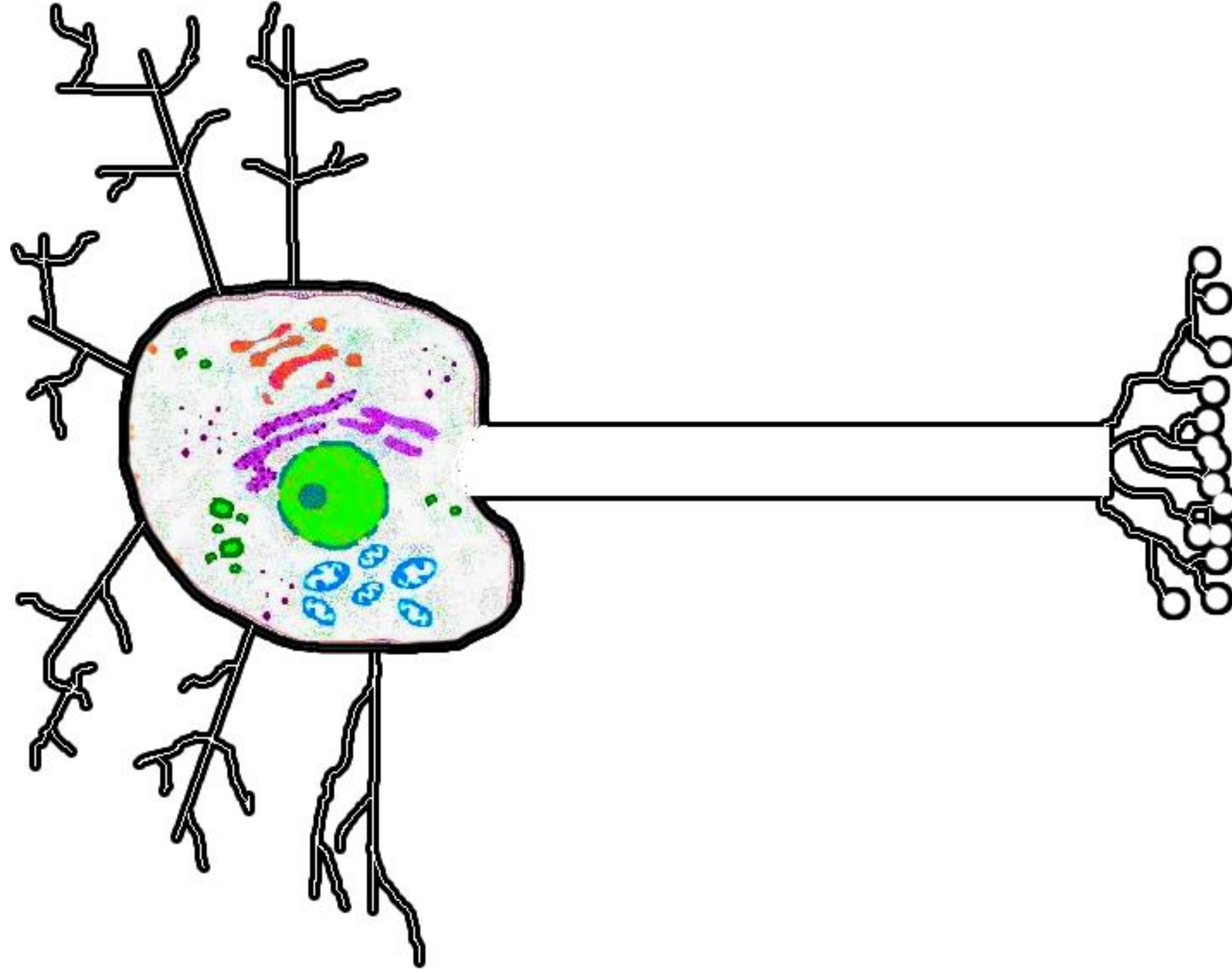


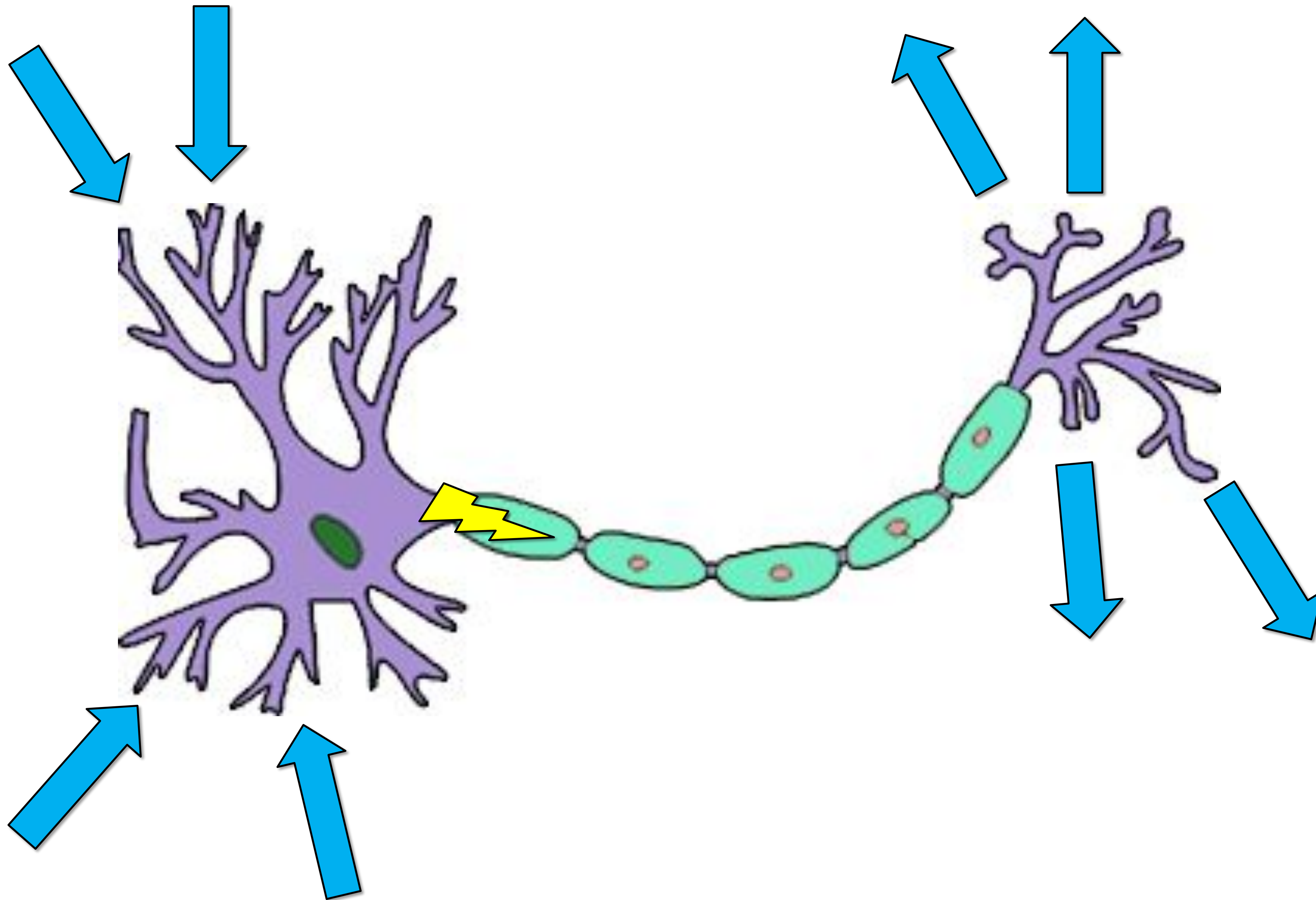
Foundation #1 Modularity

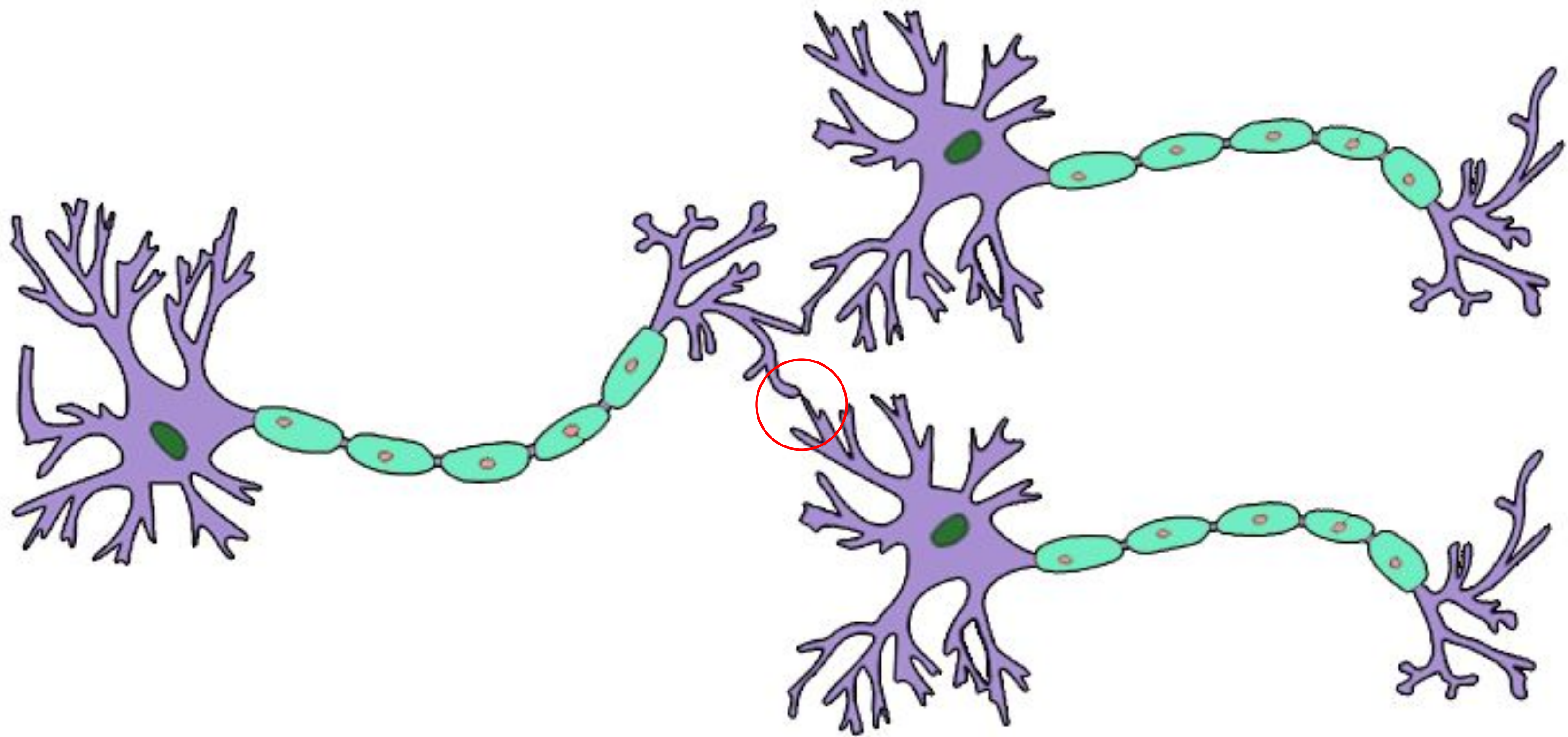


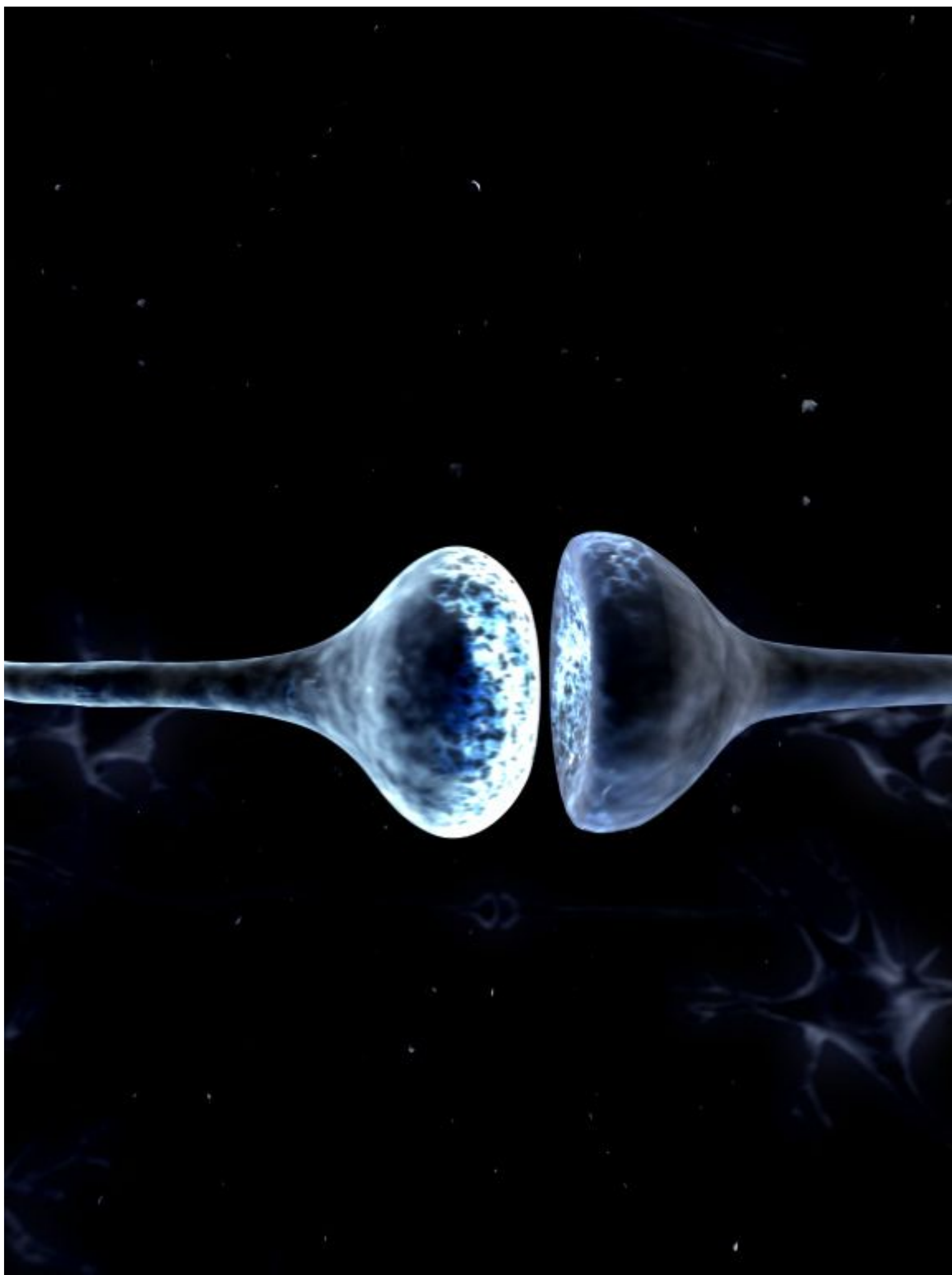
Foundation #2



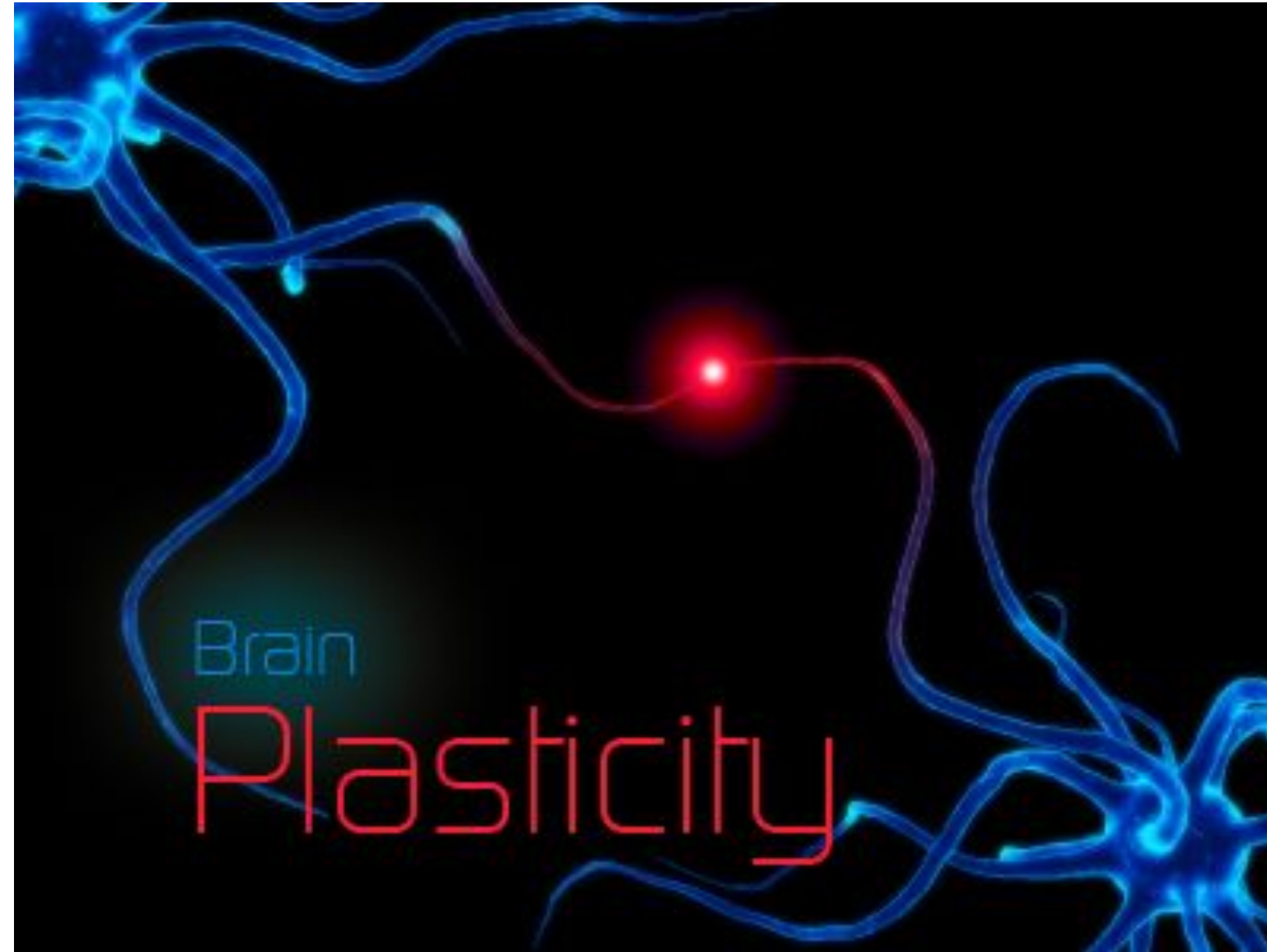


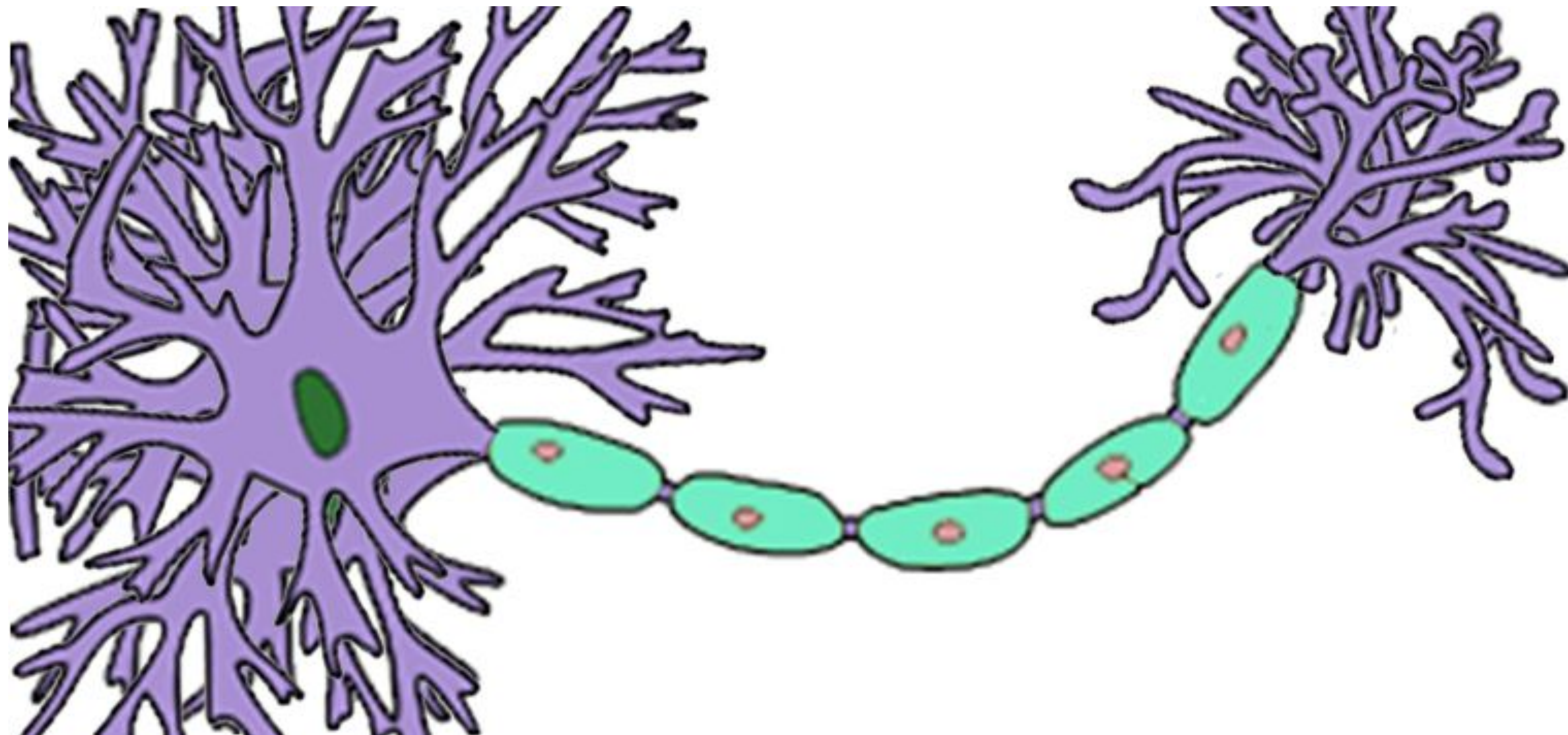




