

How do kids learn best?

^
and adults!

Handouts for Robert S. & Ai Murphy's sessions:

- *What can language teachers learn from neuroscience?*
- *Neuro-Mythbusters*
- *Neuroscience for teaching children: Yay!*
- *Brain food with a language lesson for young learners*

visit fab-efl.com for more information



email: murphy@kitakyu-u.ac.jp

Robert S. Murphy, neuroELT Lab, U of Kitakyushu

ad

NeuromythBusters!

Which of these are true?

pg M2

**Your brain is set before
you start schooling.**

We only use 10% of our brain.

Blood type affects personality.

You are either left-brained or right-brained.

We should learn L2 only after mastery of L1.

Beer kills brain cells.

**Knowledge acquired in L1 is
not accessible in L2.**

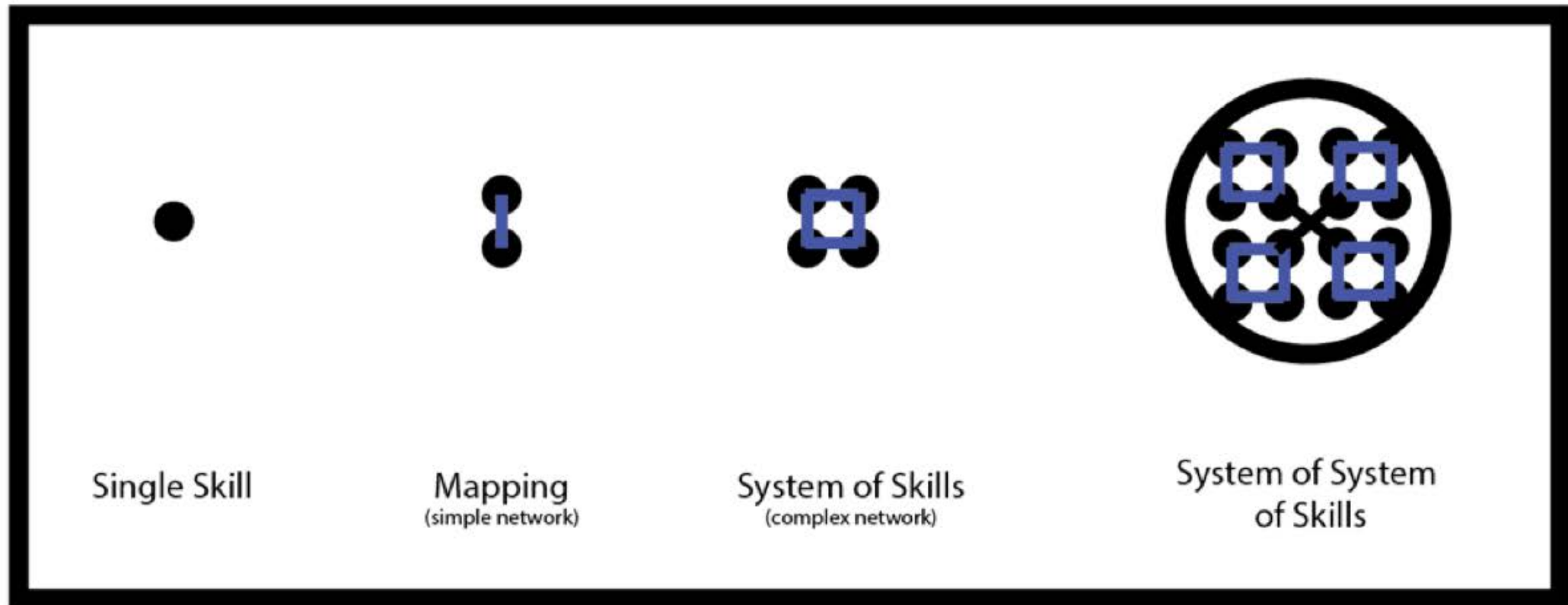
The Mozart Effect is real.

Adults don't grow new brain cells.

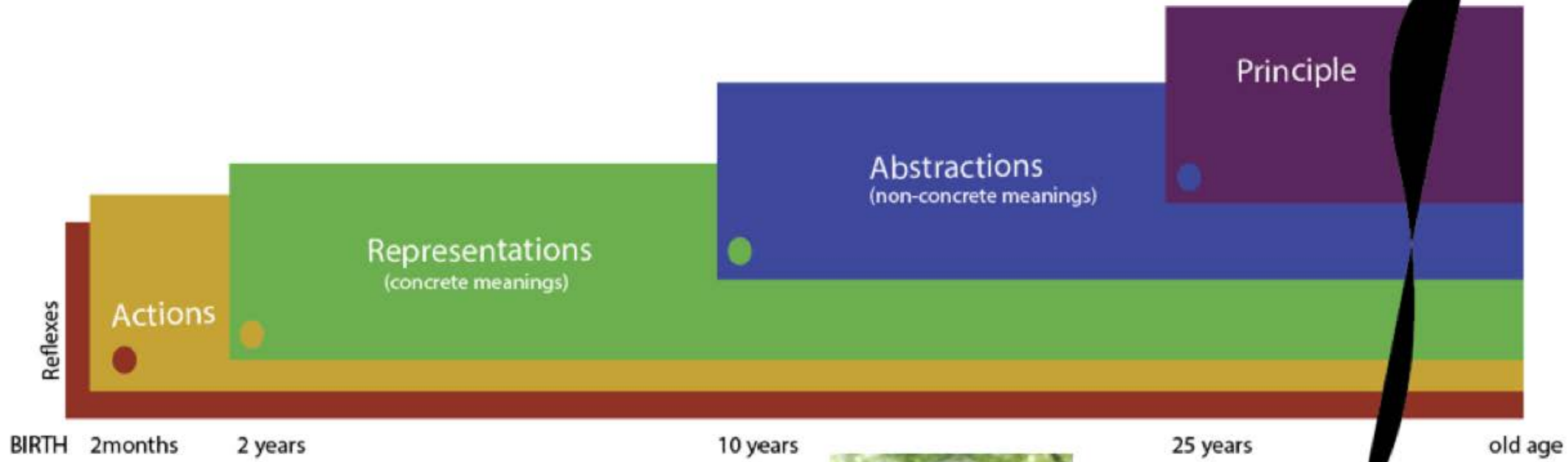
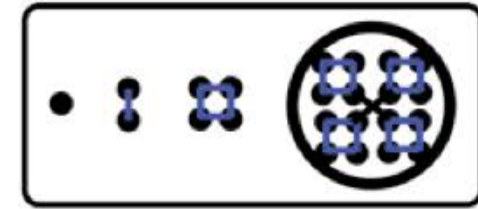
Video game playing is good for your brain.

Memories are hardwired.

How do skill networks develop?

