All answers must be written (no typing)

Brain Rules

FRONT

Anterior Cingulate
(motivation)

MOTOR
SENSORY

BACK

FRONTAL LOBE
(planning)

CORTEX

PARIETAL
LOBE
(movement)

Corpus Callosum

Dorsolateral Prefrontal
(executive & logical)

OCCIPITAL
LOBE
(vision)

Olfactory Bulb

TEMPORAL
LOBE
(language)

Lateral Orbitofrontal
(appropriate social/
emotional response)

Hypothalamus

Amygdala
(basic emotions)

CEREBELLUM
(coordinate
movement)

Entorhinal Cortex
(memory)

Hippocampus
(memory)

BRAIN STEM
(body basics)

LIMBIC SYSTEM

All answers must be written (no typing)

1) How do you get smart?

Figure 1

2) Write the Chinese proverb associated with figure 2

3) Why do Asian countries kick our butts in math and science achievement?

Figure 2

4) Write the Chinese Proverb associated with figure 3

Figure 3

5) Why do rich kids do better than middle income kids and why do middle income kids do better than low income kids?

6) What evidence was presented to support the claim that the difference in academic achievement among socioeconomic groups is the result of how hard these groups work at academic achievement?

7) State two myths about learning

8) What % of information do we remember after 3 days if we hear it?

9) What % of information do we remember after 3 days if we hear and see it?

10) What are some examples of informationally rich inputs?
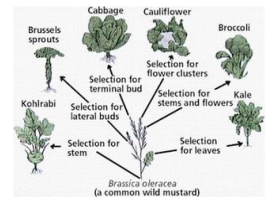
11) Multiswitching

    1.

    2.

    3.

12) Can you study differently (not as hard) for a multiple choice test than for an essay test and do well on that multiple choice test?

13) What is episodic memory? Give an example of episodic memory.

14) What is semantic memory? Give an example of semantic memory.

15) What is a possible reason for why some students believe they can do better on a test without studying?

16) The 5 Academic Keys to Learning
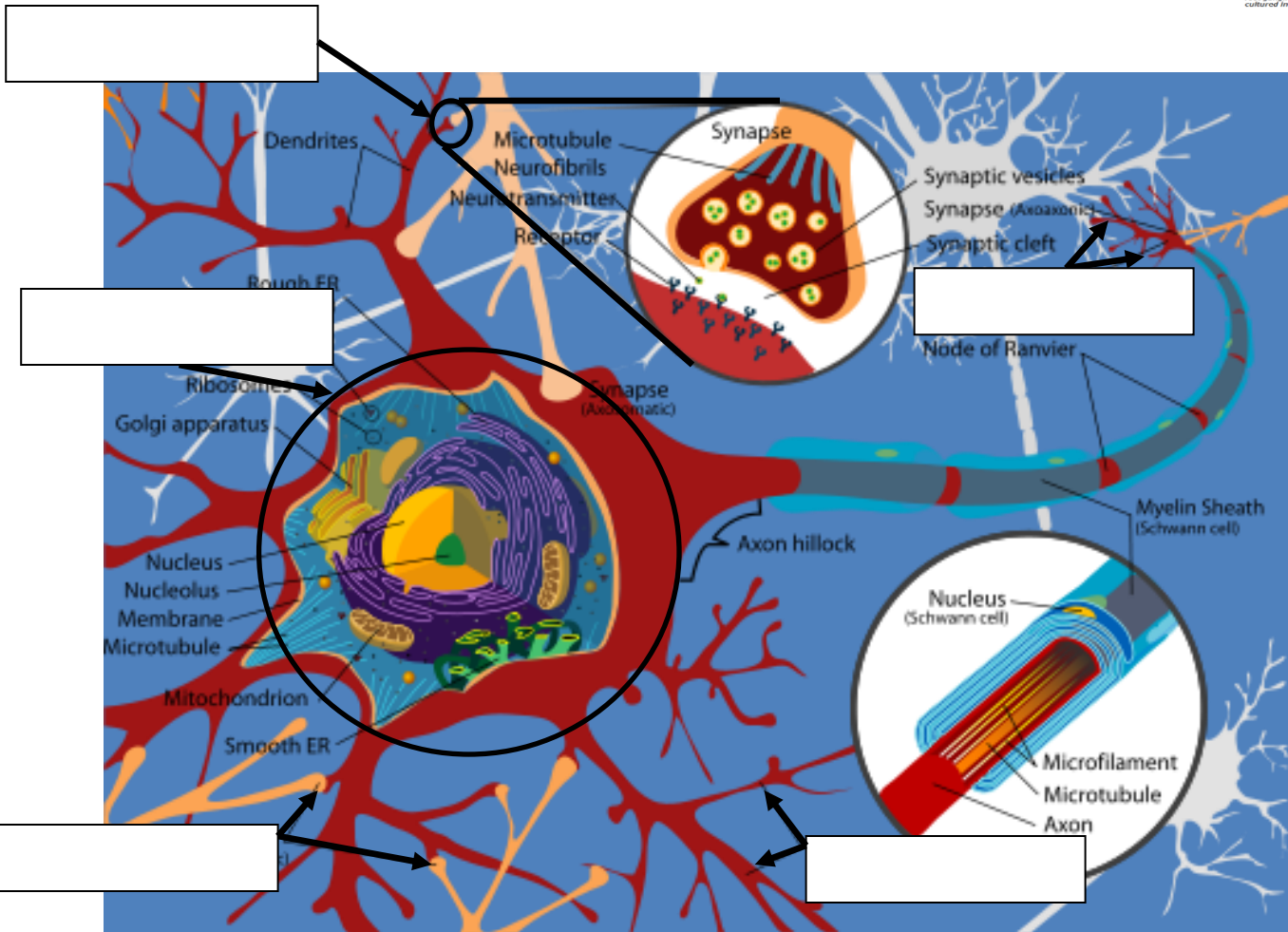
    1.