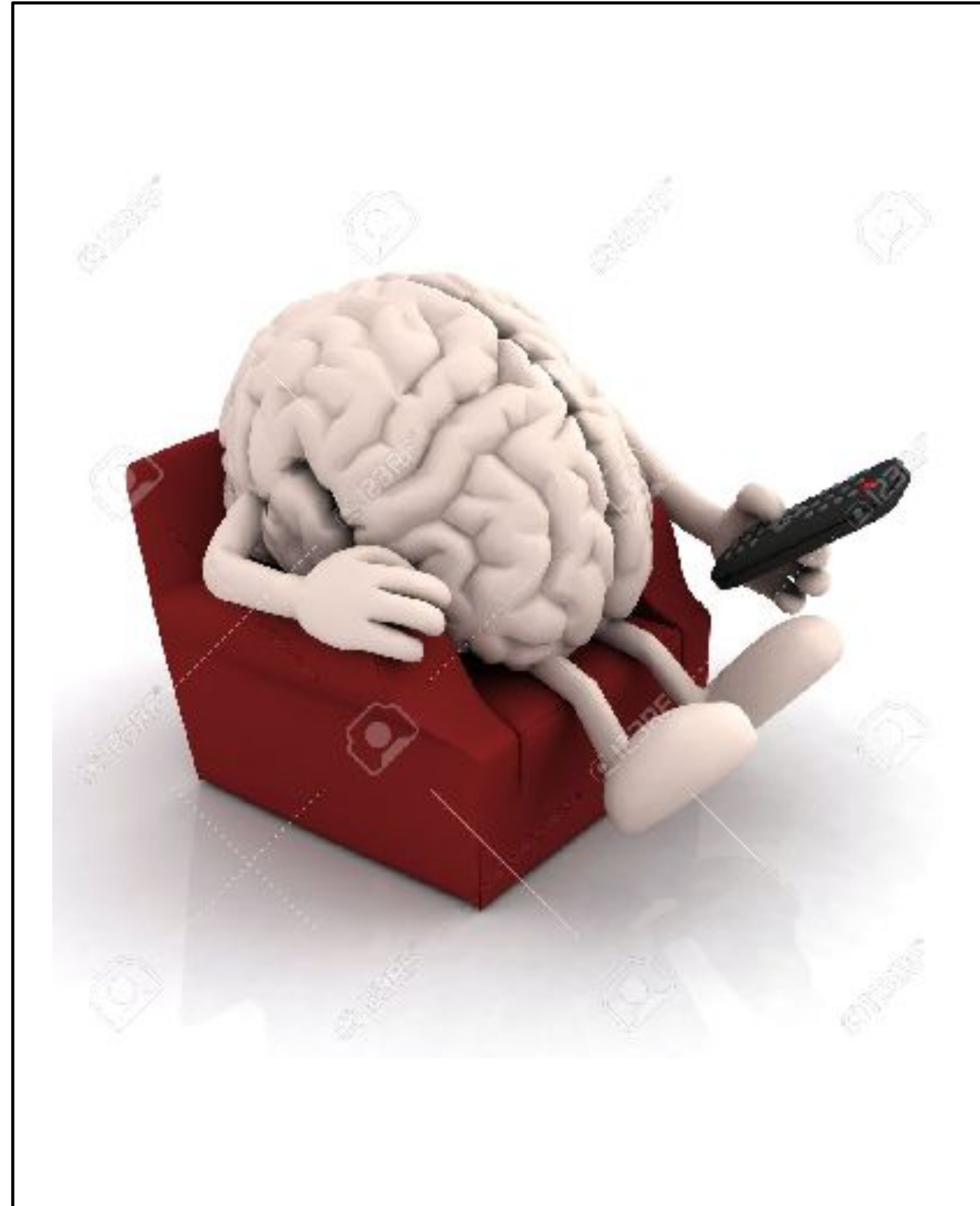


Neuroplasticity





The Brain



Diet



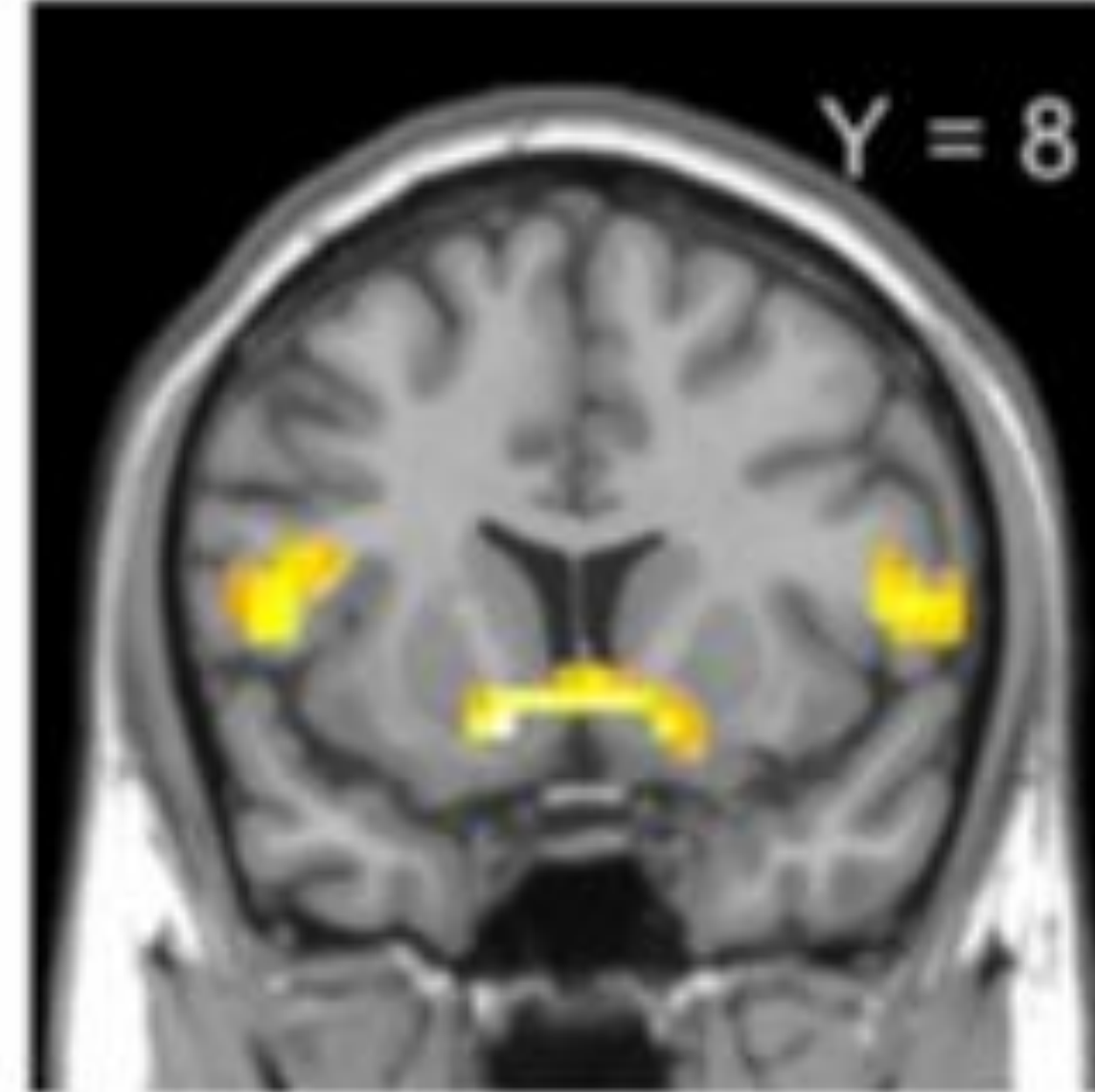
Exercise



Otto

Ewald

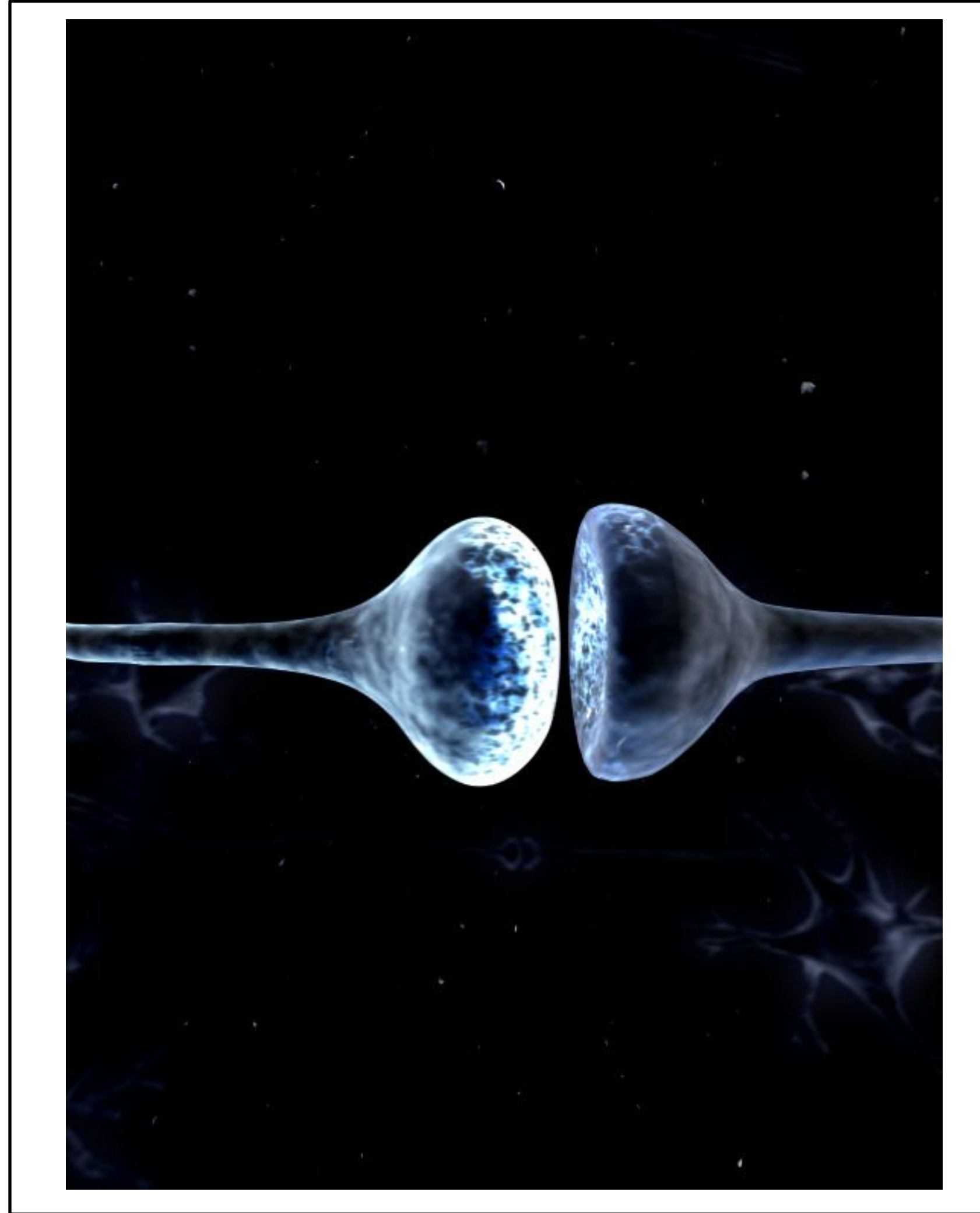
Actions



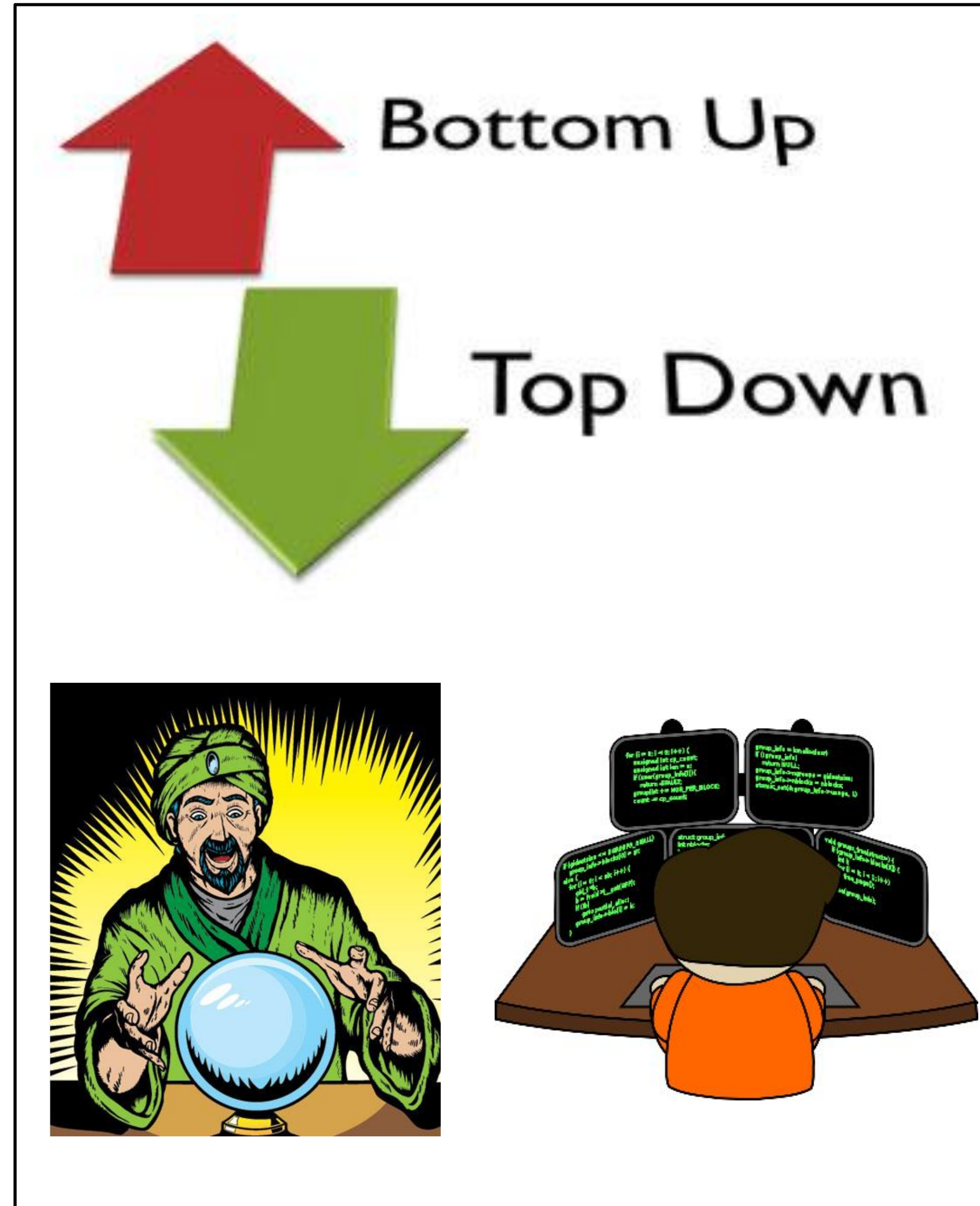
How plastic is plastic?



