Brain Friendly Classroom for Effective Teaching

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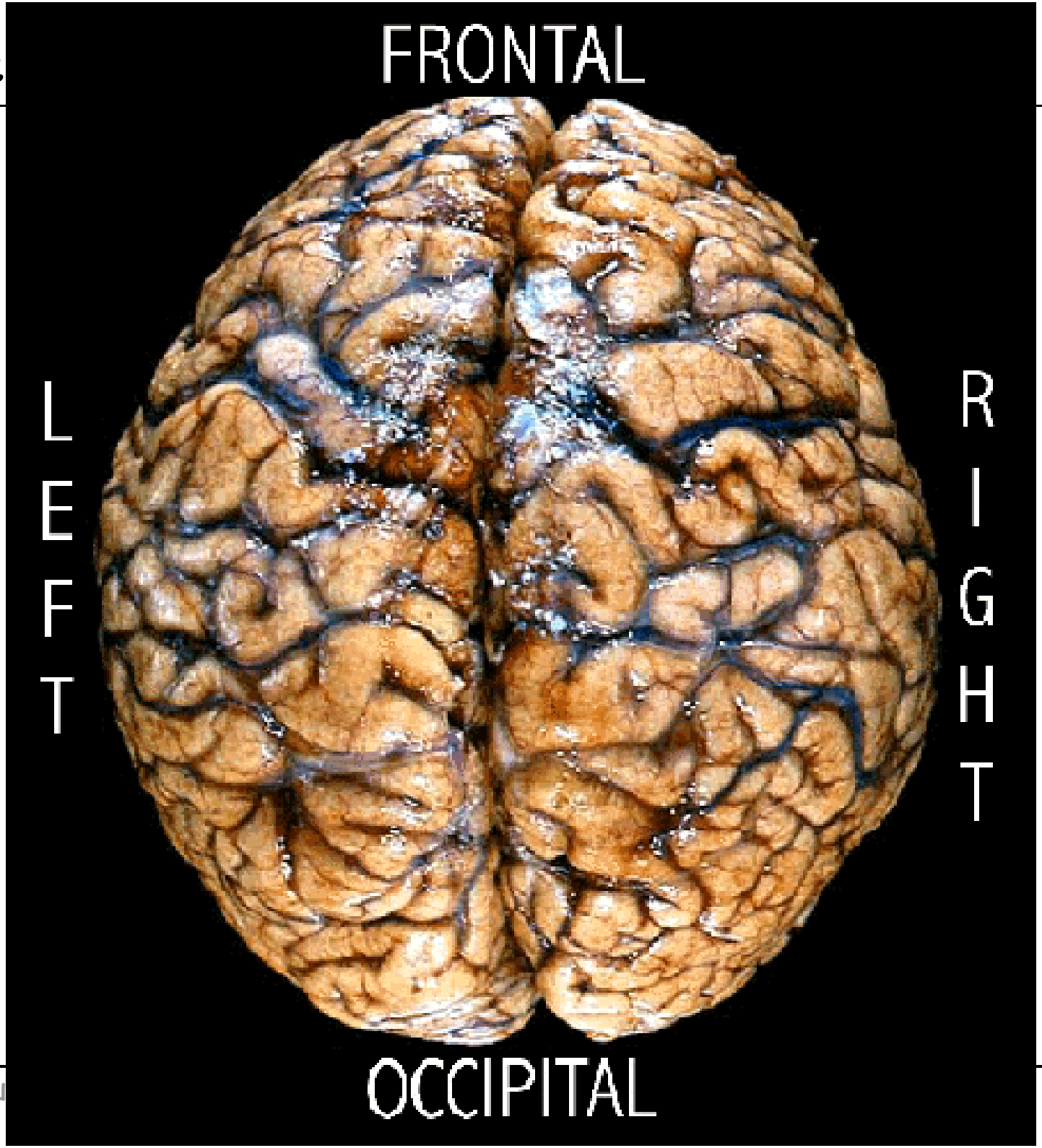
The Human Brain

Our Le



The two brains

- The left and right sides of the brain serve distinct functions though structurally they are similar.