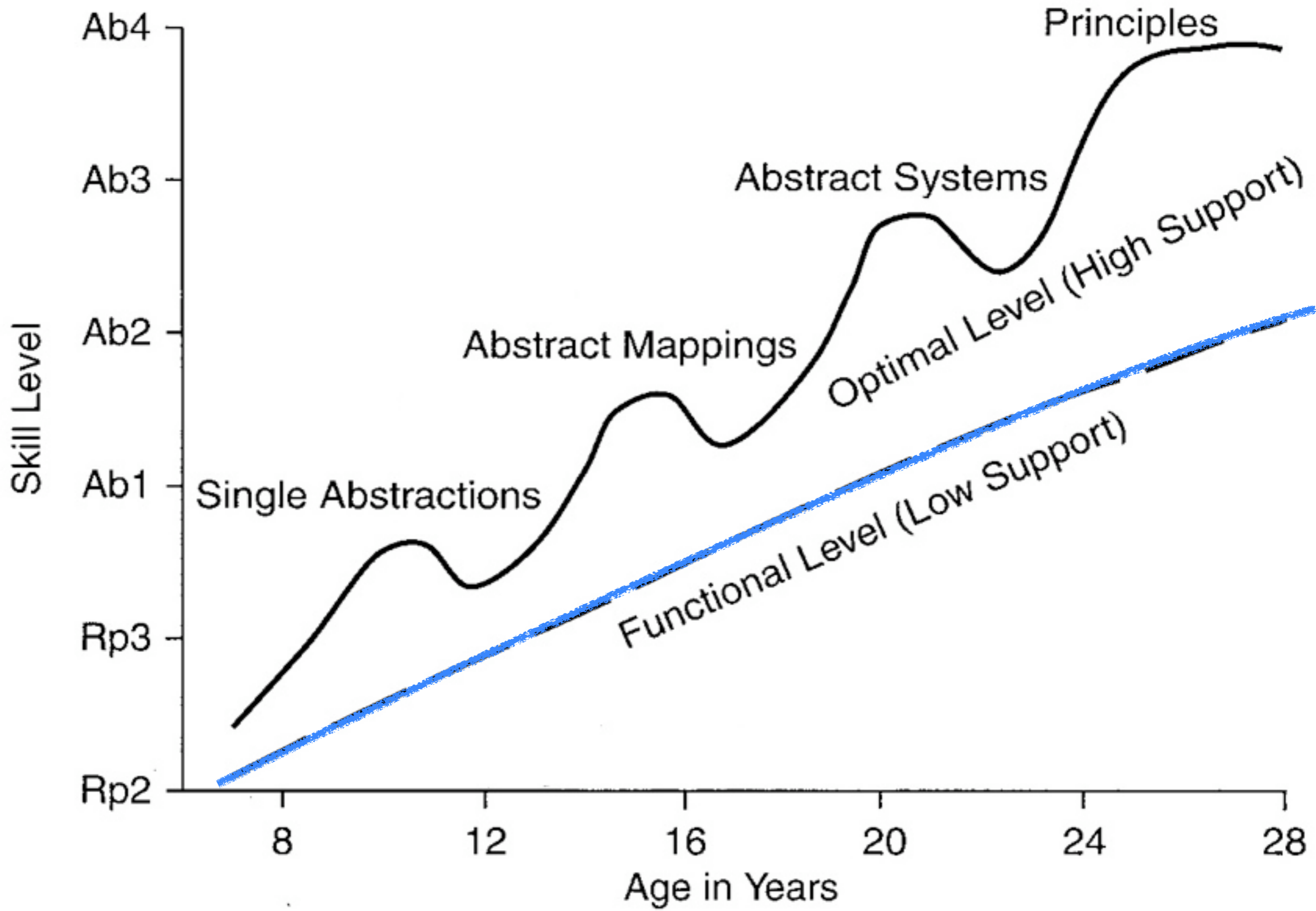


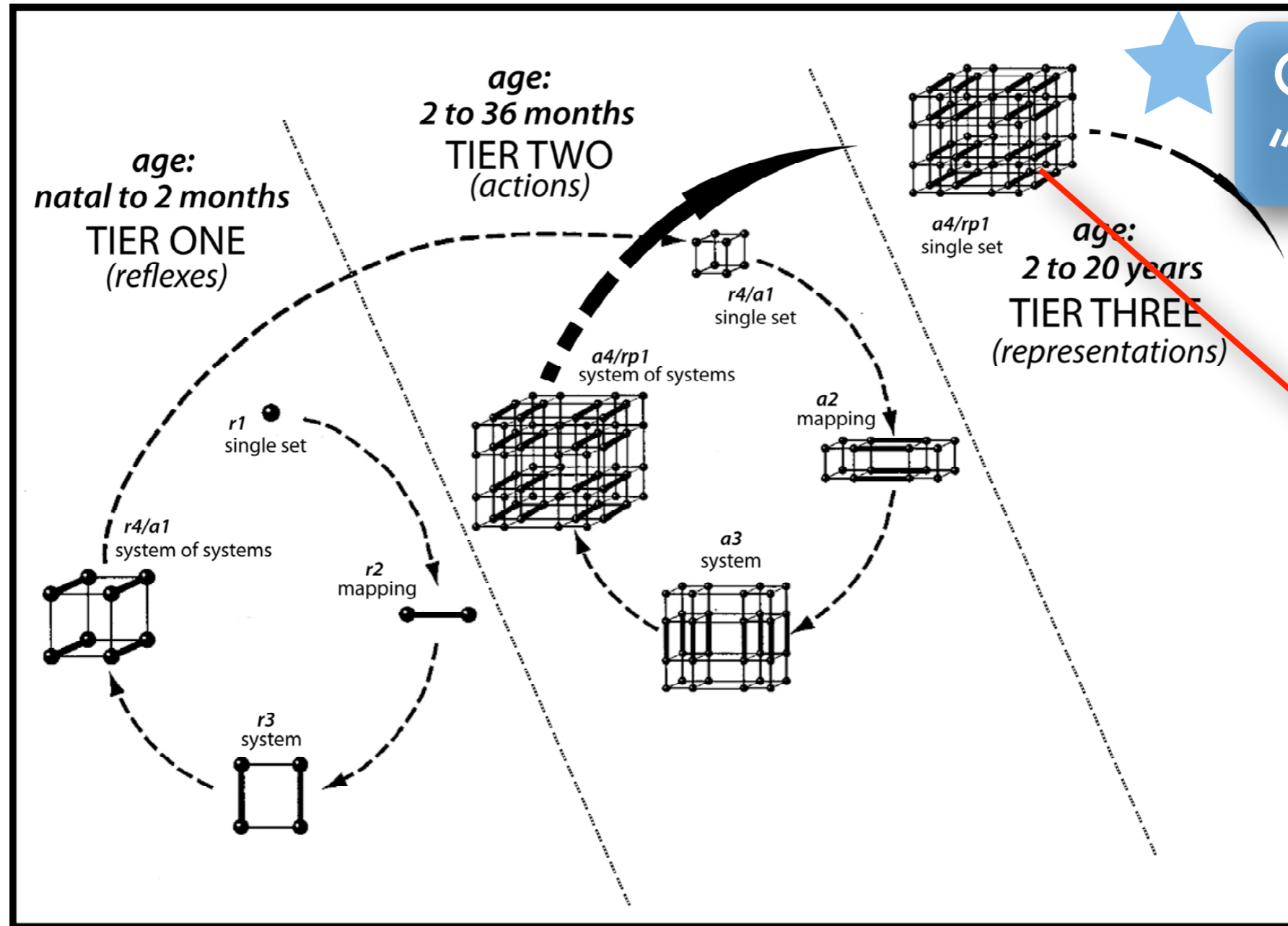
Dynamic Skill Theory



LIFETIME

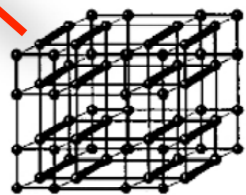






George
"father"

Mary
"mother"



Skill Level

Optimal Functional

★ Rp 1	Single Representations	2 yrs.	2 to 5 yrs.
Rp 2	Representational Mappings	4	4 to 8
Rp 3	Representational Systems	6	7 to 12
Rp4/Ab1	Single Abstractions	10	12 to 20
Ab2	Abstract Mappings	15	17 to 30
Ab3	Abstract Systems	20	23 to 40 (or never)
Ab4/P1	Single Principles	25	30 to 45 (or never)

Single Representations (Rp1)

The subject can conceive a characteristic of an event, object or person independent of their own immediate perceptions and/or actions.

George
"father"

Representational Mappings (Rp2)

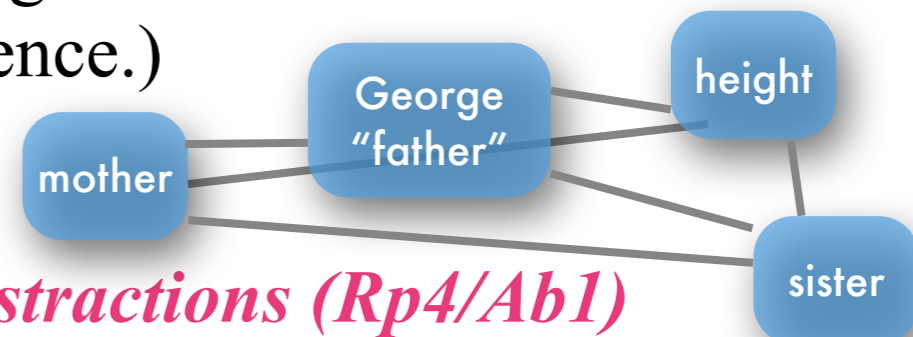
The subject can coordinate two or more single representations such as, "Mommy is tall" to "Sister is short."

George
"father"

tall

Representational Systems (Rp3)

The subject can comprehend complicated concrete ideas and events by integrating several representations into a system – "My brother is two years older than me, but he is shorter and does not have as many friends as I do." (The complexities of age difference, height and number of friends are comprehended and expressed in a single sentence.)



System of Representational Systems/Single Abstractions (Rp4/Ab1)

This is the beginning of abstractions. Intangible concepts such as *unpopular* can be derived from concrete instances such as "Shouts a lot", "Not helpful at school", and "Walks home alone" by the subject.

unpopular

System of Representational Systems/Single Abstractions (Rp4/Ab1)

This is the beginning of abstractions. Intangible concepts such as *unpopular* can be derived from concrete instances such as “Shouts a lot”, “Not helpful at school”, and “Walks home alone” by the subject.

unpopular

Abstract Mappings (Ab2)

The subject can coordinate two or more single abstractions. Example: “Being *comfortable with your boyfriend* is a necessary condition for your *own self happiness*.”