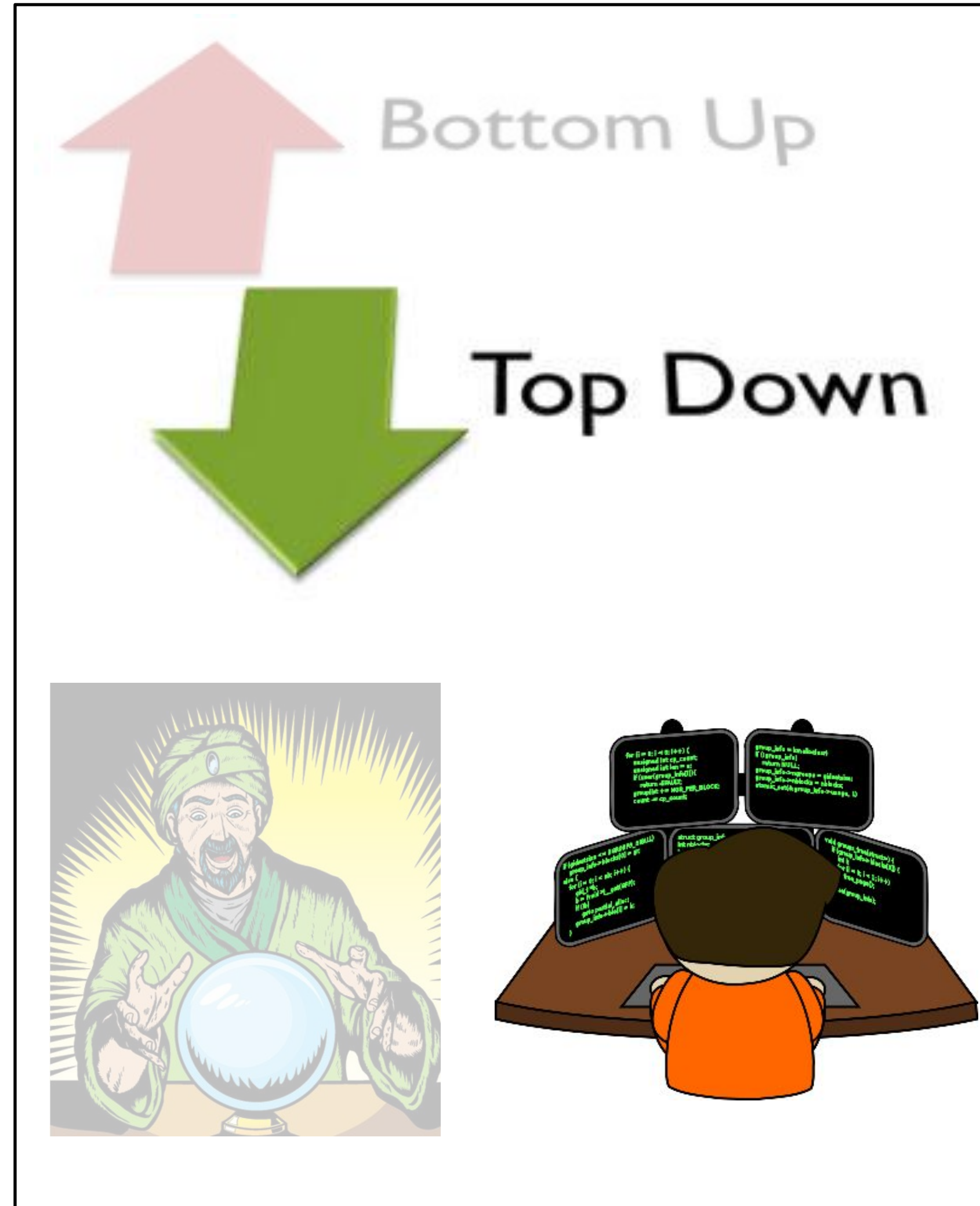
Foundation #2 Synaptic Plasticity



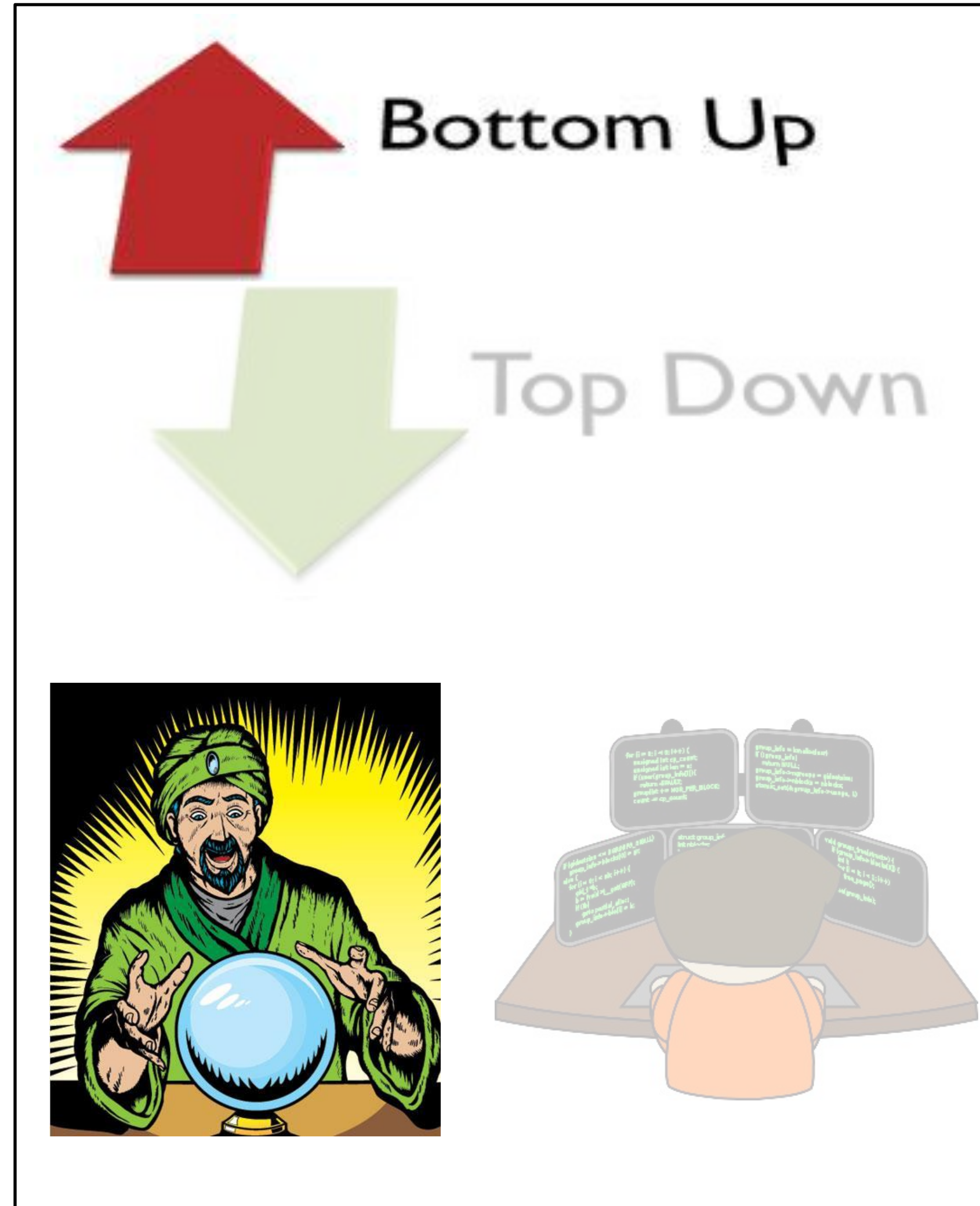
Foundation #3 Bottom Up vs Top Down



Foundation #3 Bottom Up vs Top Down



Foundation #3 Bottom Up vs Top Down



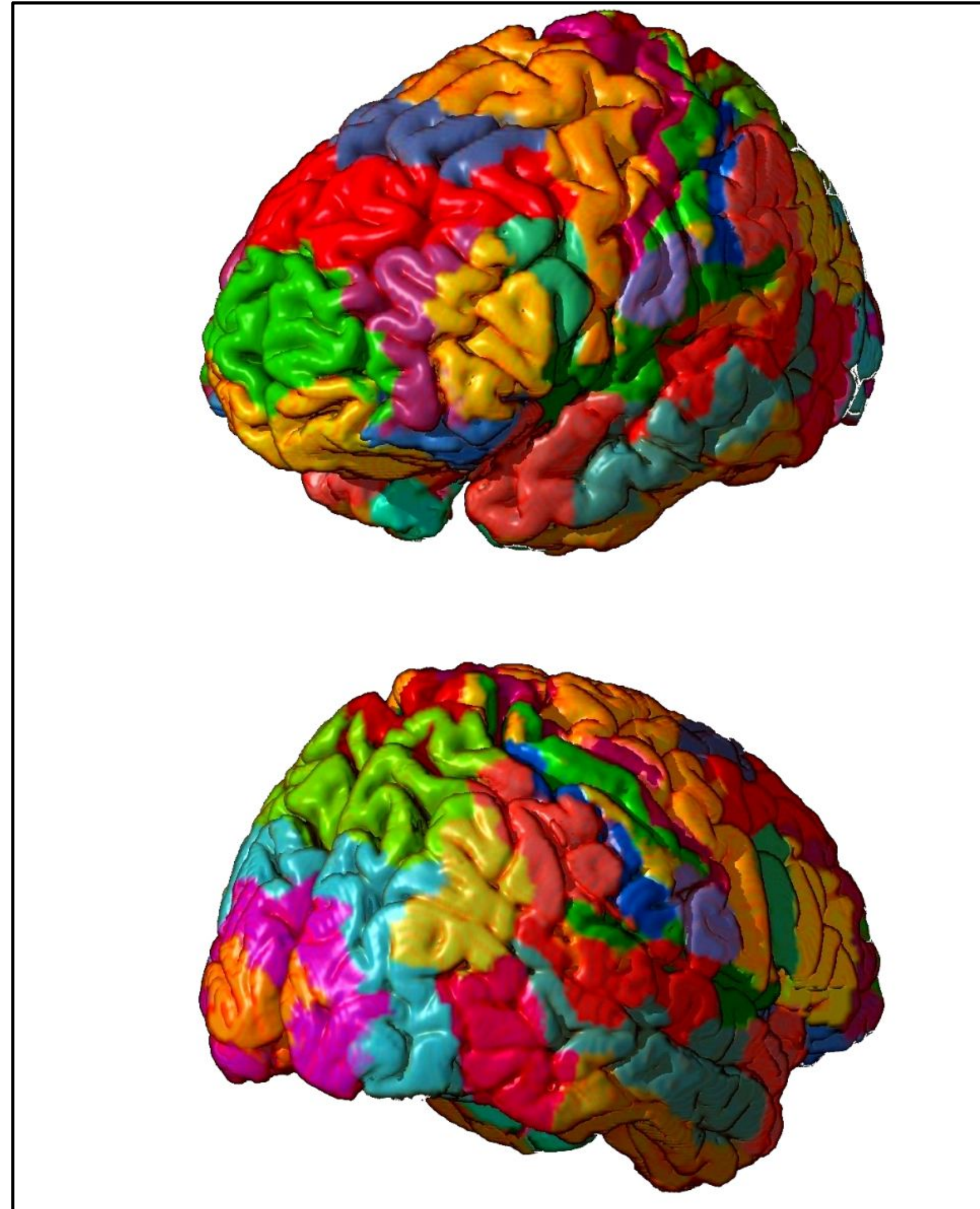
Top Down



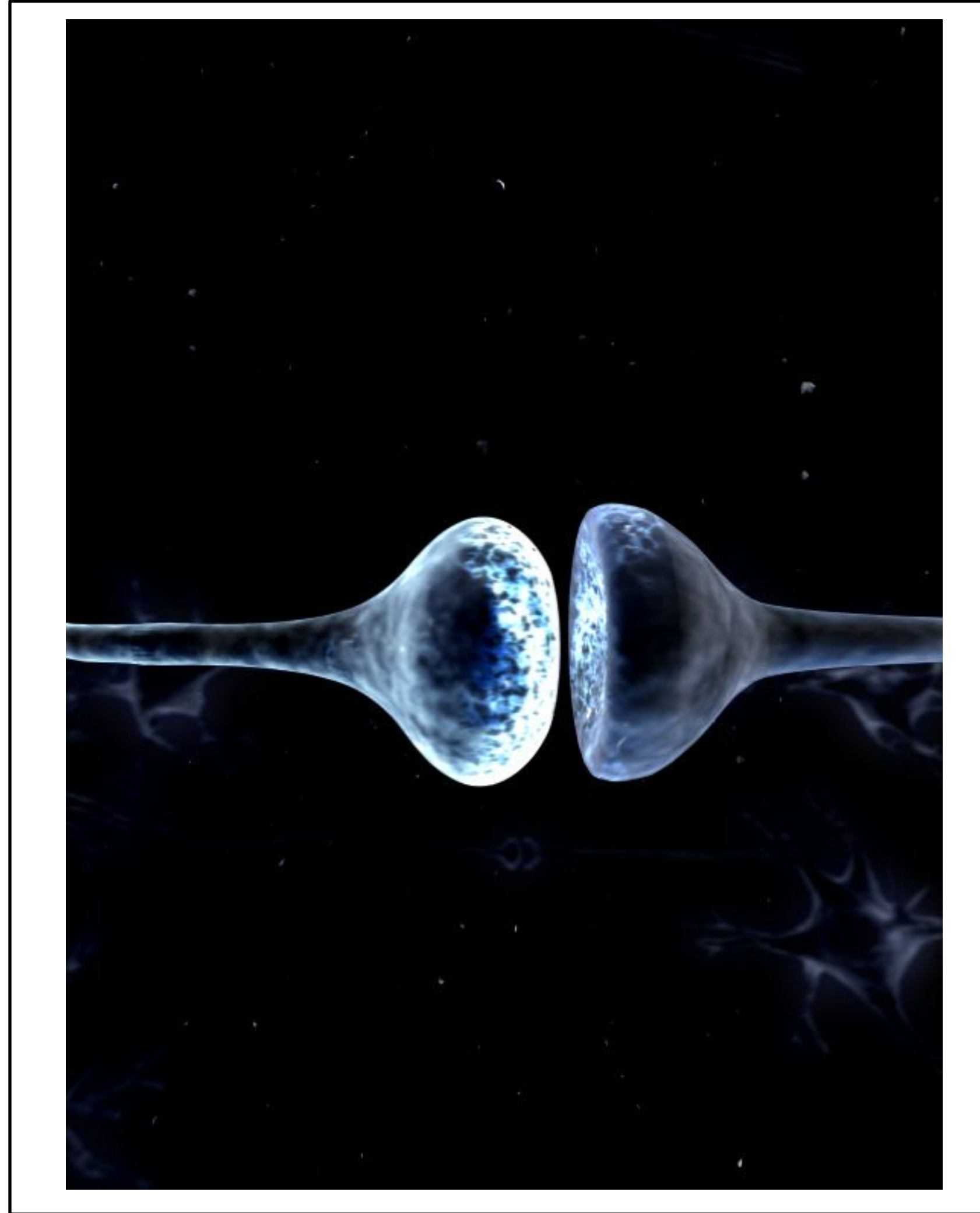
Bottom-Up



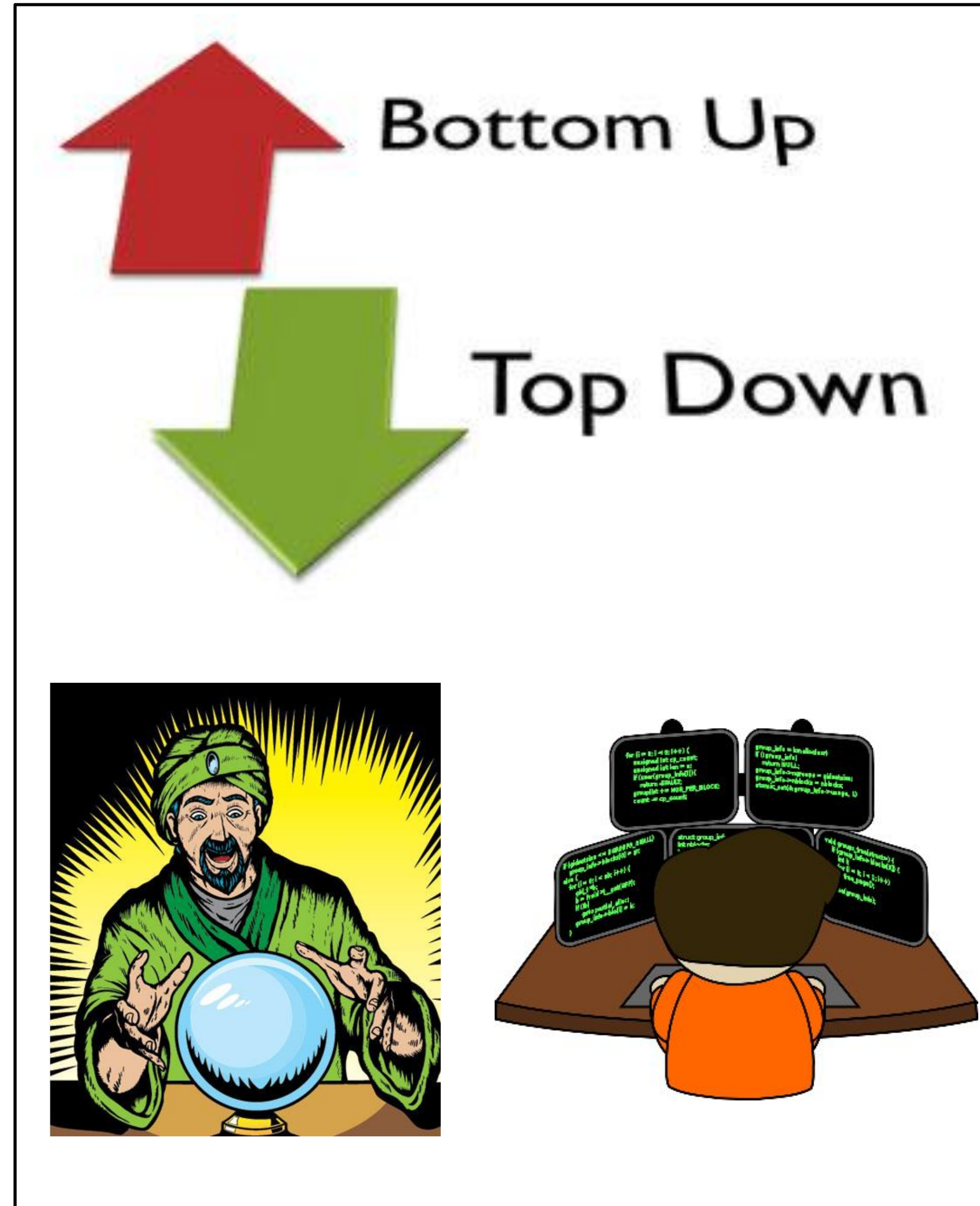
Foundation #1 Modularity



Foundation #2 Synaptic Plasticity



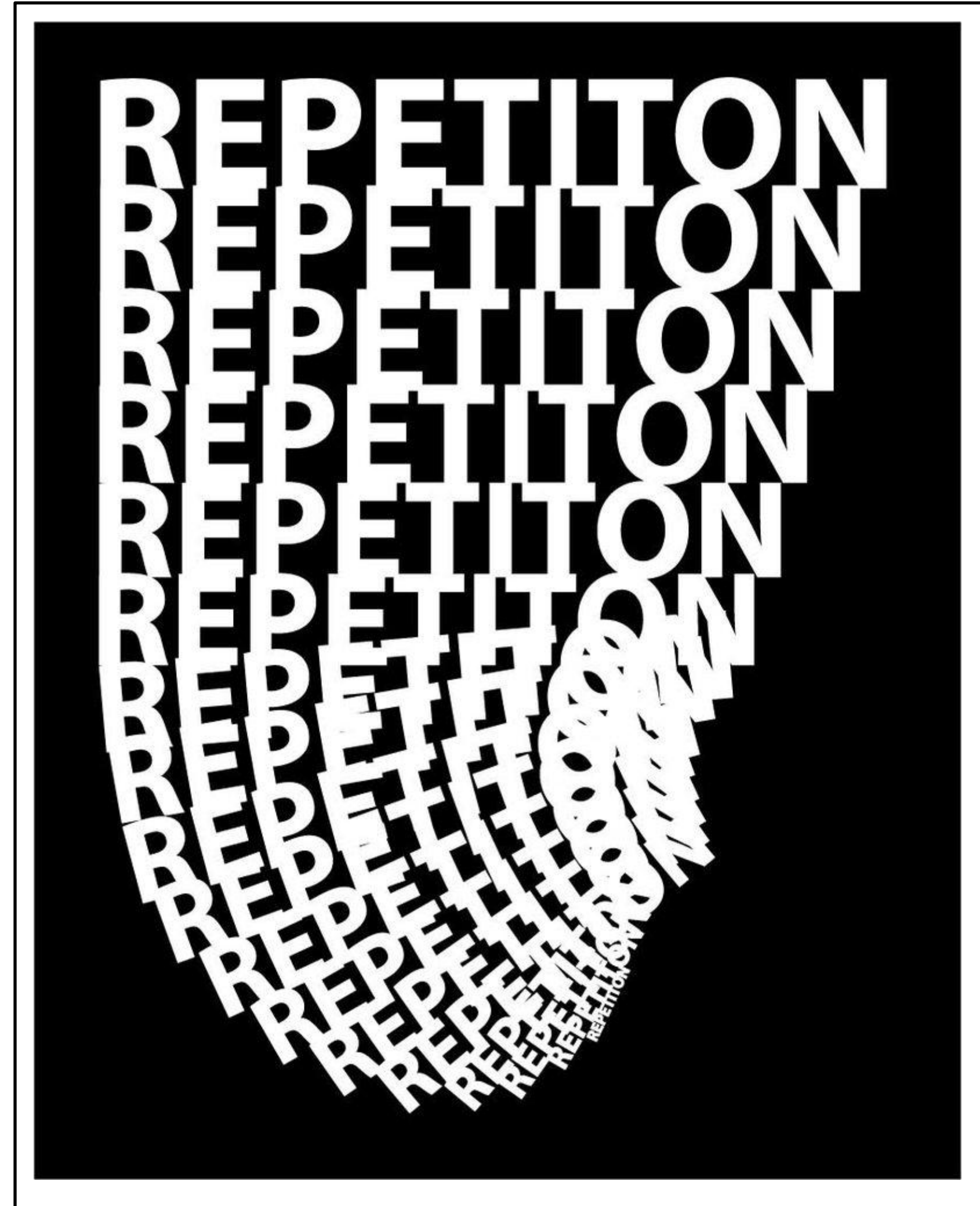
Foundation #3 Bottom Up / Top Down



Basic Learning



Basic Learning
REPETITION
(and frequency...)