    2.

    3.
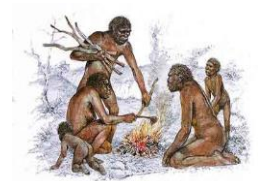
    4.

    5.

17) The 3 physiological Keys to Learning

    1.

    2.

    3.

18) How do we make memories and learn?

Growth cone of a dorsal
root ganglion neuron
cultured in vitro.

Dendrites

Microtubule
Neurofibrils
Neurotransmitter
Receptor

Rough ER

Ribosomes

Golgi apparatus

Nucleus
Nucleolus
Membrane
Microtubule

Mitochondrion

Smooth ER

Synapse
(Axosomatic)

Synapse

Synaptic vesicles
Synapse (Axoaxonic)
Synaptic cleft

Node of Ranvier

Axon hillock

Myelin Sheath
(Schwann cell)

Nucleus
(Schwann cell)

Microfilament
Microtubule
Axon

19) Why is Bob the Baker easier to remember than Bob's last name is Baker?

20) What is the first key to learning?

21) Why does repetition work? Use the wheat field analogy in your explanation.

22) When studying for a multiple choice test, are pronunciation and spelling important?

23) How many times should you repeat new information?

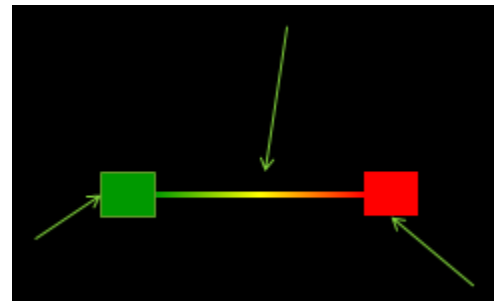24) What is the second key to forming academic memories?

25) What determines whether something is remembered or not?