**comfortable with
boyfriend**

**self
happiness**

Abstract Systems (Ab3)

The subject can comprehend and coordinate groups of abstractions into complex relations with each other. Example: ‘being able to integrate the concepts of freedom, conformity and social pressure into a general concept of **responsible individuality**’ (Kennedy, 1994:186)

freedom

conformity

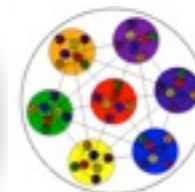
**social
pressure**

virtuousness

Single Principles (Ab4/P1)

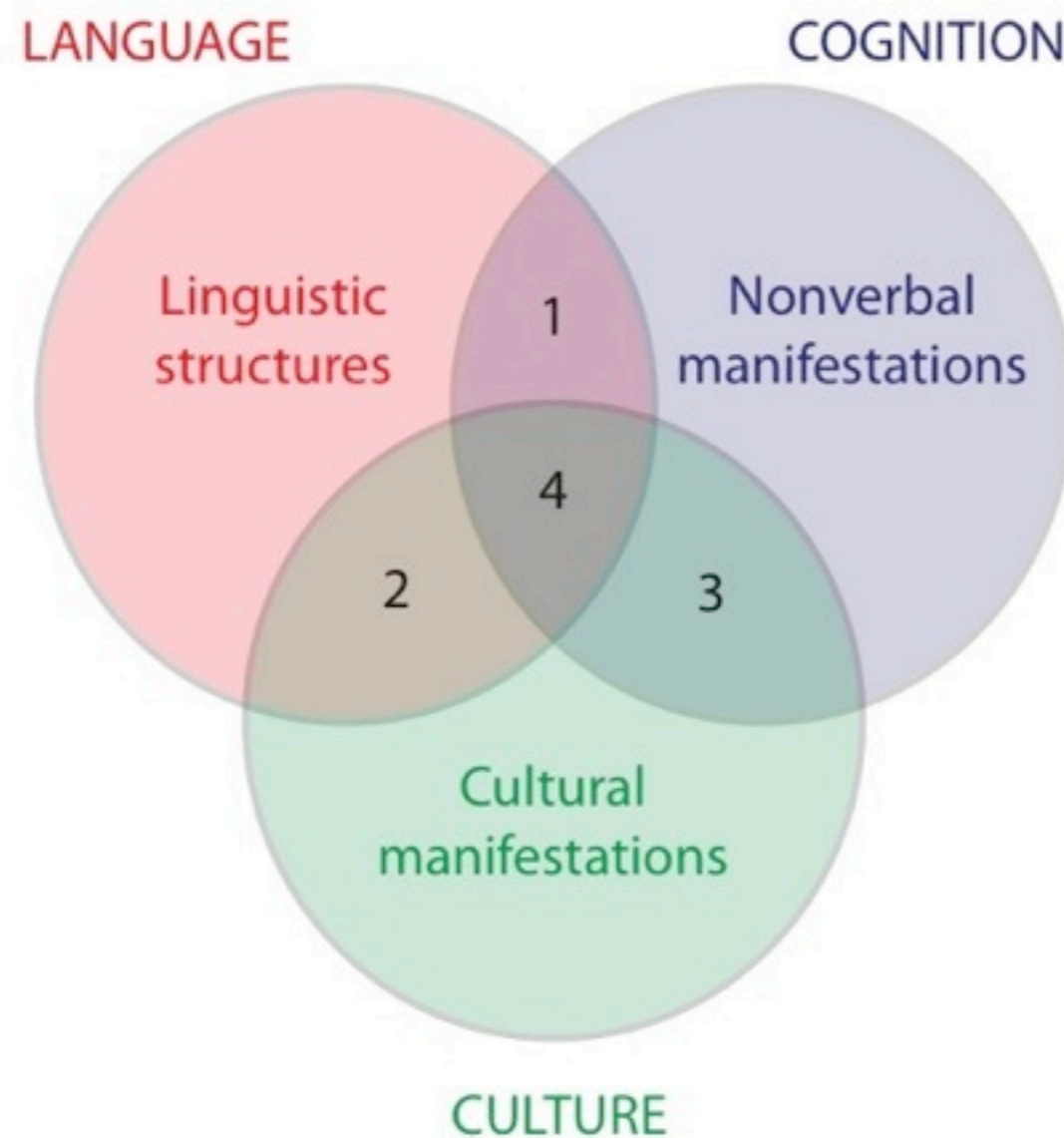
The subject can provide a fully encompassing principle, similar in level to a psychologist’s analysis of a client, or a postgraduate student’s knowledge of their particular field in academia.

PRINCIPLE!



pedagogical implications

Tri-elemental Model of Second Language Development

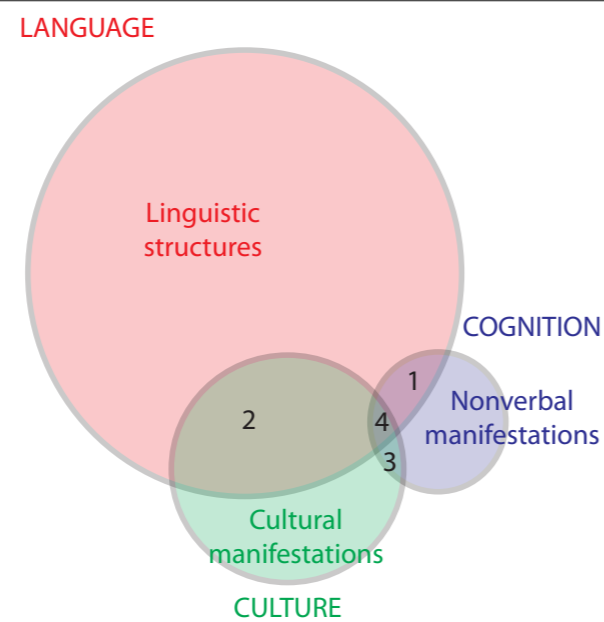


1 = Conceptual knowledge of linguistic structures and feelings that can be expressed at implicit or explicit level

2 = Knowledge of cultural conventions for using linguistic structures that are expressed as language proficiency at the pragmatic level

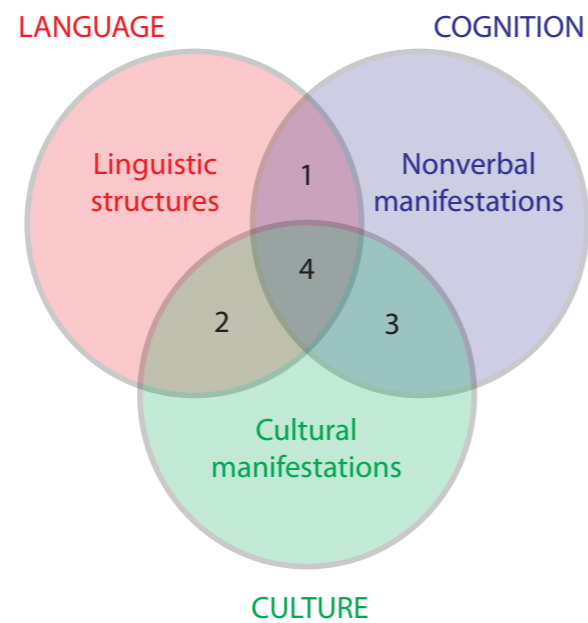
3 = Knowledge of nonverbal socio-cultural symbolic meanings that are expressed as nonverbal cultural concepts used at the pragmatic level

4 = Complex tri-elemental interactions (language, cognition, and culture) during construction and usage of emerging concepts in second language