Repetition

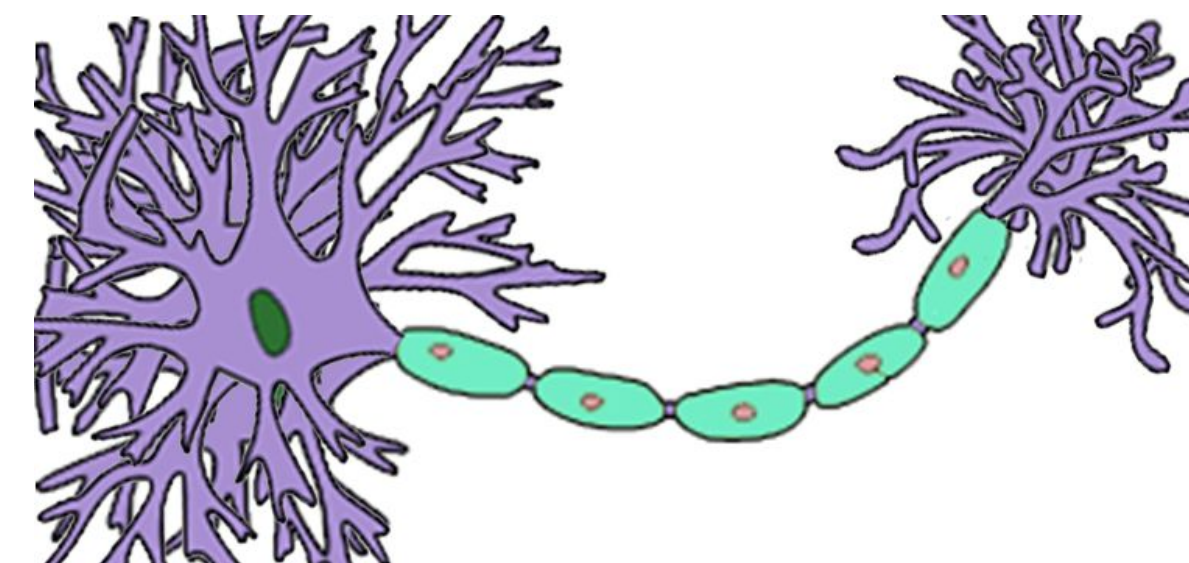
Beginner



Top Down



Repetition
Competent



Repetition

Expert



Repetition

Master

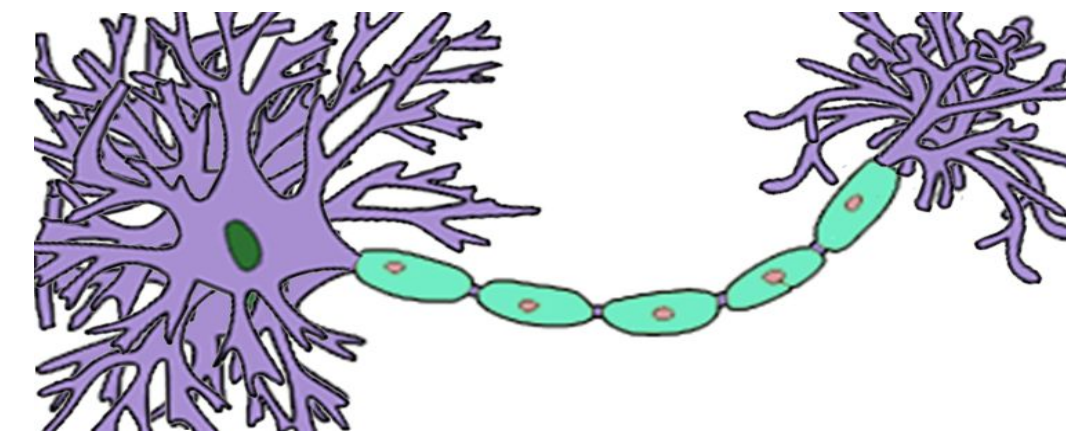


Bottom Up



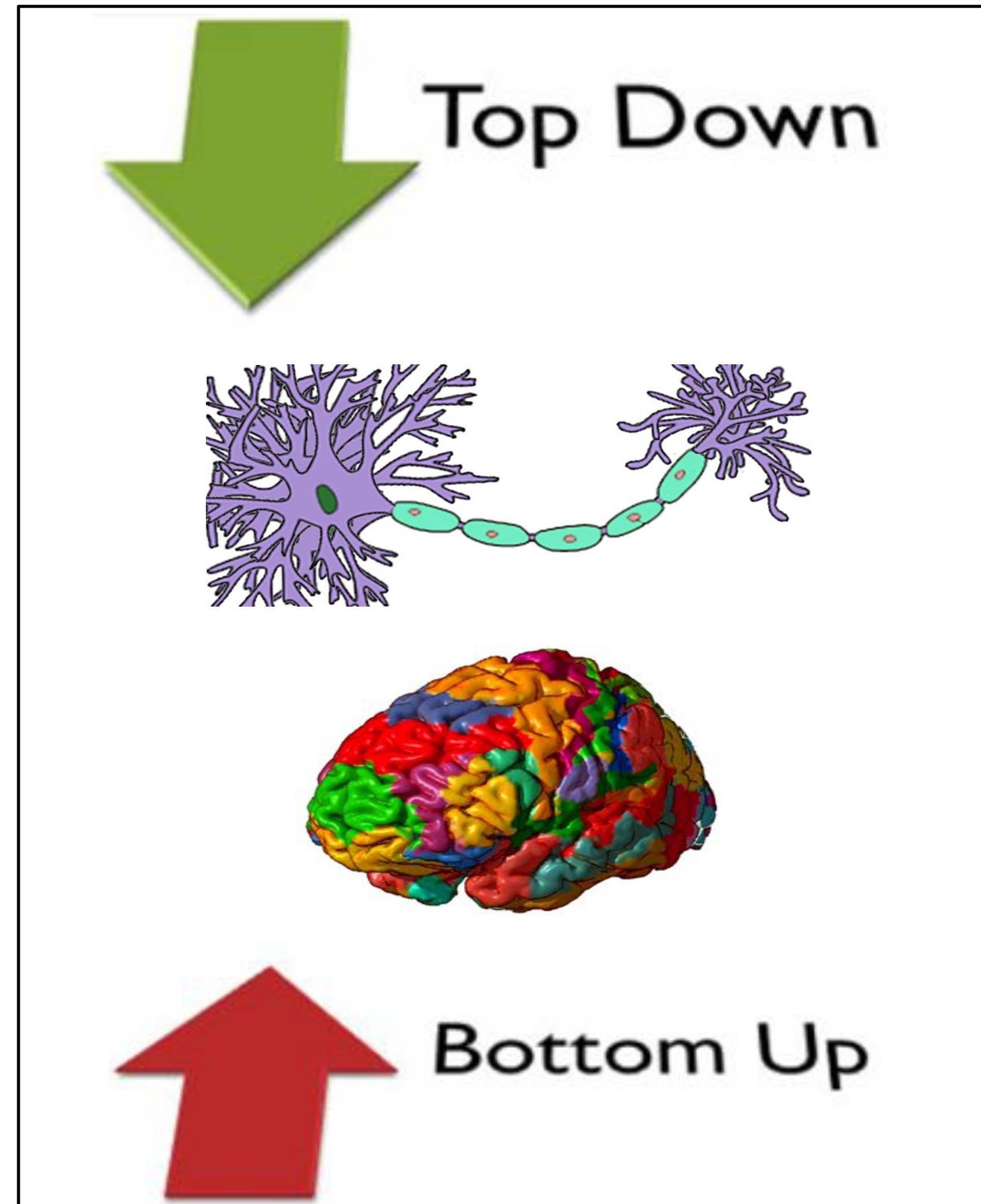
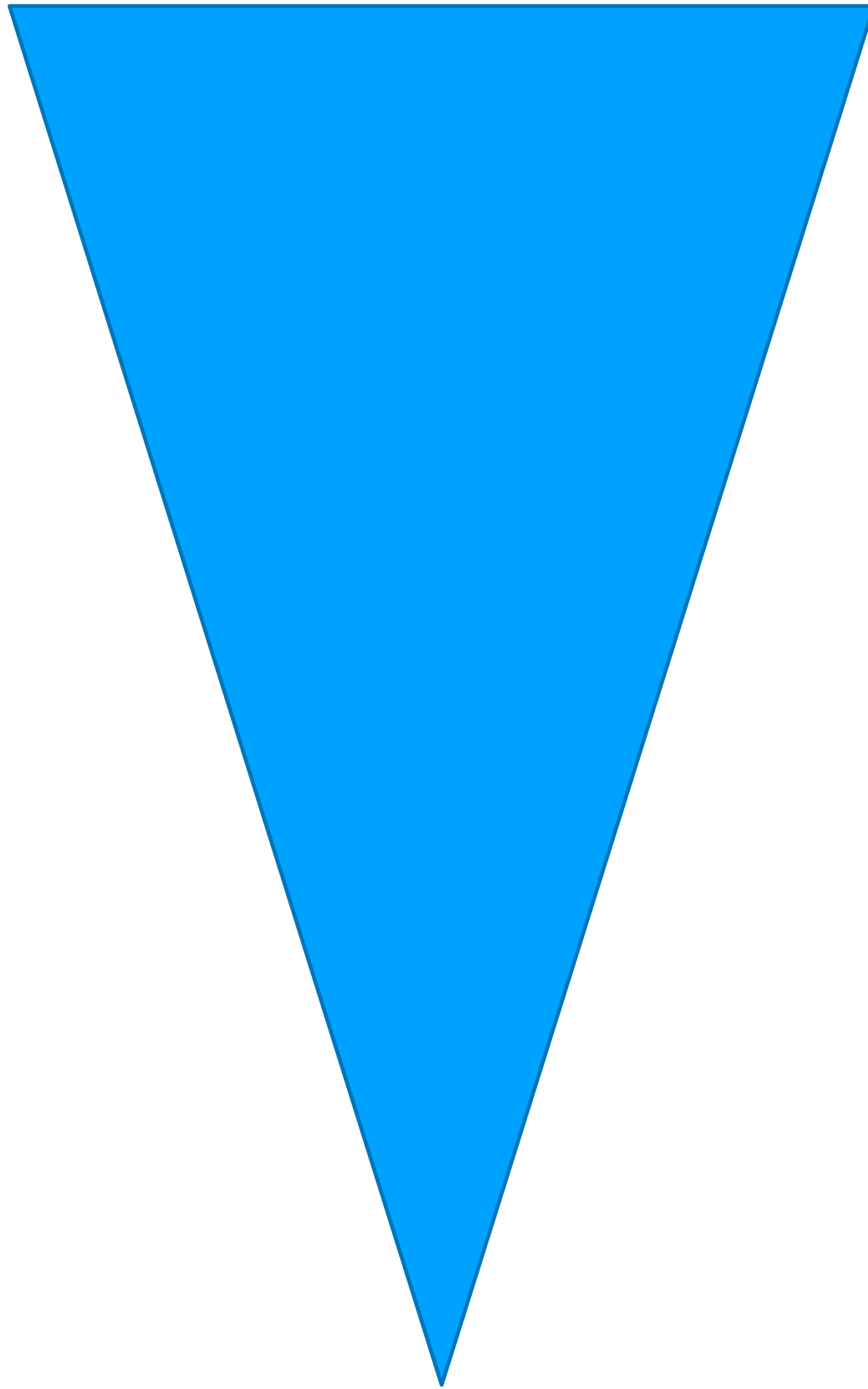