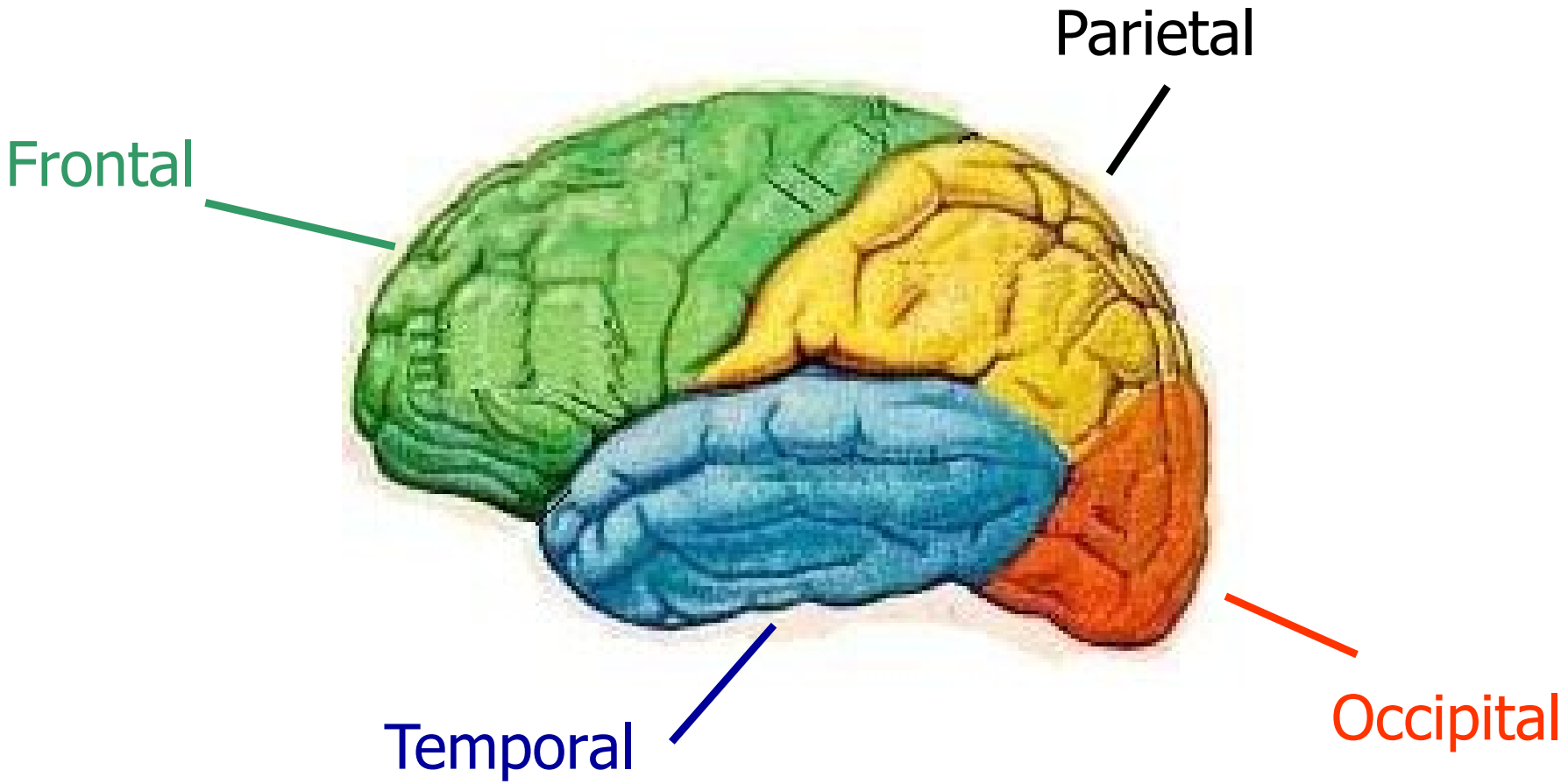
- Left brain – speech, mathematics, logical problem solving.

- Right brain – visual motor skills, fine arts, music and creativity.