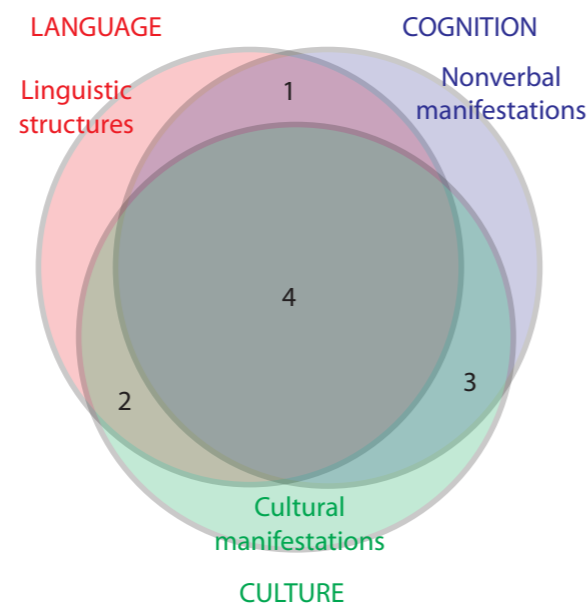
ARCHETYPE A: POOR L2 PERFORMANCE

Small ATC: Unbalanced,
low L2 proficiency, low growth
potential



ARCHETYPE B: GOOD L2 PERFORMANCE

Balanced ATC : good potential
for high L2 proficiency



ARCHETYPE C: BILINGUAL

Large ATC : Well balanced, high
L2 proficiency; development
similar to L1

CREAME

Consciousness

Raising

Emotions

Analysis

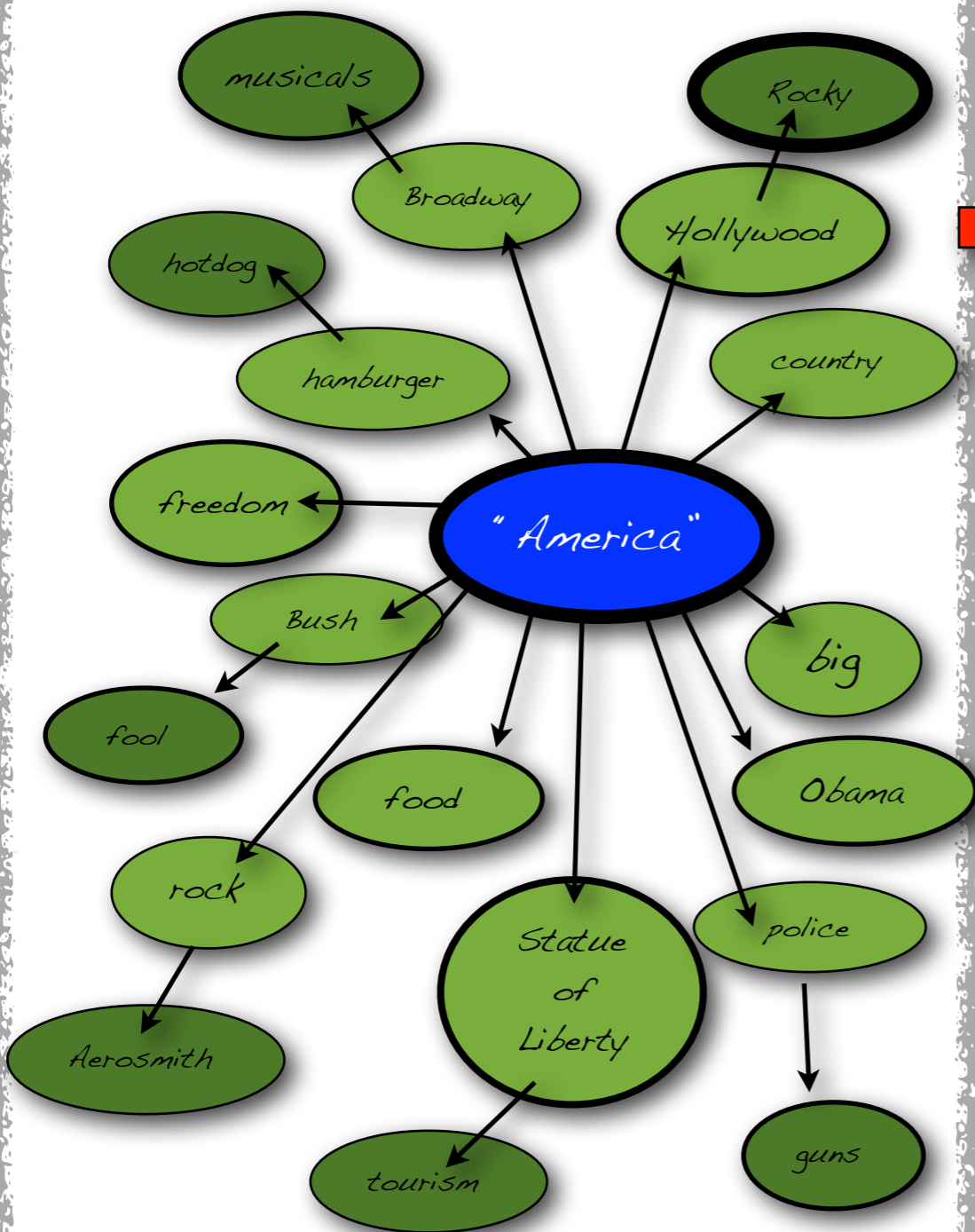
Manipulation