Top Down



Bottom Up

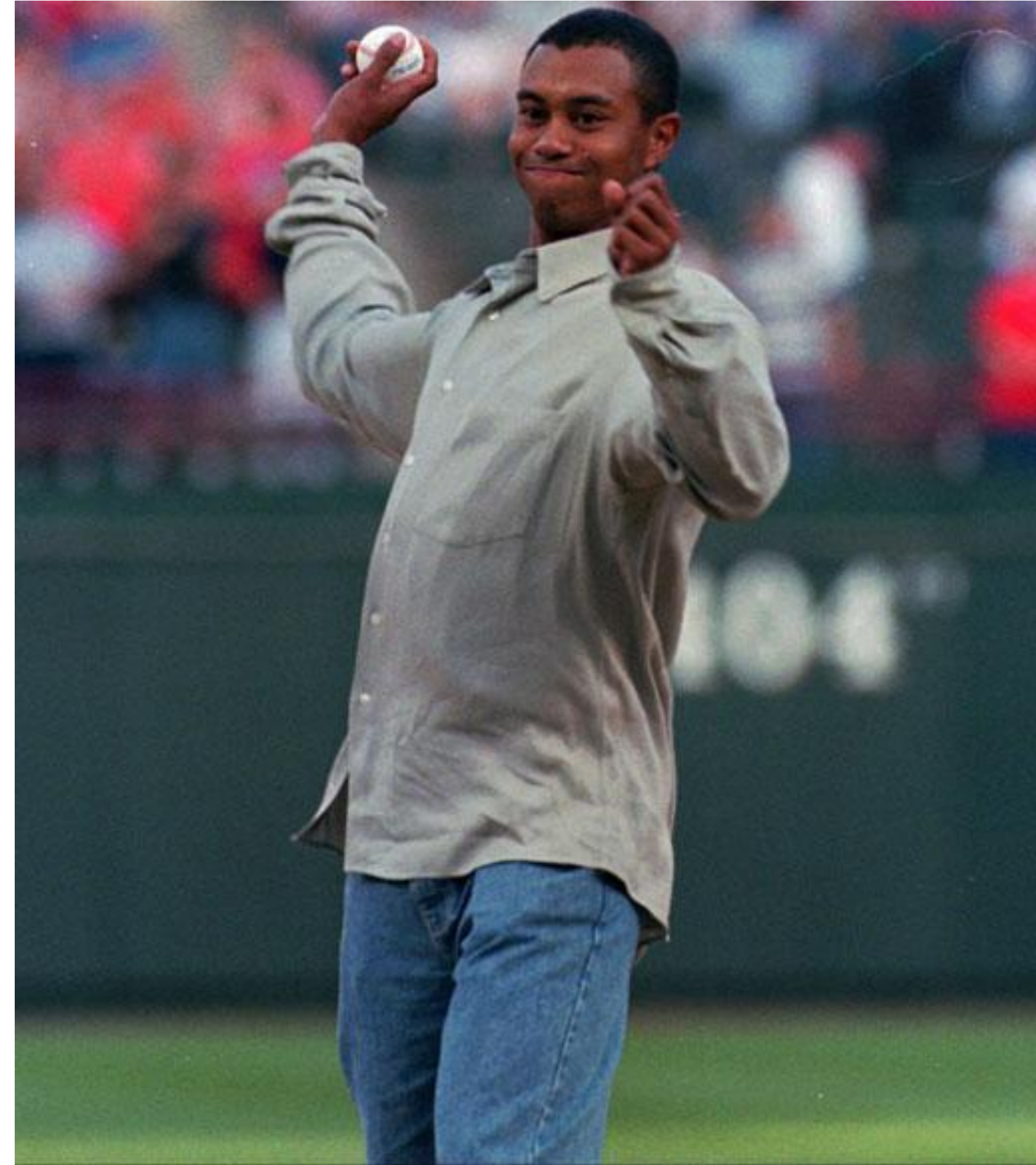
ADAPTABILITY



Bottom Up



Bottom Up

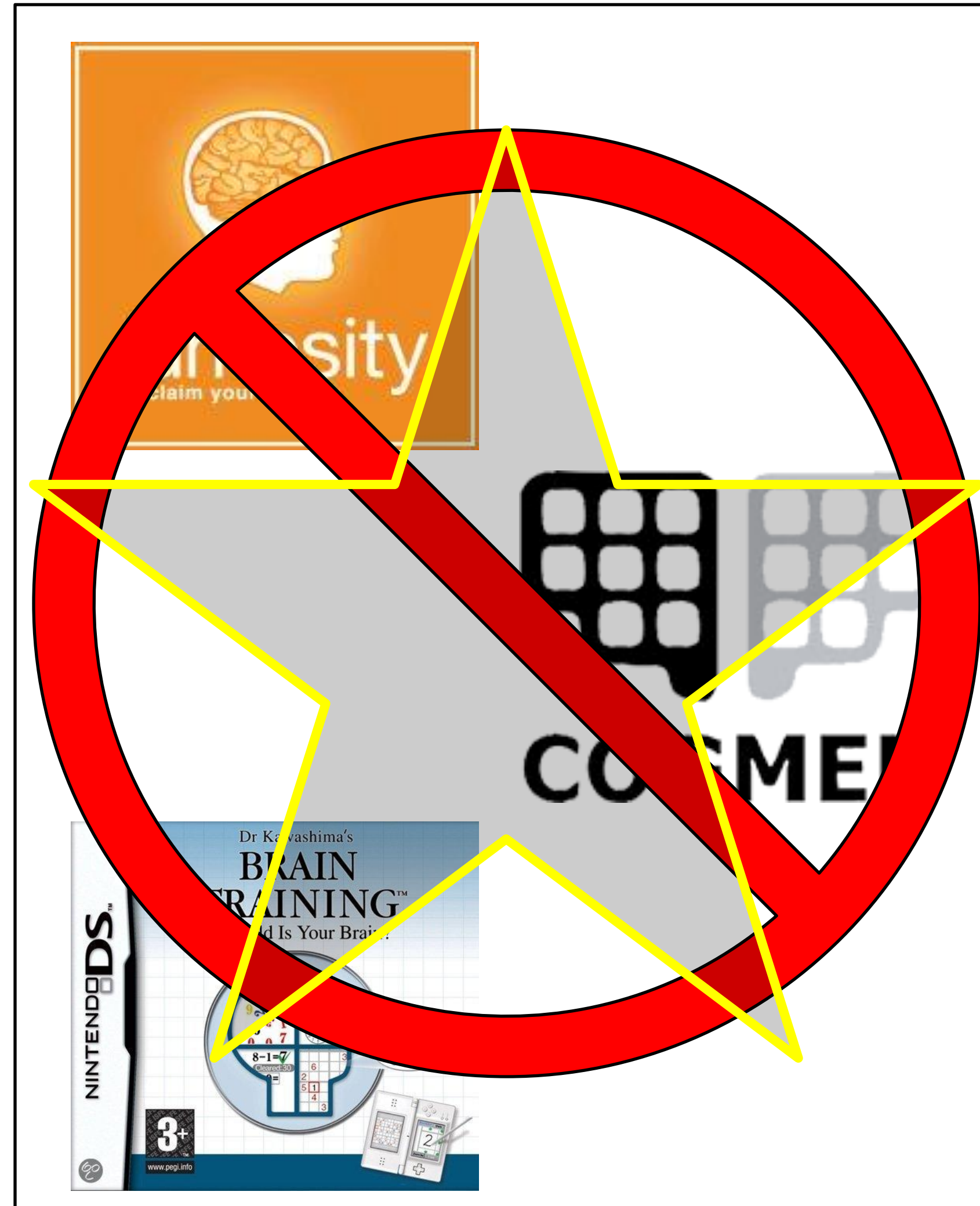


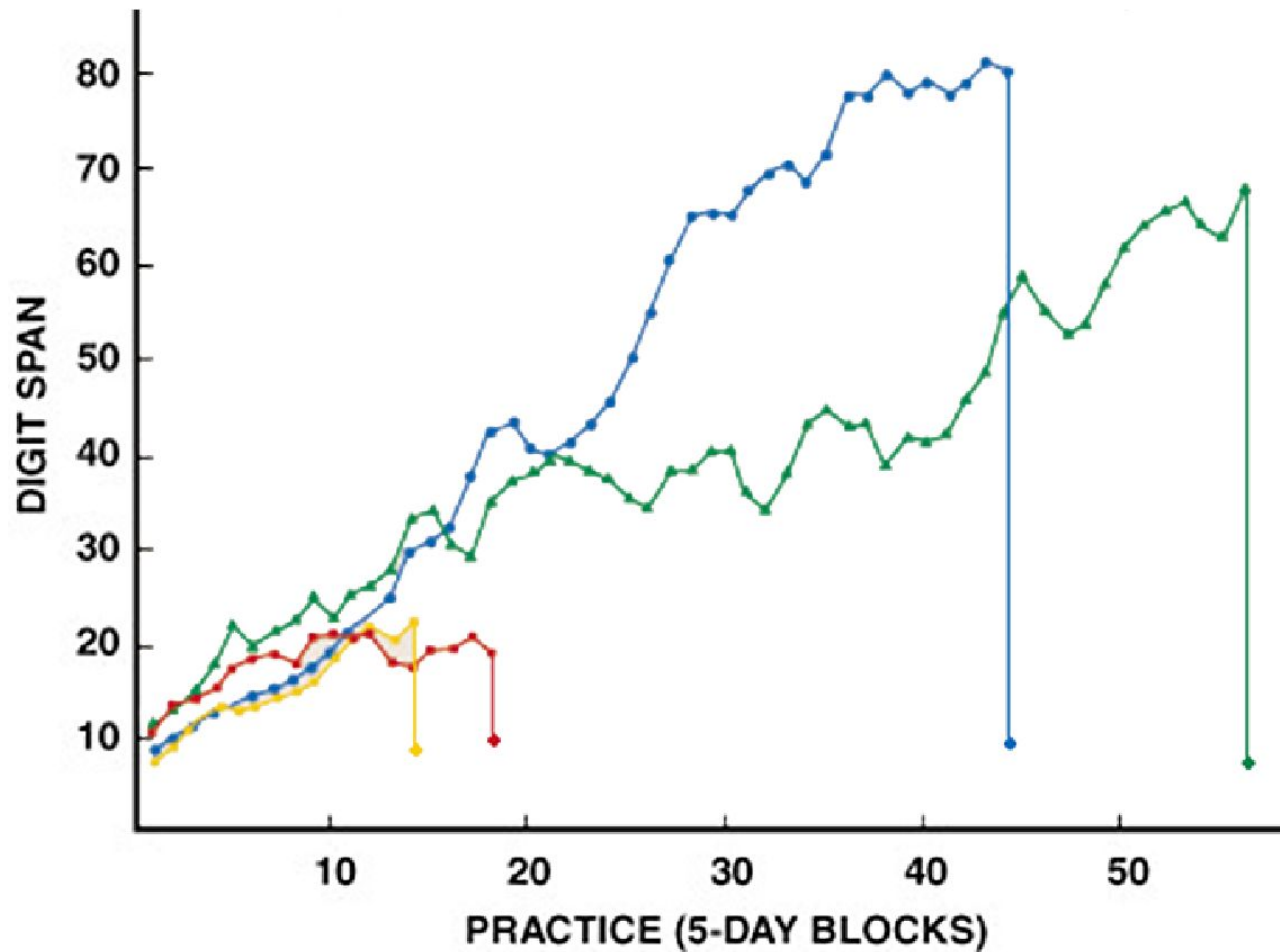
Transfer Lessons

- 1) *Skill transfer requires new domain knowledge.*
- 2) *Domain knowledge is used to select (and can confuse) the skill.*
- 3) *Adaptability narrows with automaticity.*