Our Learning Brain

Structure of the brain

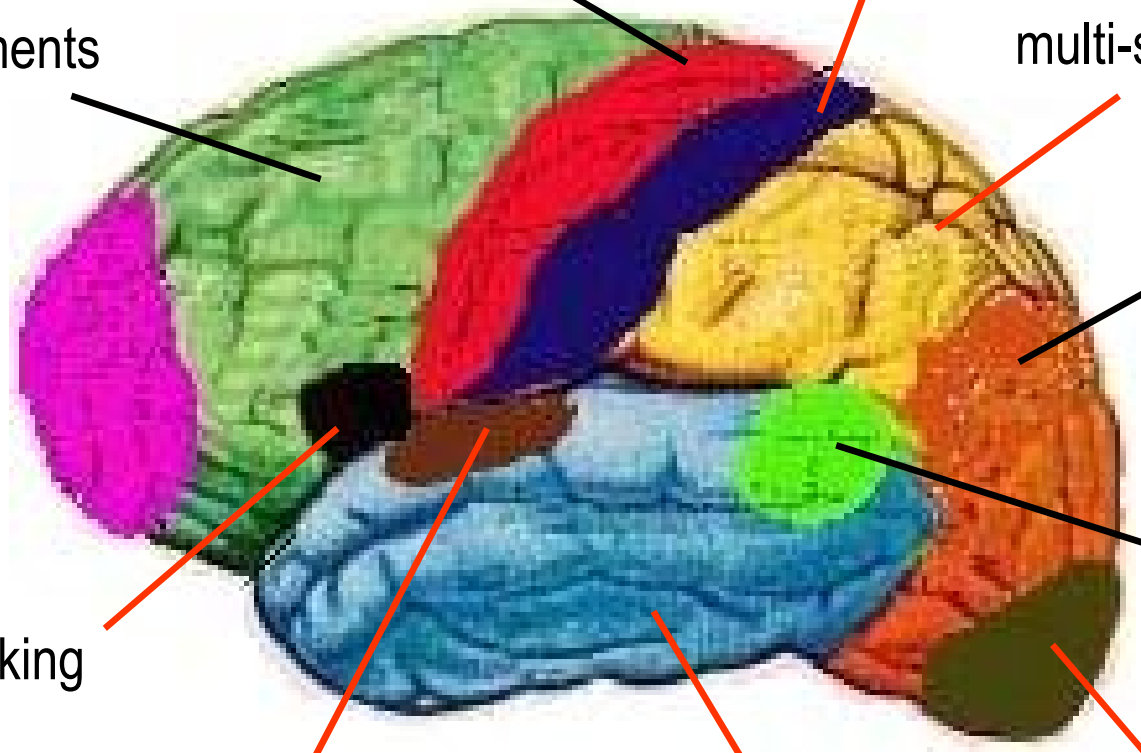
Lobes



Our Learning Brain

Structure of the brain

Functional areas

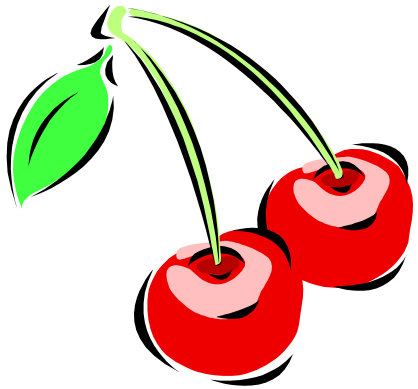


Our Learning Brain

Facts

- ✓ 2% of adult body weight
- ✓ consumes 20% of body's energy
- ✓ gets energy from blood, water
- ✓ uses 35 litres of blood per hour
- ✓ uses 8-12 glasses of water per day, dehydration - lethargy, impaired learning
- ✓ uses one-fifth of body's oxygen, shortage - fatigue

Our Learning Brain



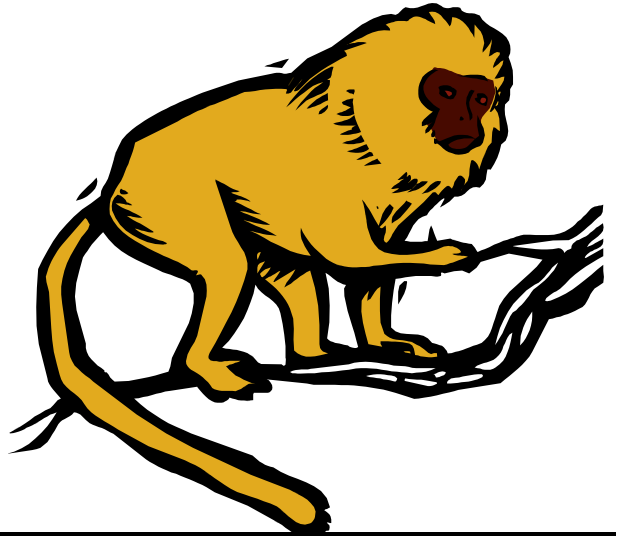
Facts

- ✓ 78 % – water, 10% fat, 8% protein
- ✓ Two kinds of brain cells
  - glia – 90 %
  - neurons – 10%
- ✓ Glial cells: 1’000 billion, structural support, transport of nutrients, remove dead cells
- ✓ Neurons: 100 billion, makes brain thinking, learning organ