Expansion

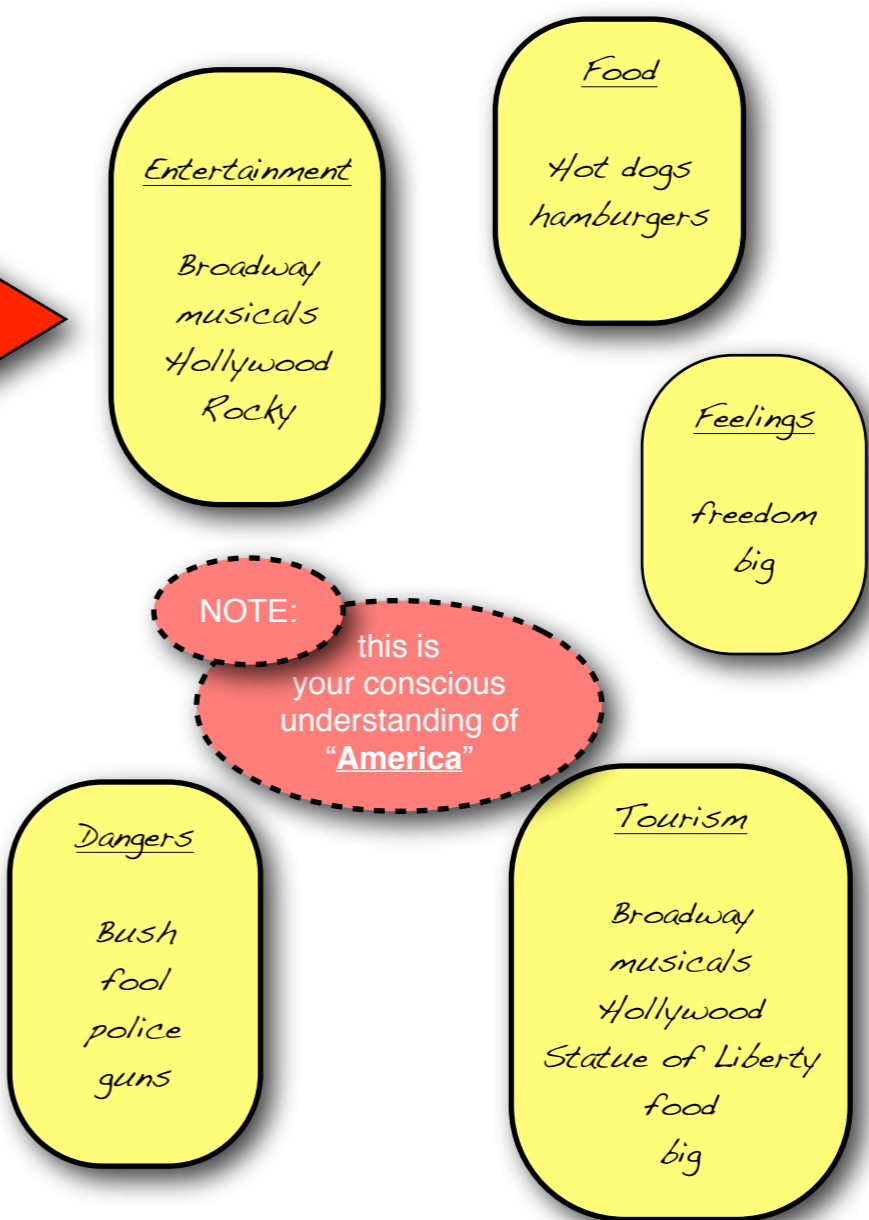
Consciousness Raising

1. Choose a 'root word'

2. Create a Consciousness Raising Map (CRM)



3. Categorize all of your CRM data



4. Add valences (+ or -)

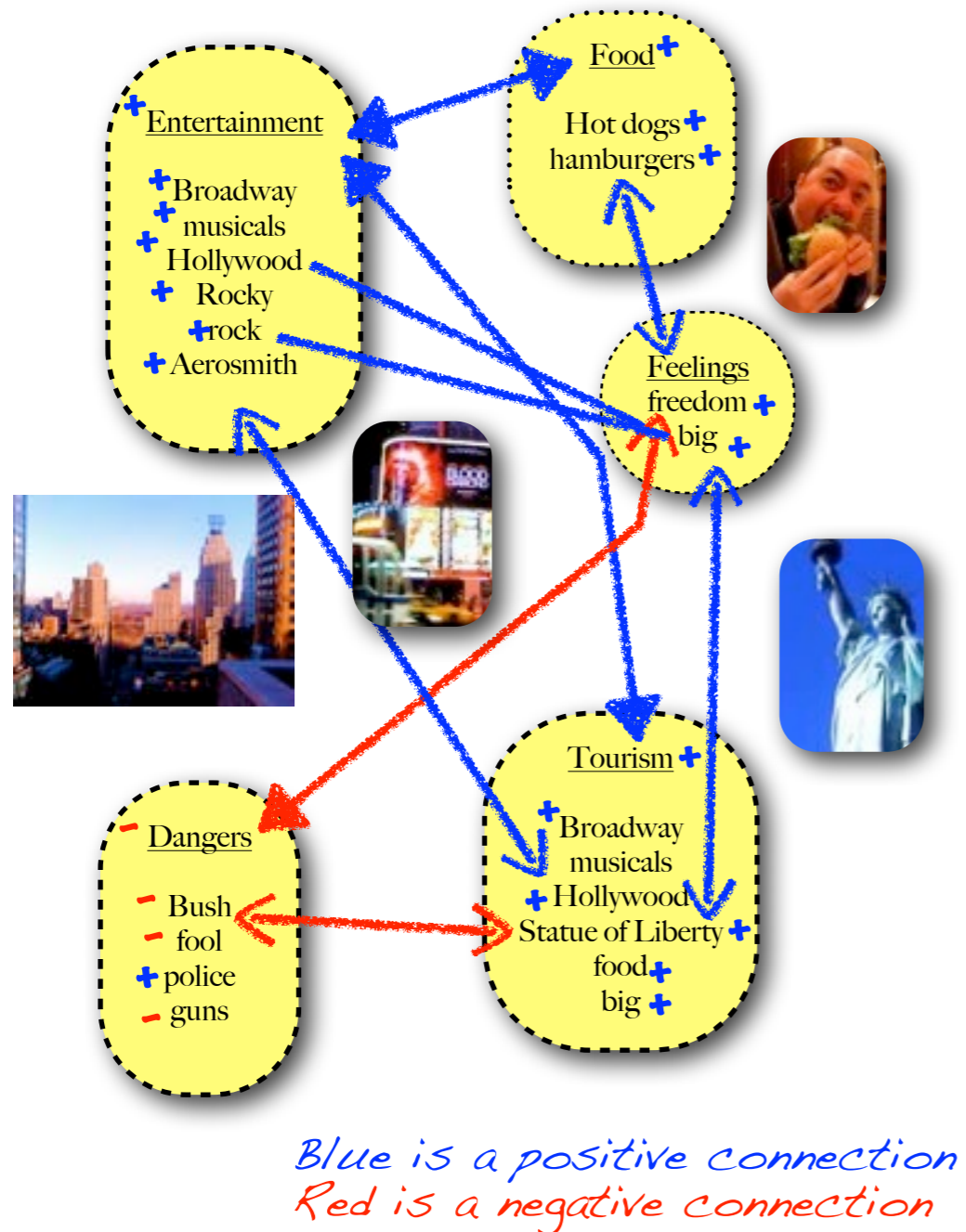
Emotions Analysis

Emotions Analysis

Manipulation

Expansion

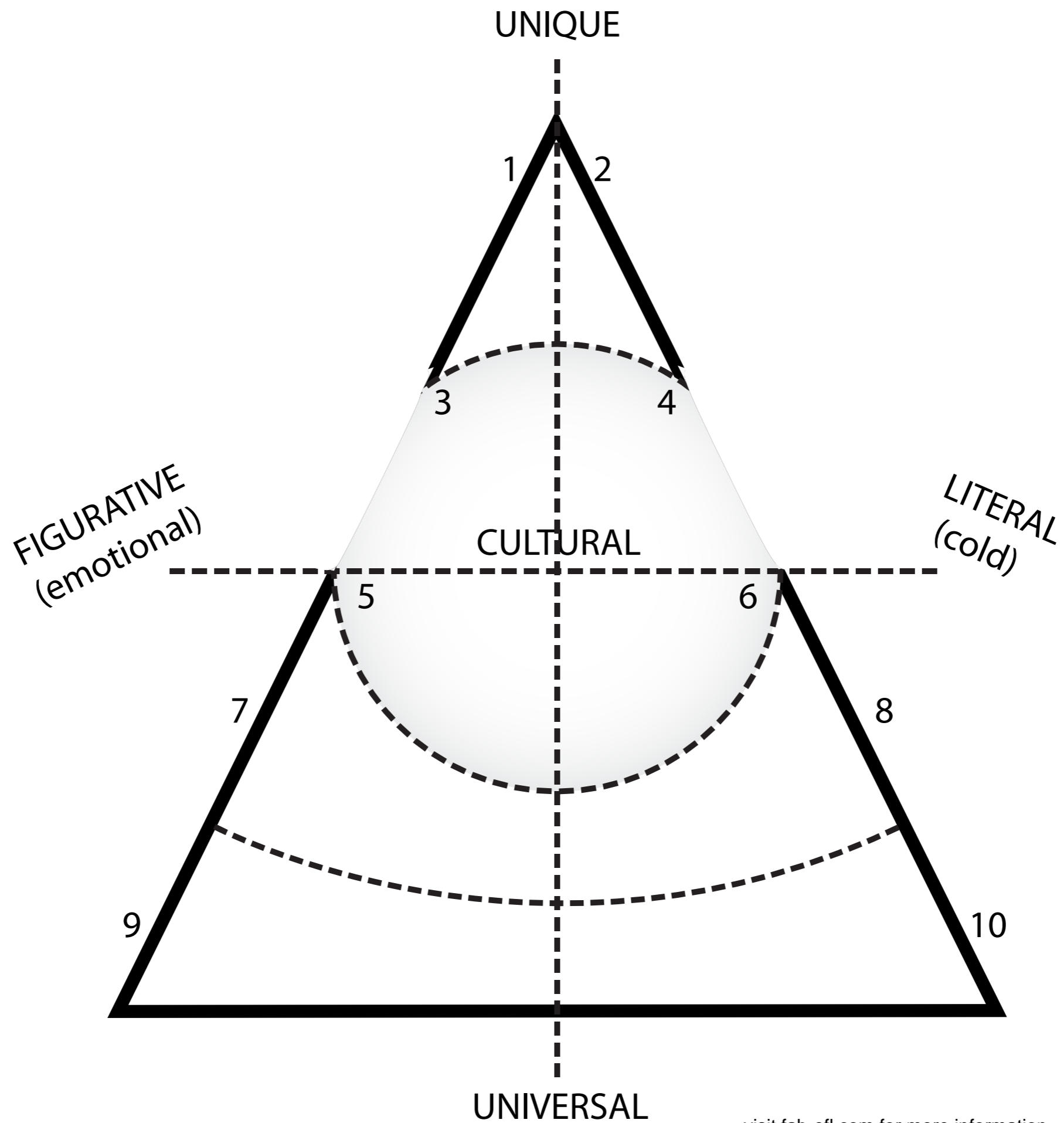
5. Find positive and negative connections between groups and/or words