Brain Training





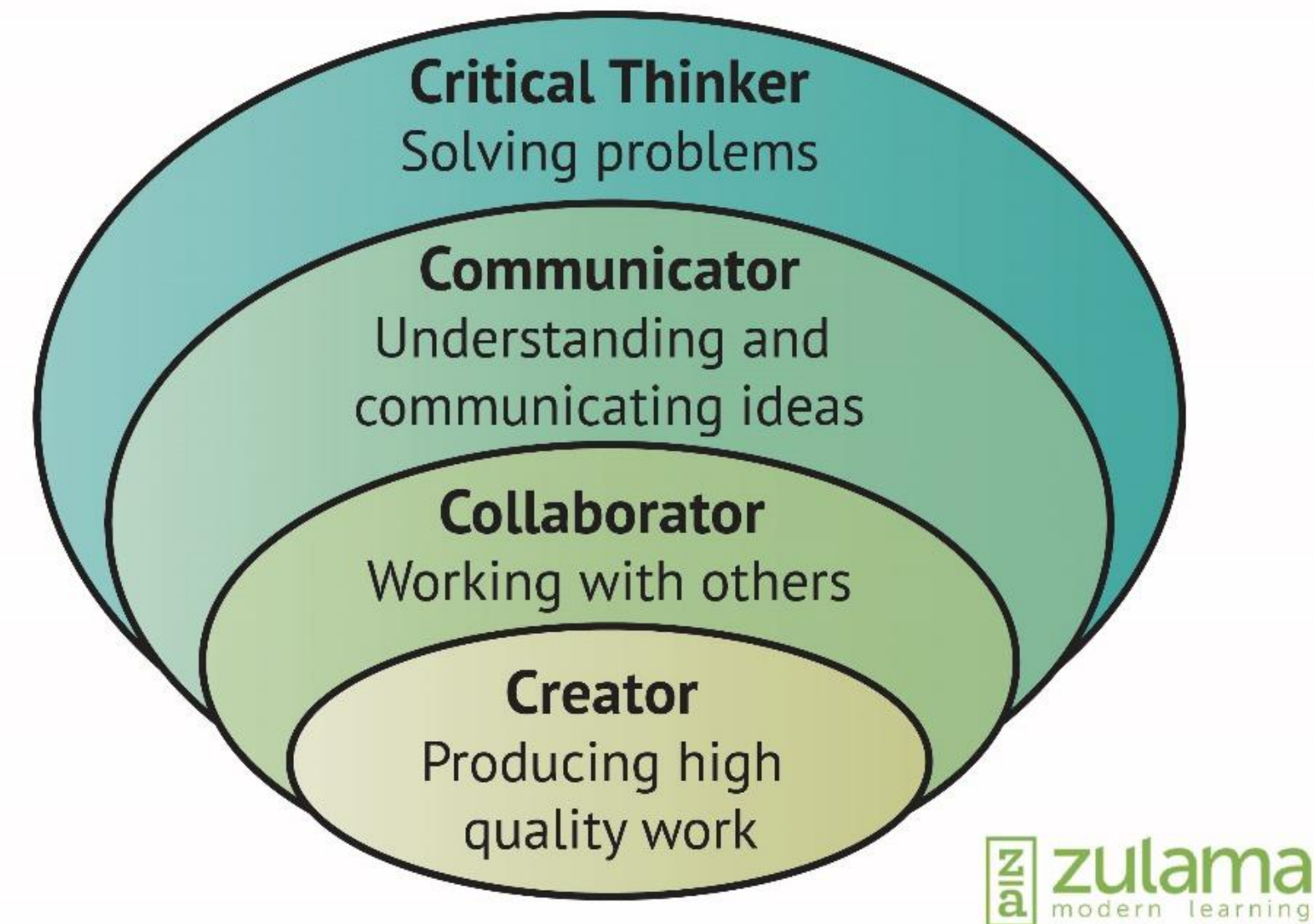
21C Skills

Knowledge

Contextualization

Adaptability

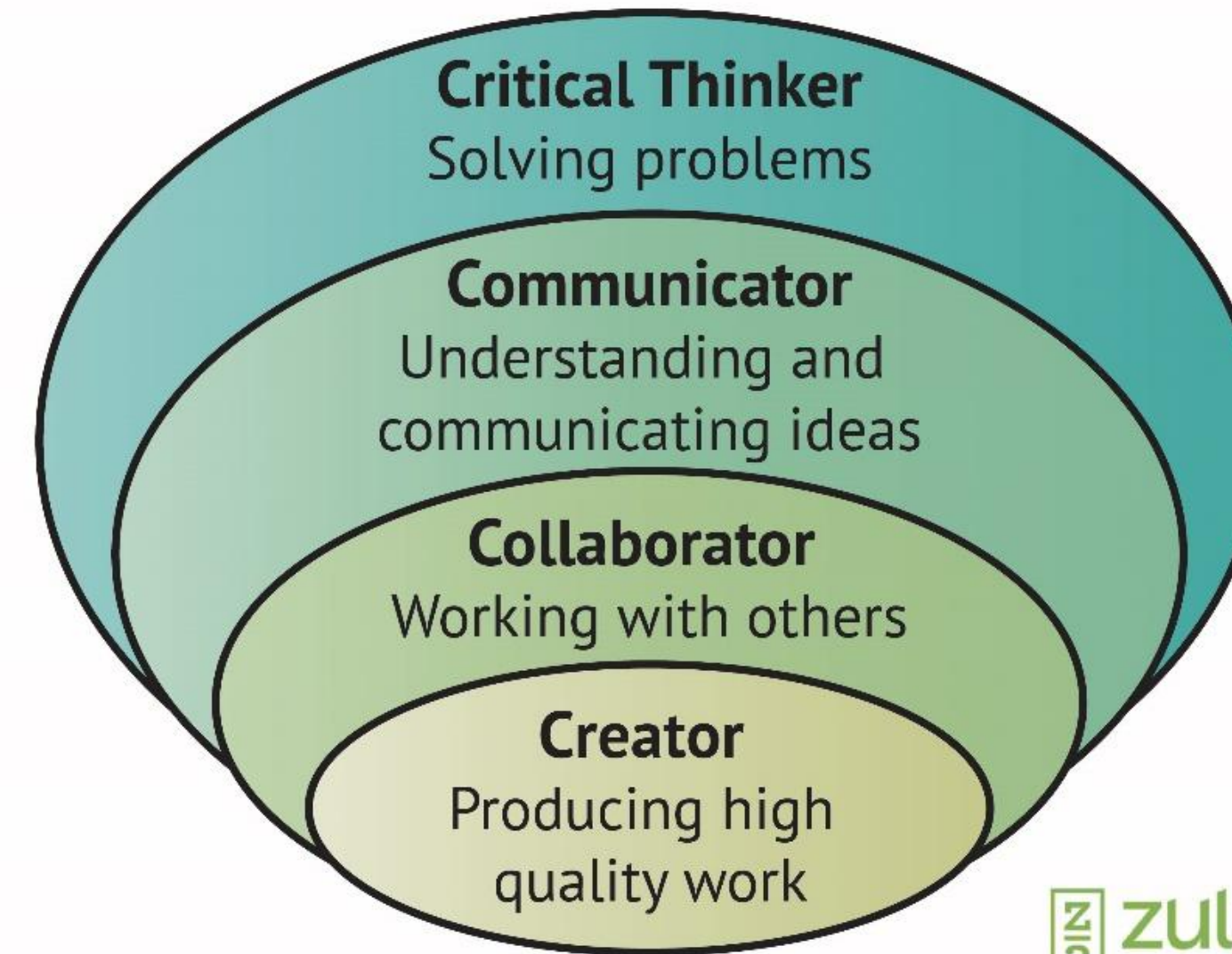
The Four Cs of 21st Century Skills



21C Skills

Learning

The Four Cs of 21st Century Skills



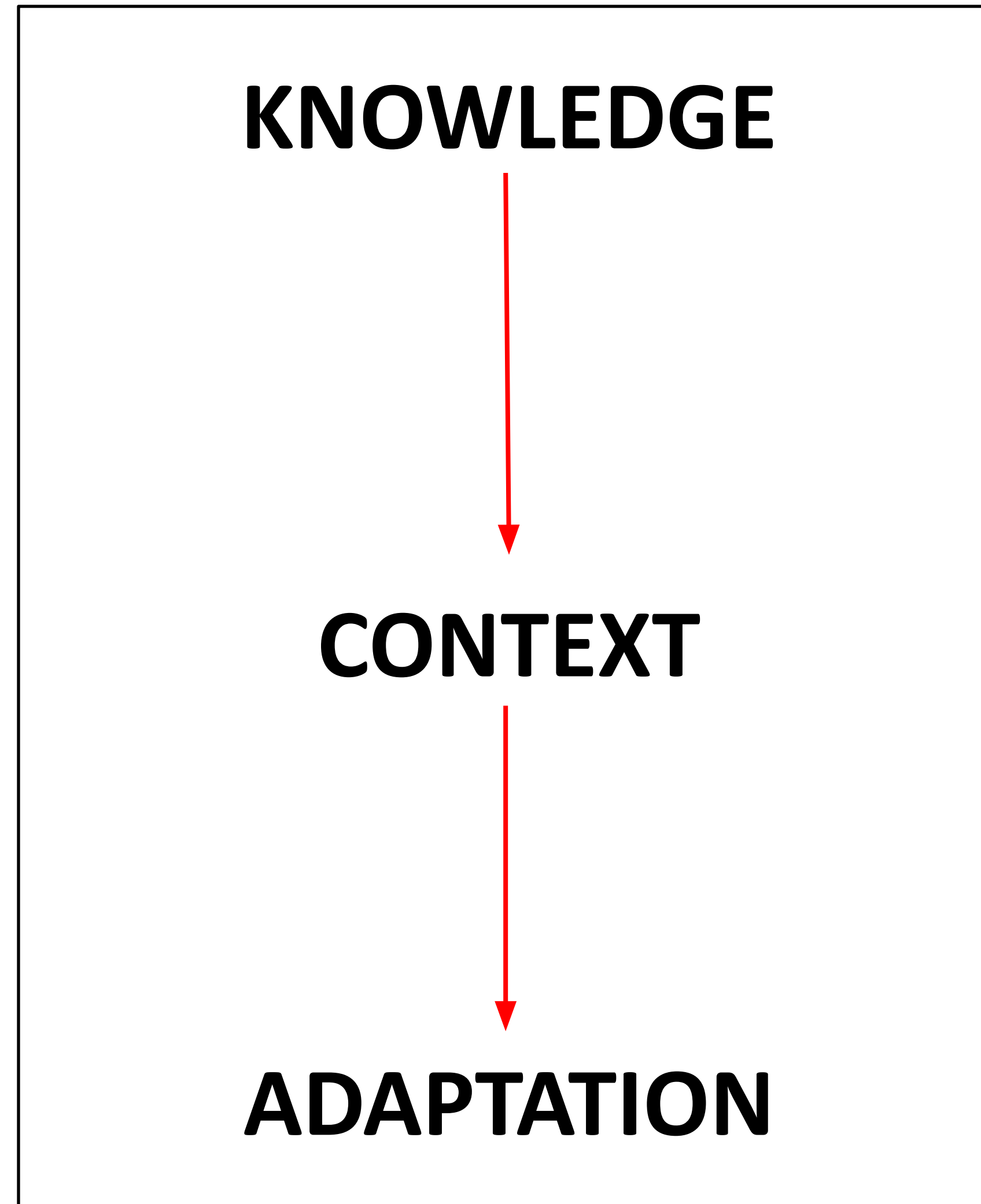
The Only Future-Proof Skill

Learning

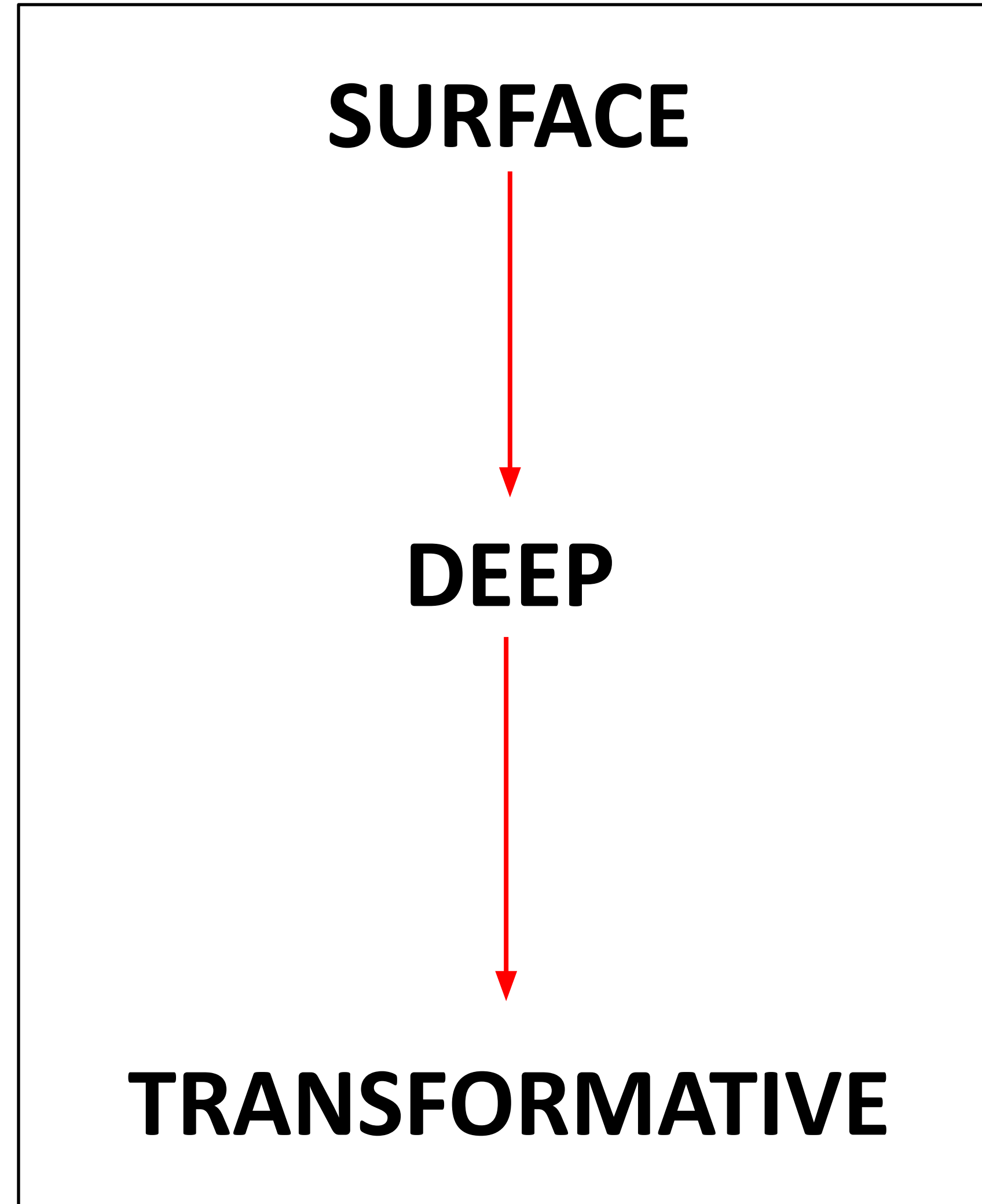
NOT STUDY SKILLS



The Transfer Process



The Learning Trajectory



But Wait...



Near vs Far



Near Transfer



Far Transfer

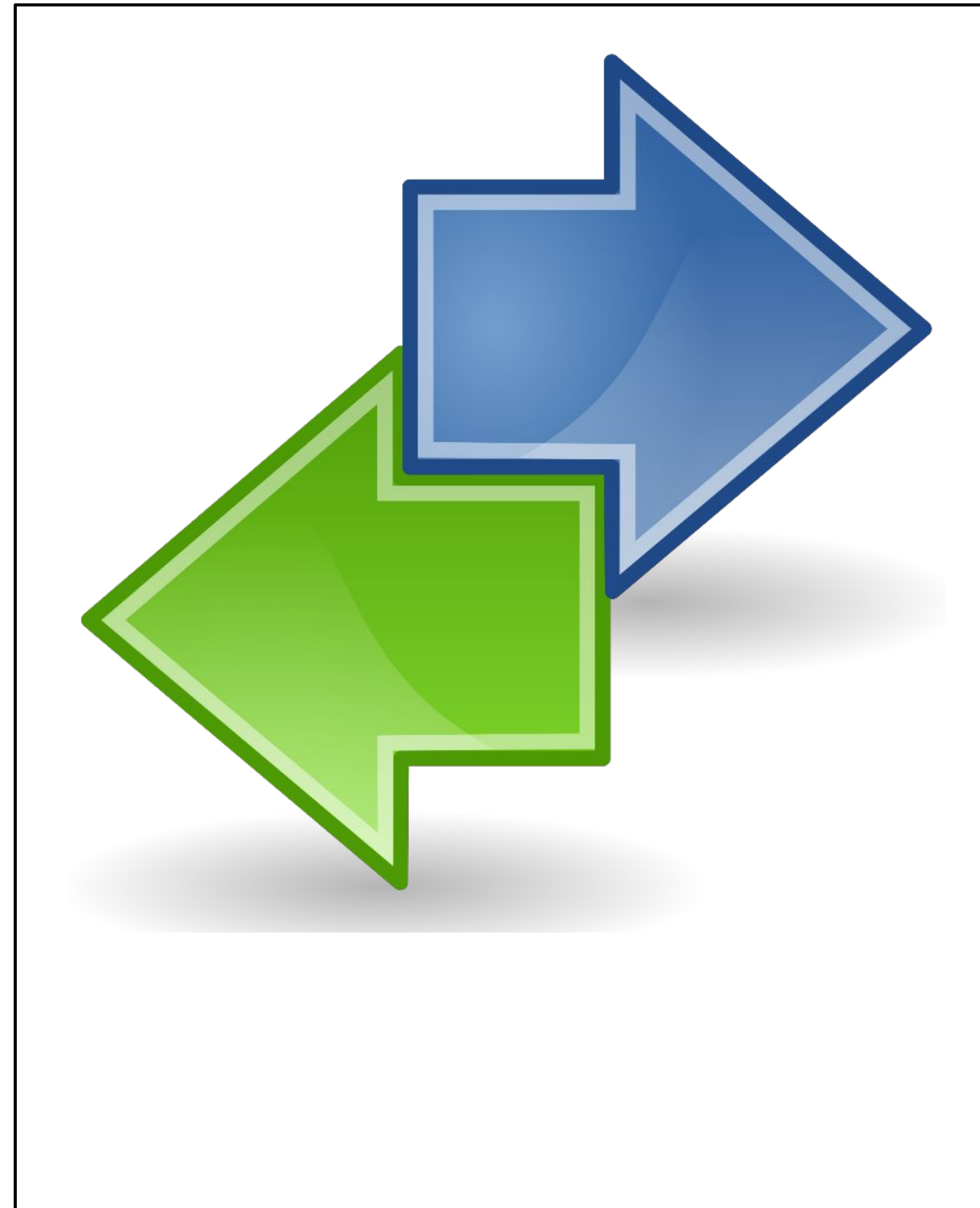