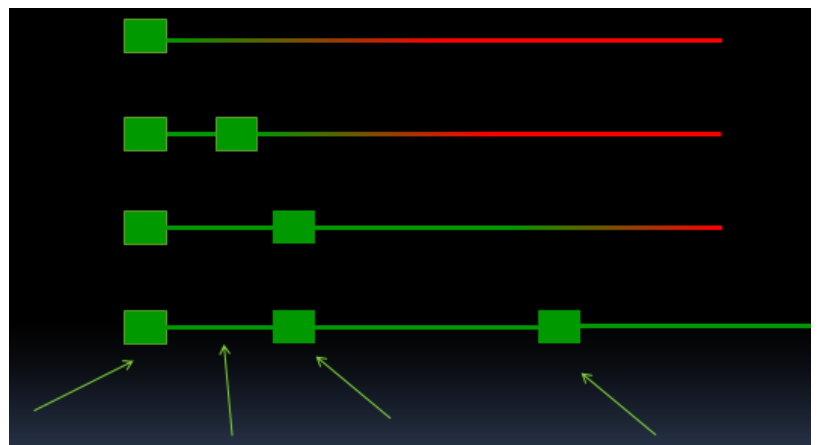26) How does a cue get strongly associated with a memory?

27) What improves access to a memory?

28) Once you have a memory, how do you keep it?

29) Label the figure below and explain the importance of how you space multiple exposures to new material.
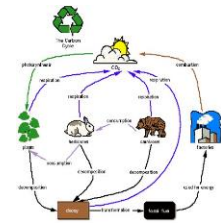

30) Label the figure below and describe how to maximize the benefit of multiple exposures
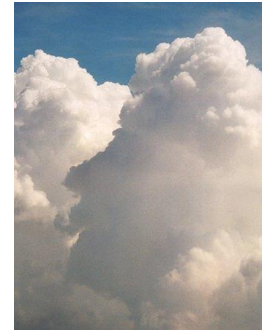
31) What is the 4th key to academic learning?

32) Explain what the 4th key to academic learning means.

33) If you don't know how the details of a lesson fit within the key ideas of the subject, what does that mean?

34) What should you do about it?

35) What is the 5th key to learning academic information

36) Knowing you can only pay attention to what you are studying for 20 minutes at most and you need to study more than 20 minutes at a sitting every day, what can you do to make your studying more effective?

Figure 1 The attention curve.[1]
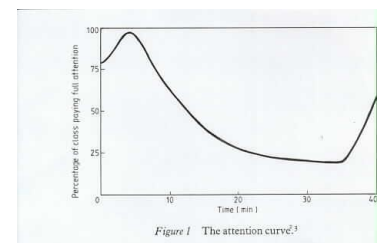
37) What are some things that interrupt studying?

38) What do you need to do to learn information that you do not find interesting?
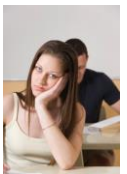
39) What are some things you could do to make boring information interesting or fun to learn?

40) What are some things that cause stress?

41) What are the characteristics of good stress?

    I.

    II.

    III.

42) What is the key to changing something that is causing bad stress into something that causes good stress?

43) What are the types of bad stress?

    I.

    II.

    III.

44) What are the results of bad stress?

   I.

   II.

   III.

45) What can you do to manage and reduce your bad stress?

46) Why do nature walks and looking at pictures of nature improve our memory?

47) How much exercise do you need every day to increase brain derived neurotrophic factor (BDNF)?

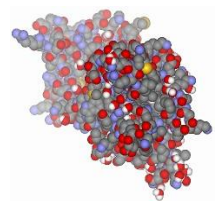48) What does brain derived neurotrophic factor (BDNF) do?

   I.

   II.

   III.

   IV.

   V.

   VI.

49) Why is aerobic exercise important?

   I.

   II.

   III.

   IV.

   V.

   VI.

   VII.

50) What do you have trouble doing with inadequate sleep?

   I.

   II.

   III.

   IV.

51) Calculate your ideal nap time for today

   _____time you went to bed

   _____time you woke up

   _____time of midpoint of your sleep

   Add 12 hours to the time of midpoint of your sleep _____ (this is your ideal nap time)

52) Write 3 things wrong with our educational system and what you can do to overcome these obstacles.