6. Expand your thoughts on the subject. Write a short report and/or draw pictures about your findings.

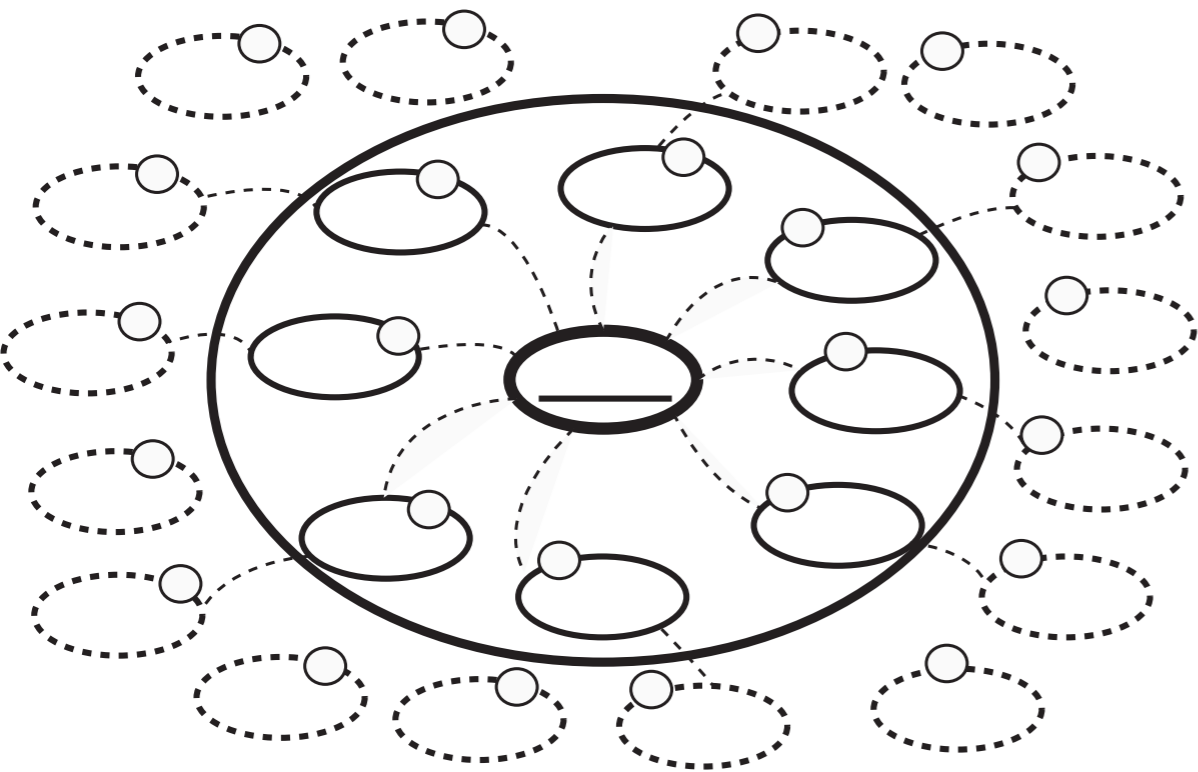


7. Discuss your findings with a partner! Ask and answer questions.



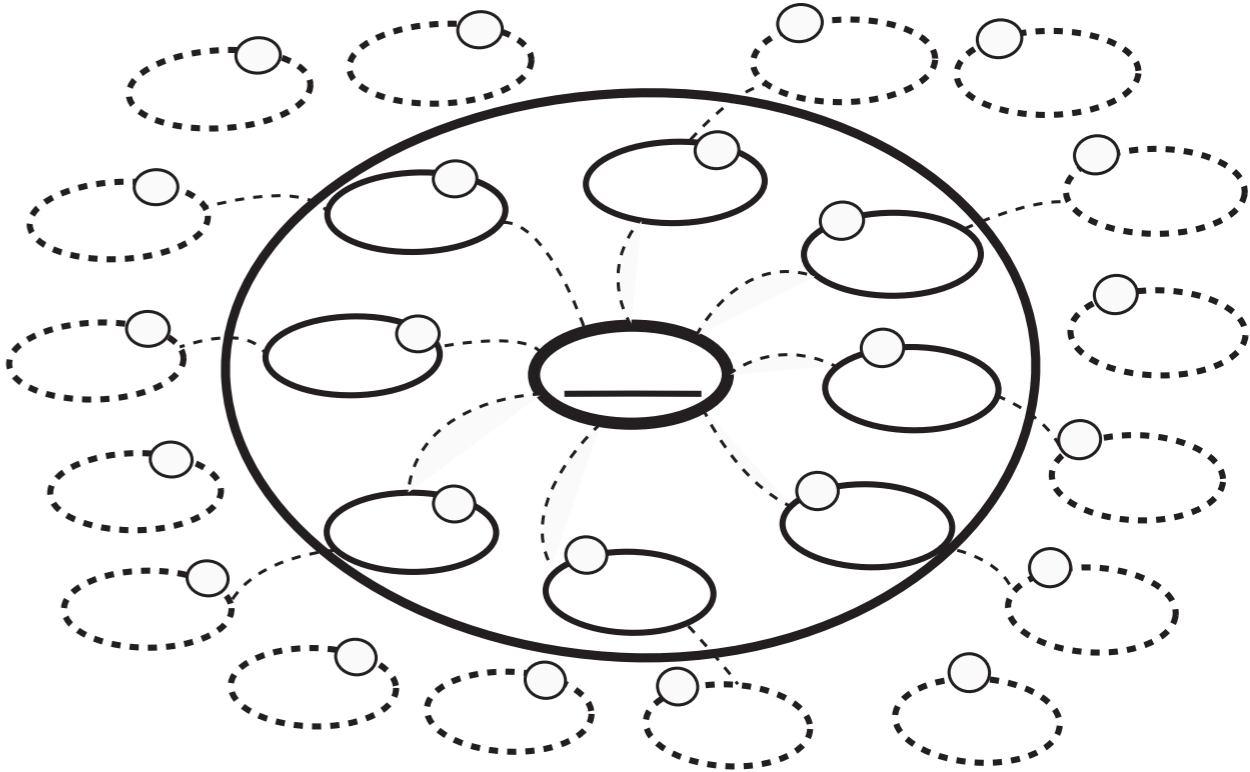
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Tri-elemental Murphy Mind Map designed by Robert S. Murphy (2013)



Linguistic Connections

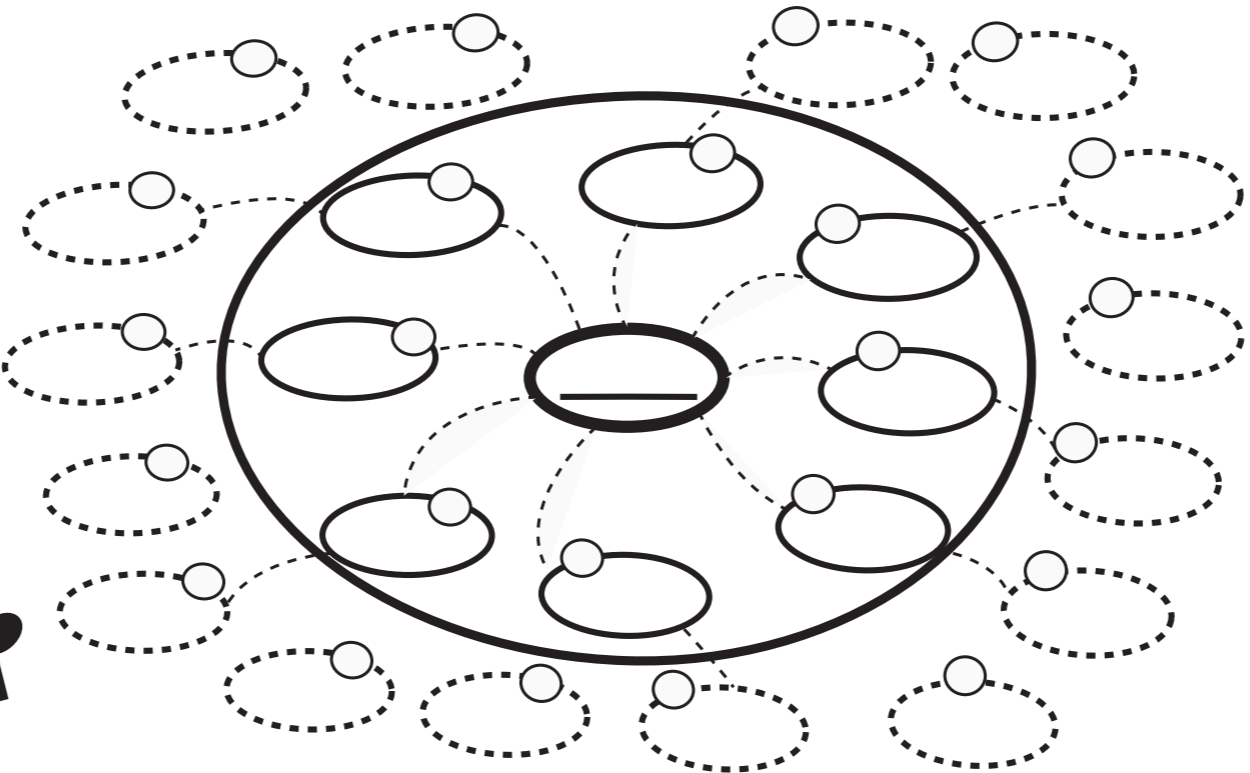
HOT-COLD
BALL-GLOVE
PEOPLE-EARTH
FLY-SKY



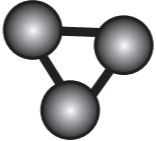
Feelings/Emotional Connections



Socio-Cultural Connections

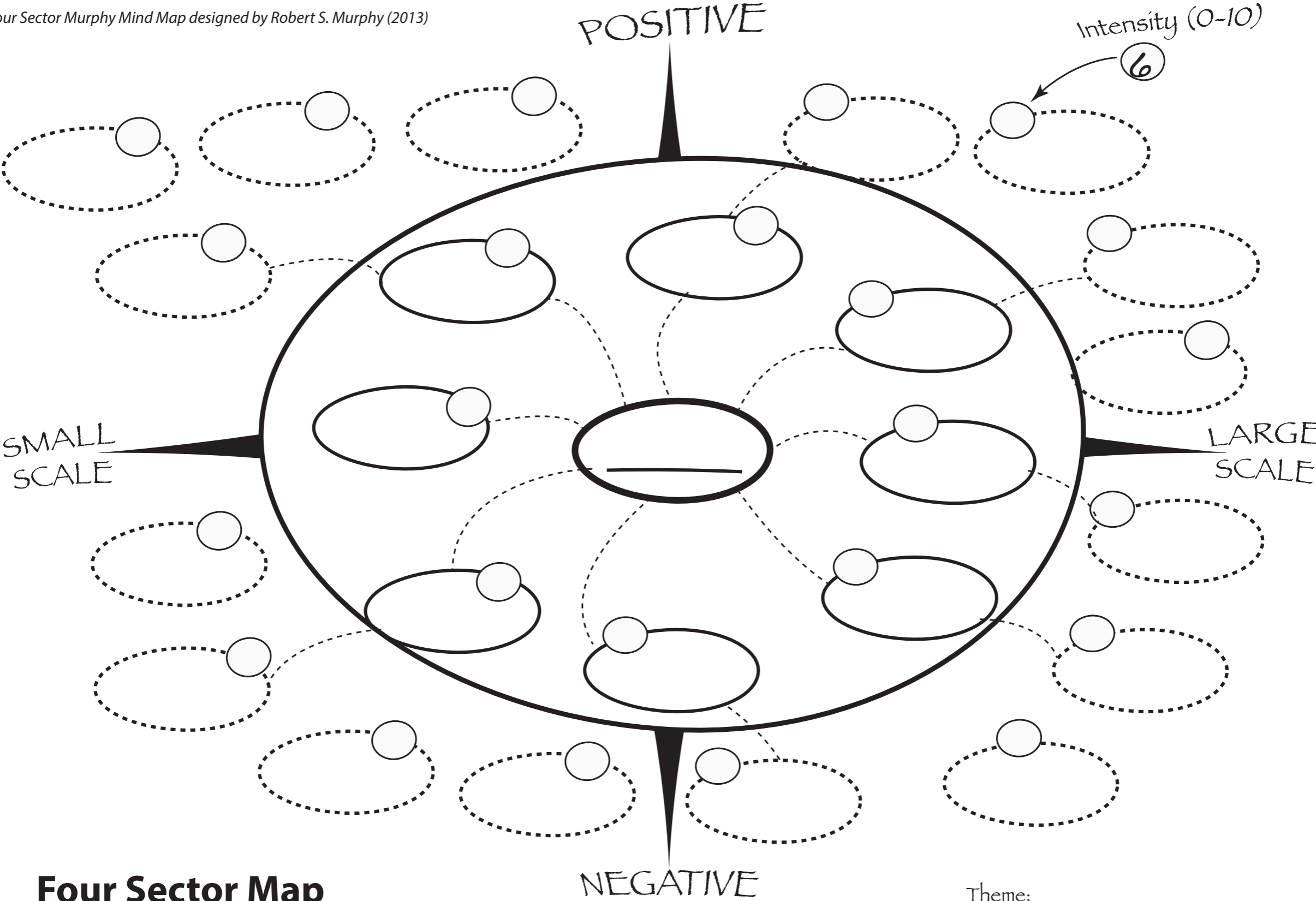


Tri-elemental Connections



Create three maps. Next, make new connections *between* the three maps. Connect any words that make a match.