The Transfer Dilemma

Knowledge

Contextualization

Adaptation

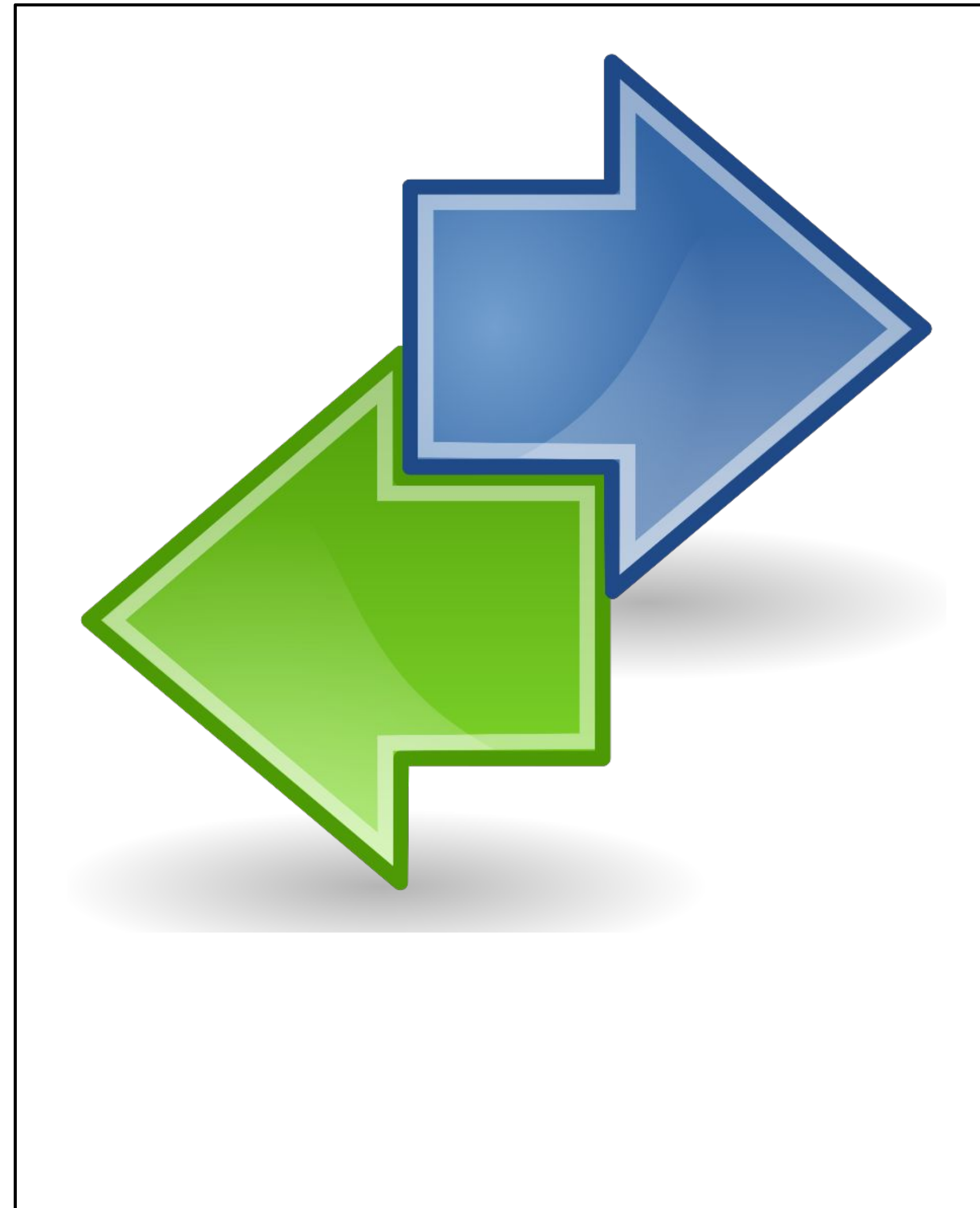


The Transfer Dilemma

Knowledge

Contextualization

Adaptation



The Transfer Dilemma

Knowledge

Contextualization

Adaptation



The Transfer Dilemma

Knowledge

Contextualization

Adaptation



The Transfer Dilemma

Knowledge

Contextualization

Adaptation

$$6 - 3 = ?$$

*Lucy has 3 fewer
apples than Julie.*

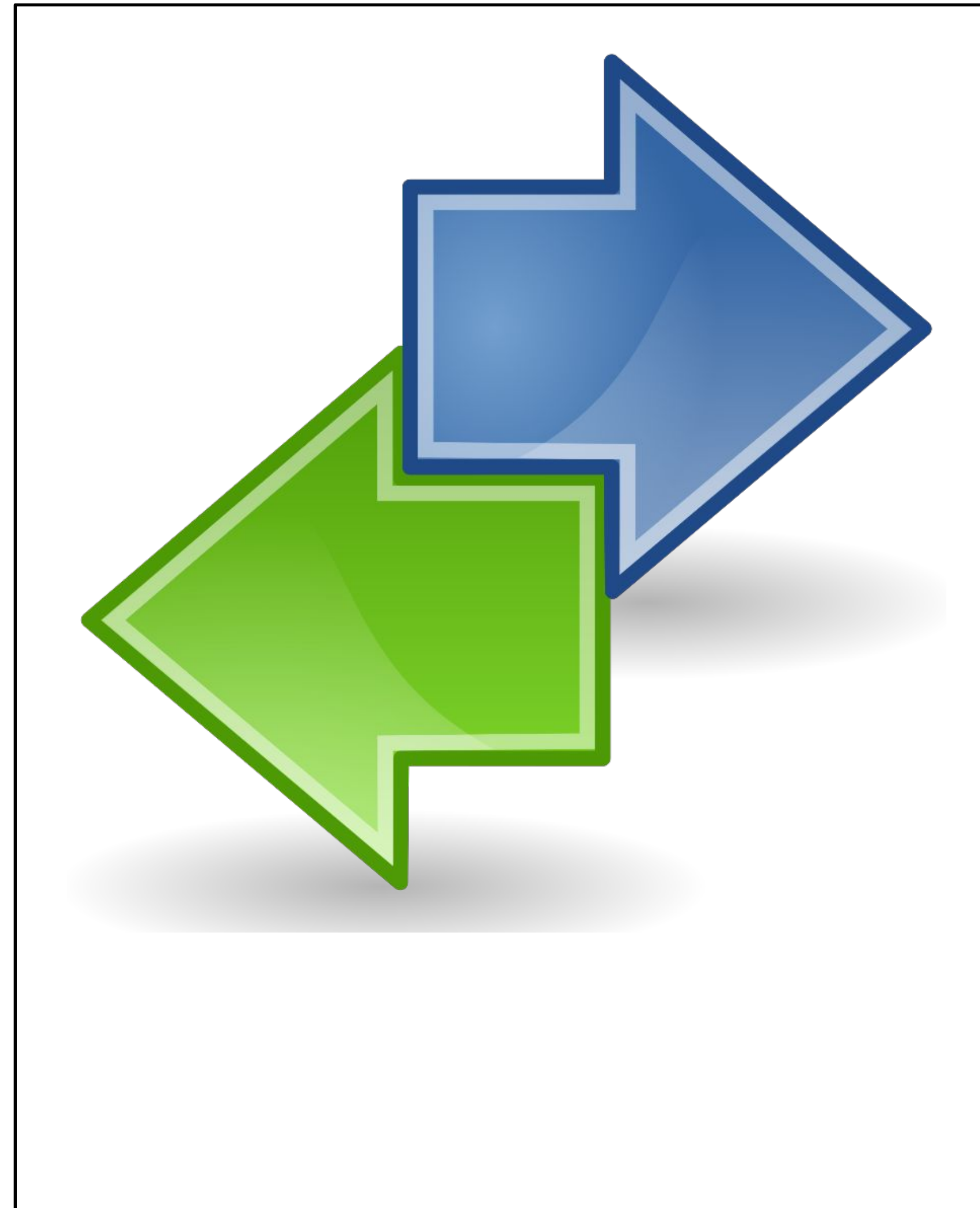
*If Julie has 6 apples,
how many does Lucy
have?*

The Transfer Dilemma

Knowledge

Contextualization

Adaptation



The Transfer Dilemma

Knowledge

Contextualization

Adaptation



The Transfer Dilemma

Knowledge

Contextualization

Adaptation

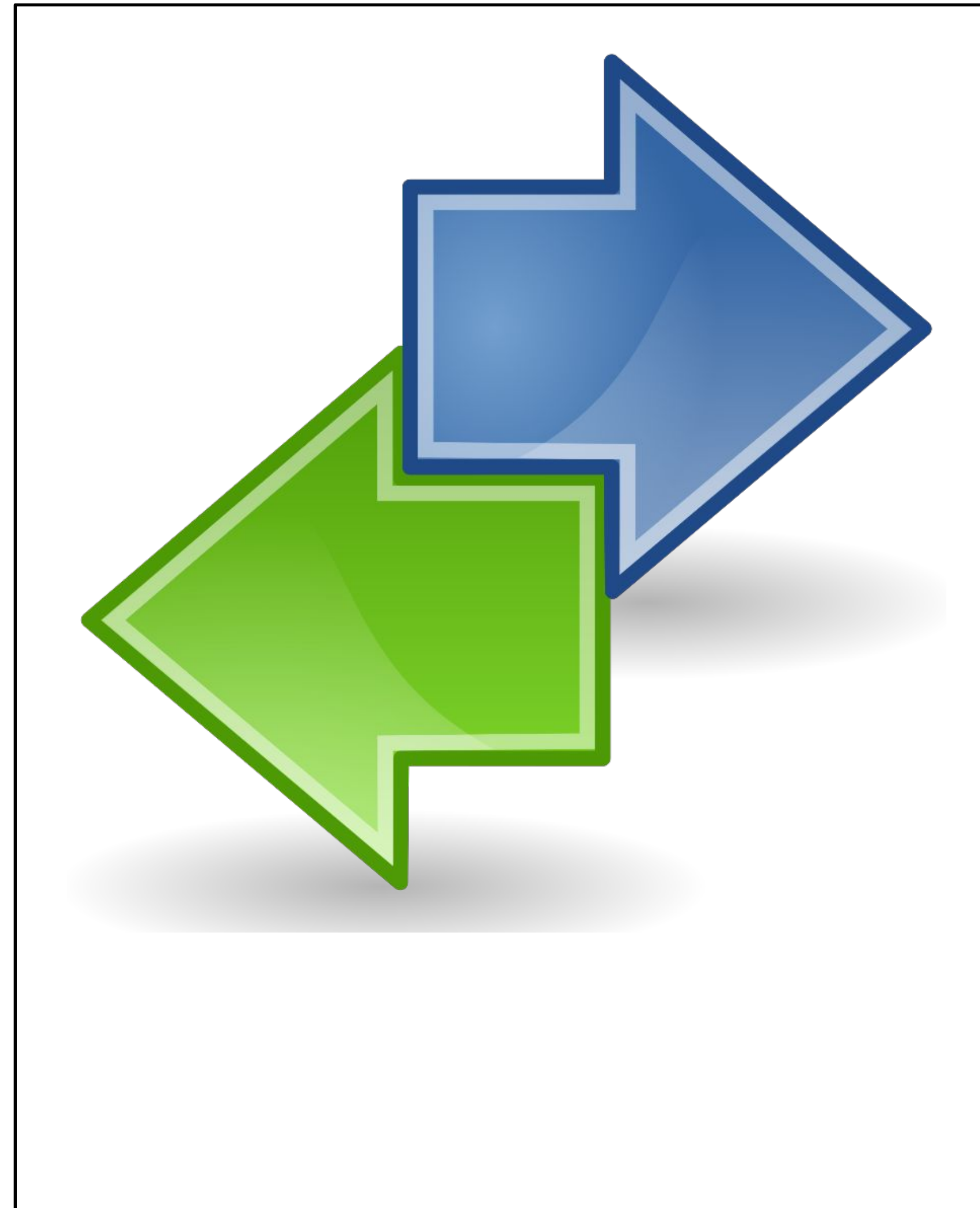


The Transfer Dilemma

Knowledge

Contextualization

Adaptation



The Transfer Dilemma

Knowledge



Contextualization



Adaptation

The Transfer Dilemma

Knowledge

Contextualization

Adaptation



FAR



The Transfer Dilemma

Knowledge

Contextualization

Adaptation

4. ~~~~~
~~~~~  
5. ~~~~~  
~~~~~

Observations:

Mass (g)	Extension 1 (mm)	Extension 2 (mm)
0	0	1
100	5	6
200	9	9
300	15	15
400	20	21
500	24	25
600	30	31

Calculations:
12 + 14 23 x 45 7 - 3

Discussion: ~~~~~
~~~~~  
~~~~~

Conclusion: ~~~~~

Introduction:
~~~~~  
~~~~~

Purpose:
~~~~~  
~~~~~

Hypothesis:
~~~~~  
~~~~~  
~~~~~

Materials:  
~~~~~  
~~~~~  
~~~~~

Procedure:
1. ~~~~~
~~~~~  
~~~~~  
2. ~~~~~
~~~~~  
~~~~~  
3. ~~~~~

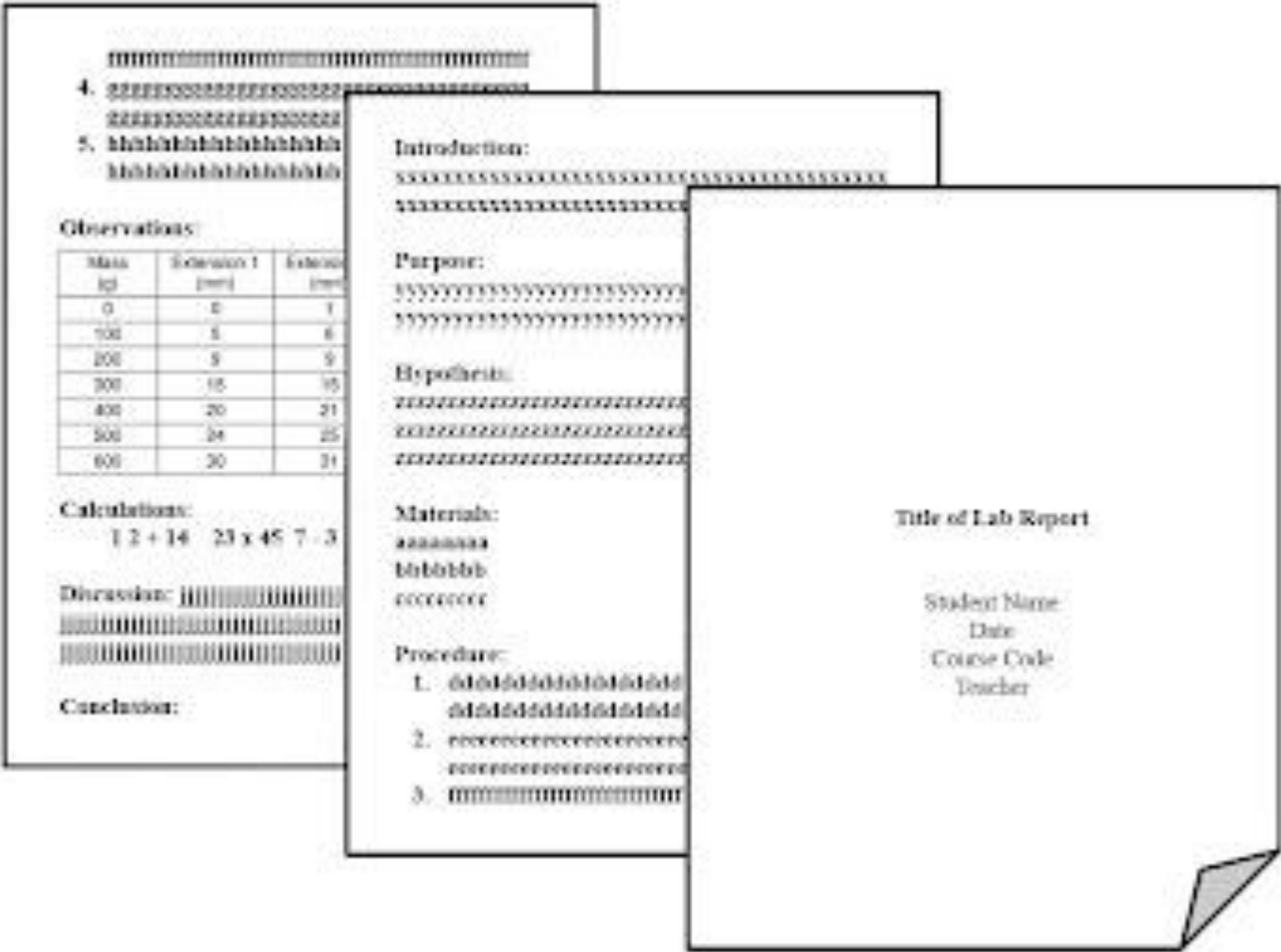
Title of Lab Report

Student Name
Date
Course Code
Teacher



The Transfer Dilemma

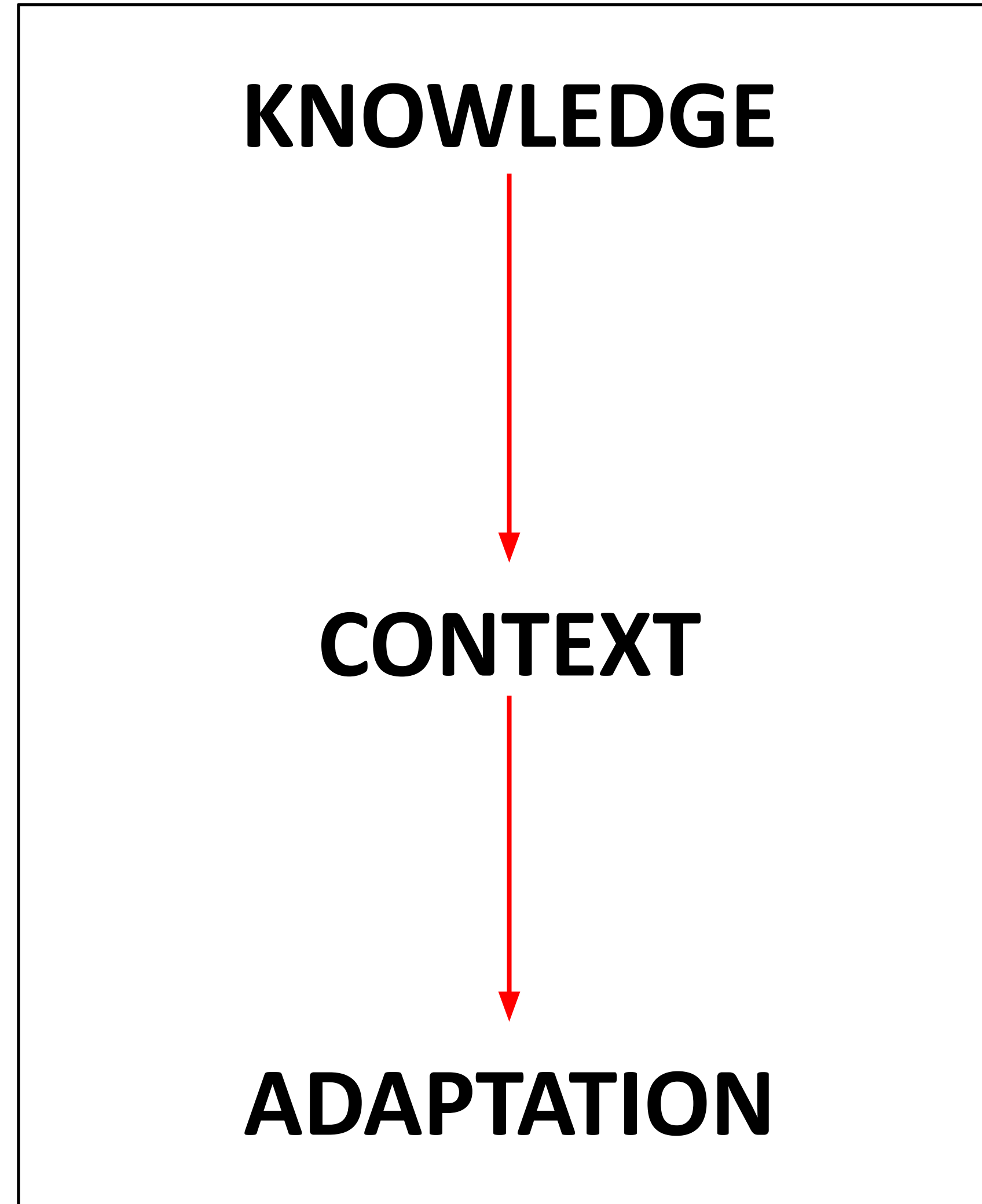
Competencies



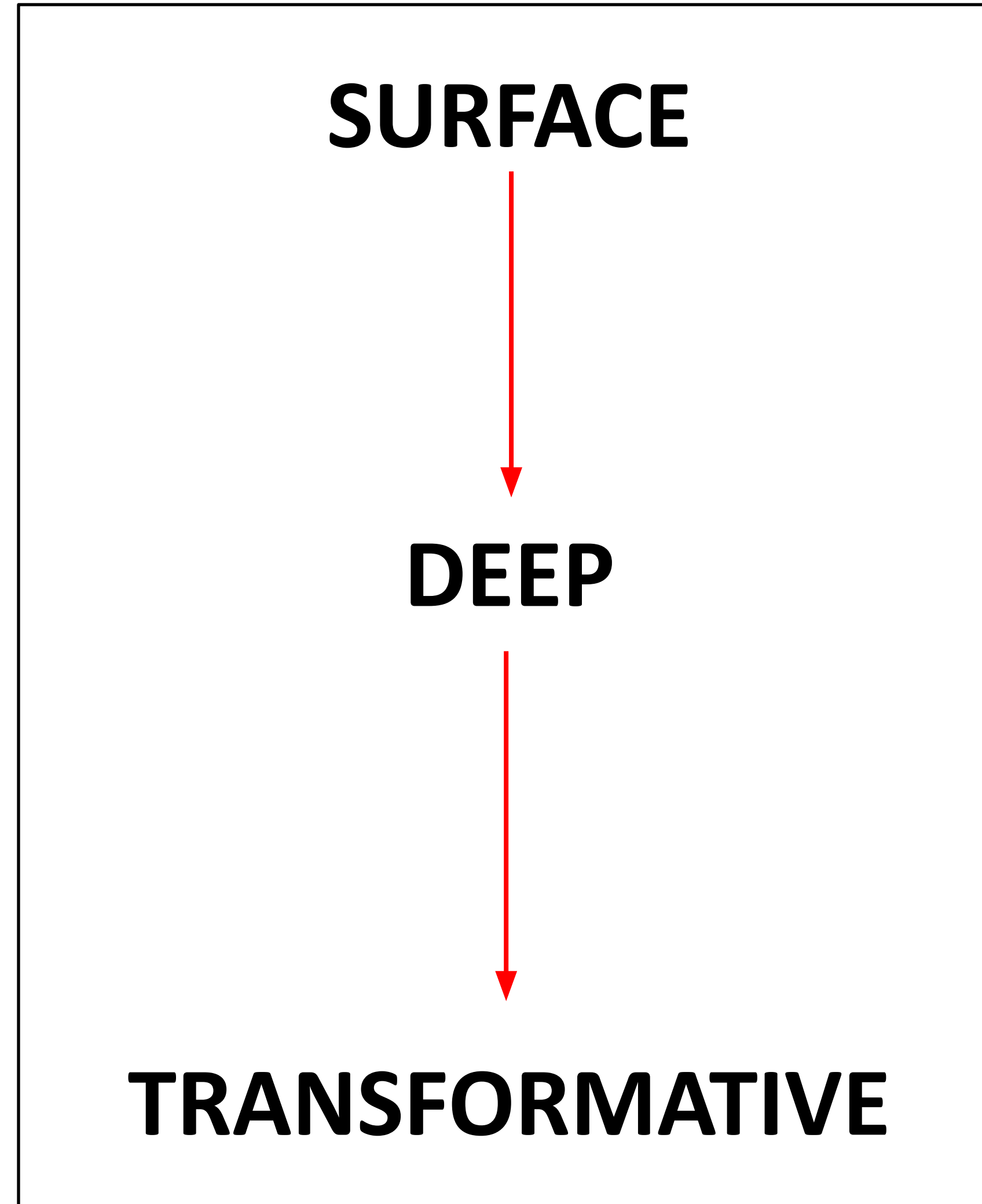
Near vs Far



The Transfer Process



The Learning Trajectory



So Now Then

the **LEARNING BLUEPRINT**™

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PROFESSIONAL DEVELOPMENT PROGRAM



FOR STUDENTS
YR 9+ METACOGNITION PROGRAM



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GOLD SPONSORS