Four Sector Murphy Mind Map designed by Robert S. Murphy (2013)

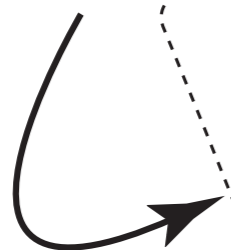


Four Sector Map

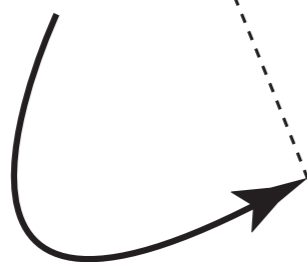
Linguistic Connections



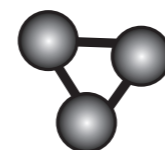
Socio-Cultural Connections



Feelings/Emotional Connections



Tri-elemental Connections



Choose words from your word map. Draw images of the words. Draw new connections between them!

Maxims 1-10

1. "Emotion" drives learning
2. "Intelligence" is overrated
3. "Cognition" is context dependent.
4. "Learning" is not understanding.
5. "Understanding" is the synthesis and application of learning.
6. "Reflexes" compound into action skills.
7. "Action Skills" compound into representations, and then abstract thoughts.
8. "Cognitive development" is age dependent and domain specific.
9. "Knowledge" is non-transferable.
10. "Memory" is a process, a myth, and a metaphor

11. "Teaching" should be differentiated and conducted in high support contexts.
12. "Regression" is a natural component of growth.
13. "Choices" fuel learner motivation.
14. "Prediction" is a tremendously powerful tool
15. "Realtime feedback" is at the core of cognitive development
16. "Aha moments" enhance neural networks.
- 17-A. "Plastic" is the brain, and why we learn
- 17-B. "Lose" what you don't use
18. "Alignment" delivers us from chaos.
19. "Happy students" learn better.
20. "Sleep" is necessary for memory.
21. "Sleeping on a problem" raises your chances of solving it.

Maxims 22-30

22. No "bias"? No learning!

23. "Solvable mysteries" are the building blocks of understanding.

24. "Performances of Understanding" are essential for good assessment.

25. "Assess" in three ways.

26. "Comforting" solutions are the chosen solutions, even if they are false.

27. "Needs" are unknown; stay flexible.

28. "Rigidity" produces dissonance, the root of stress.

29. "Varying" helps recall.

30. "Creativity" delivers us from ruts.

Maxims 31–50

pg M21

31. "Surprise" me; surprise yourself.

32. "Graphically" organize.

33. Decide upon "top-down" and "bottom-up" teaching ratios.

34. "Personalize" the content to captivate students.

35. "Room temperature" matters!

36. "Lighting conditions" matter!

37. "Healthy" bodies make healthy brains; healthy brains make healthy bodies.

38. Establish "Active" break times.

39. "Meditate" for better learning; go into default mode.

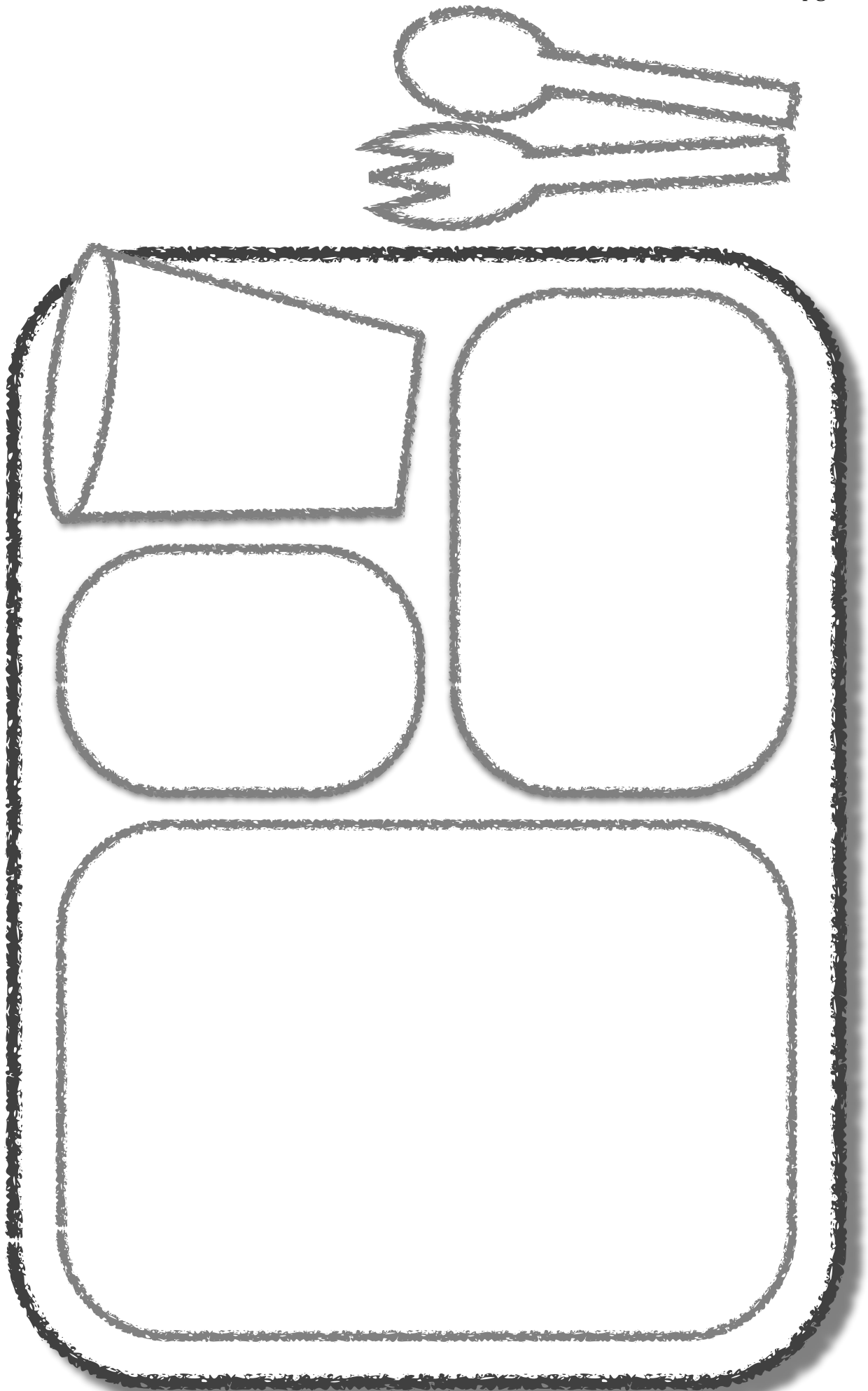
40. "Spice" up your classroom by engaging other senses

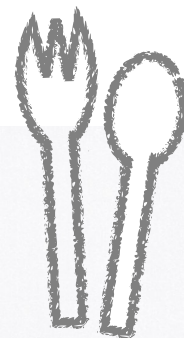
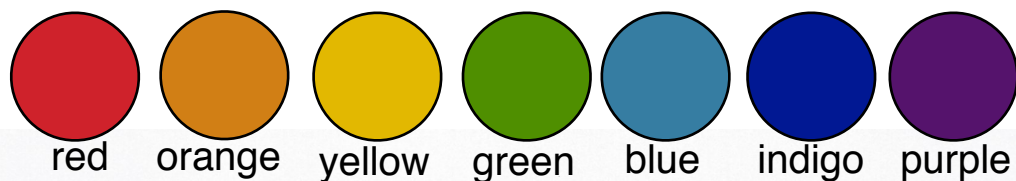
41. Encourage "mistakes"; celebrate mistakes.

42. Teach for the "DATC".

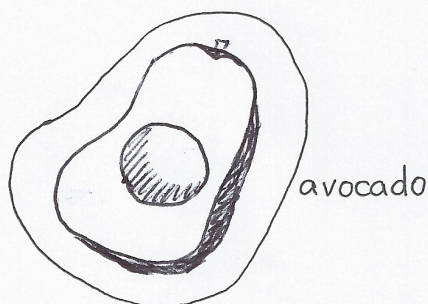
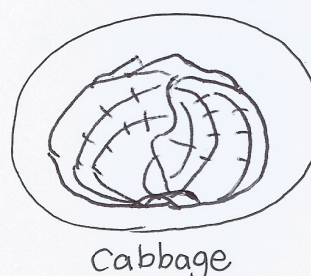
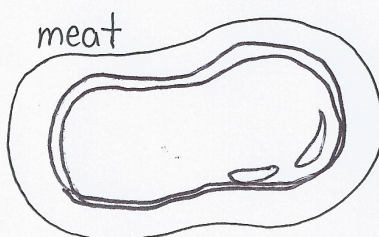
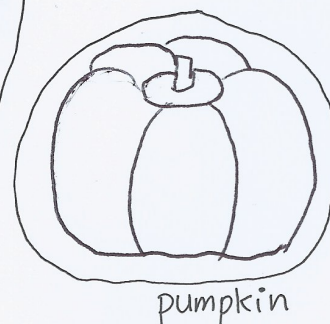
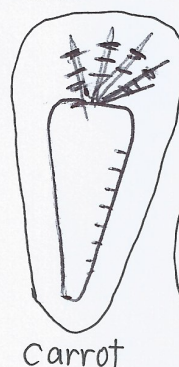
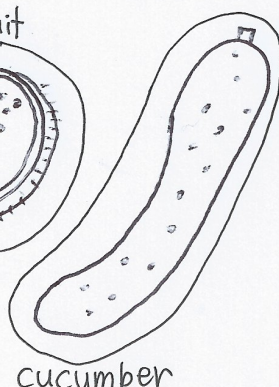
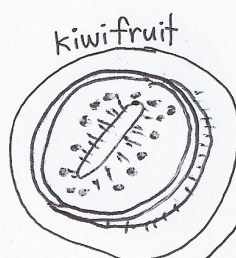
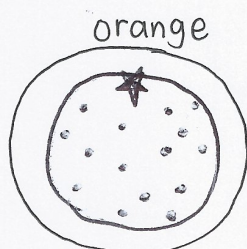
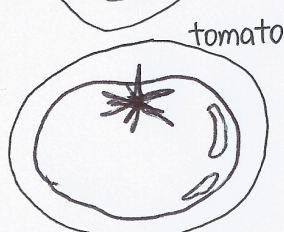
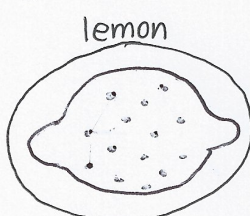
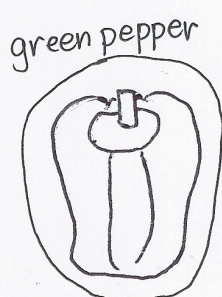
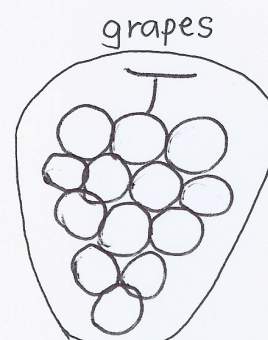
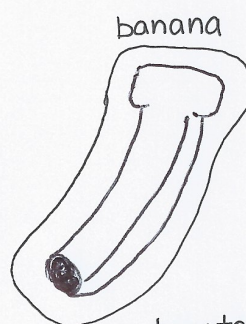
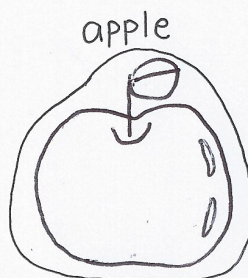
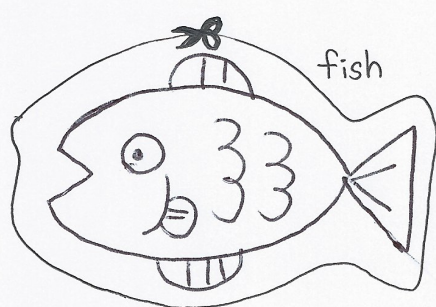
My FAVORITE LUNCH

► Students draw their favorite lunch *IN COLOR*.





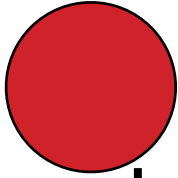
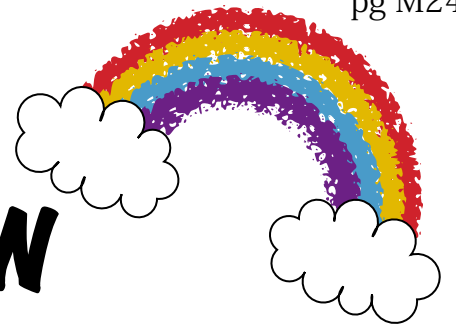
What color are they?



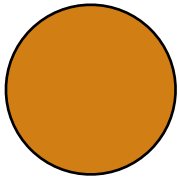
- ▶ 1) Learn food names
- ▶ 2) Learn colors
- ▶ 3) Cut and paste to "Foods from the Rainbow" page



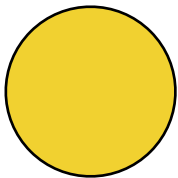
FOODS from the RAINBOW



red



orange

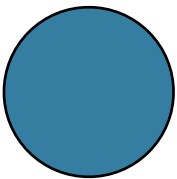


yellow

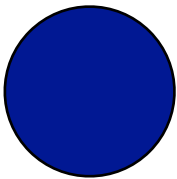
► Students cut and paste the appropriate foods, then think of and draw more foods in each section.



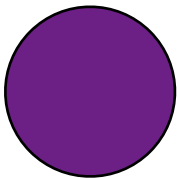
green



blue



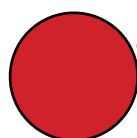
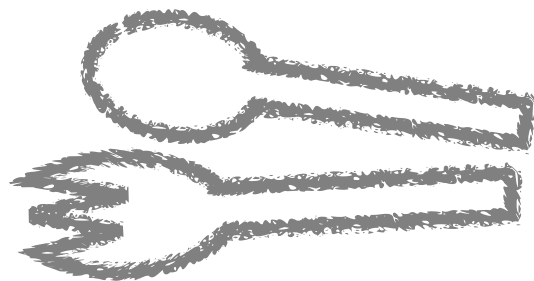
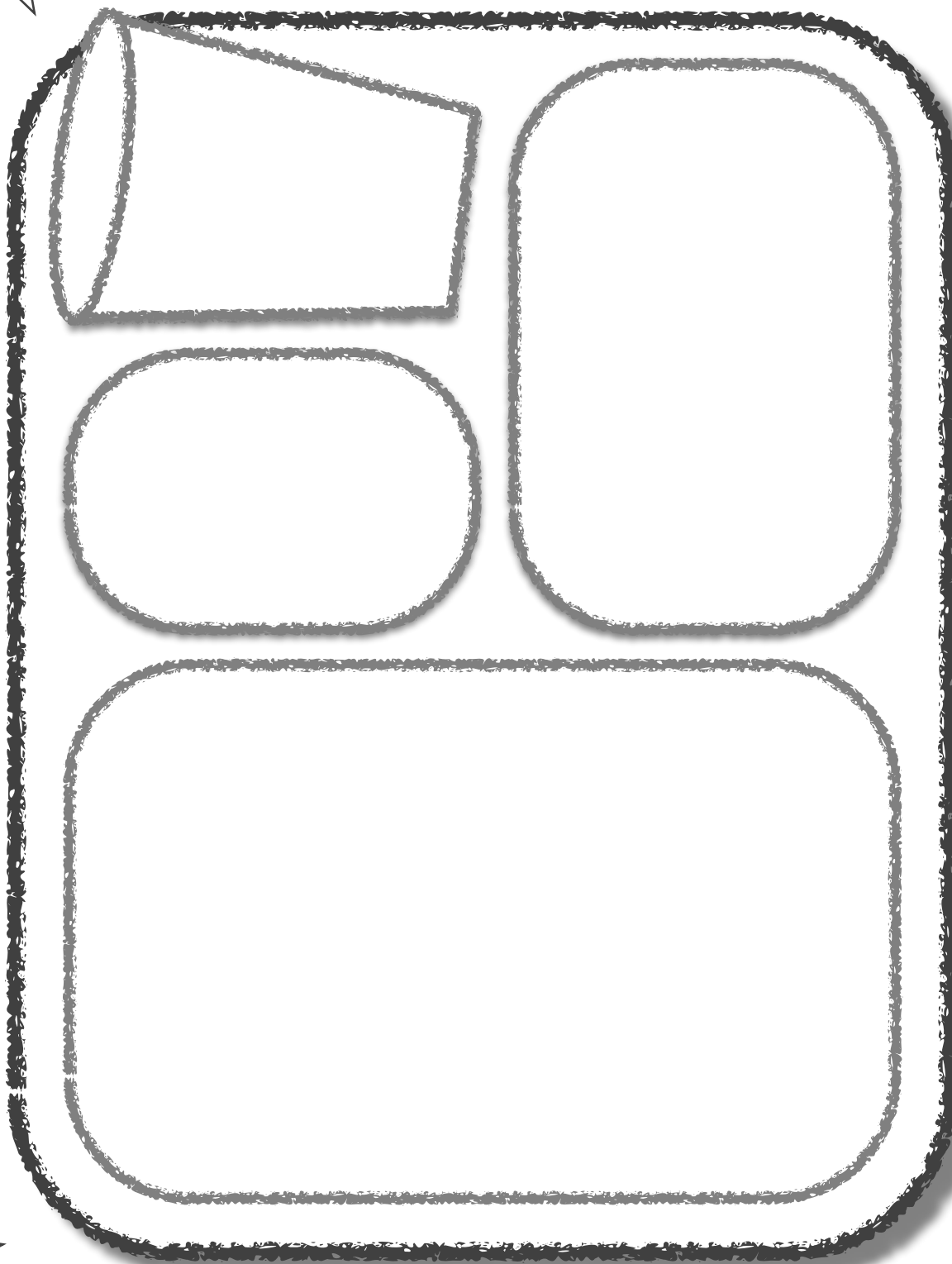
indigo



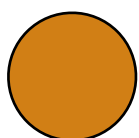
purple

Variety makes your brain healthier!

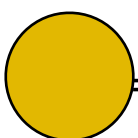
My BRAIN POWER LUNCH



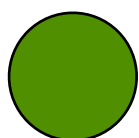
red



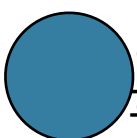
orange



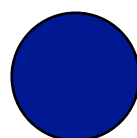
yellow



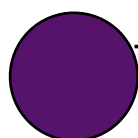
green



blue



indigo



purple

► Students draw their “colors of the rainbow” lunches here. Compare with their earlier drawn “favorite lunch” page. Discuss the differences and the importance of variety. Remember to put “*all the colors of the rainbow*” on your plate!