Our Learning Brain

The Neuron

- ✓ Man – 100 billion neurons
- ✓ Monkey – 10 billion neurons
- ✓ Mouse – 5 million neurons
- ✓ Fruit fly – 100’000 neurons

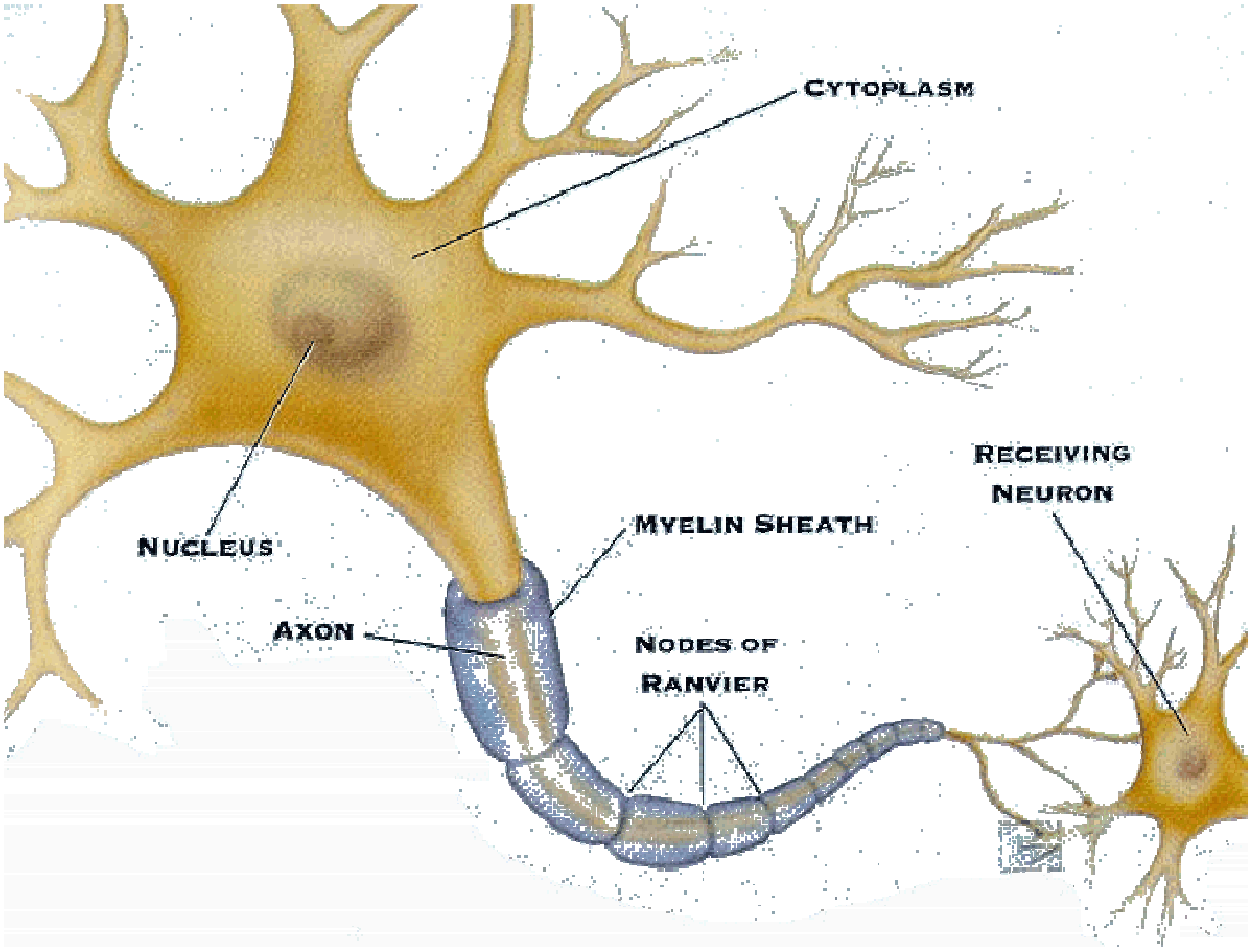


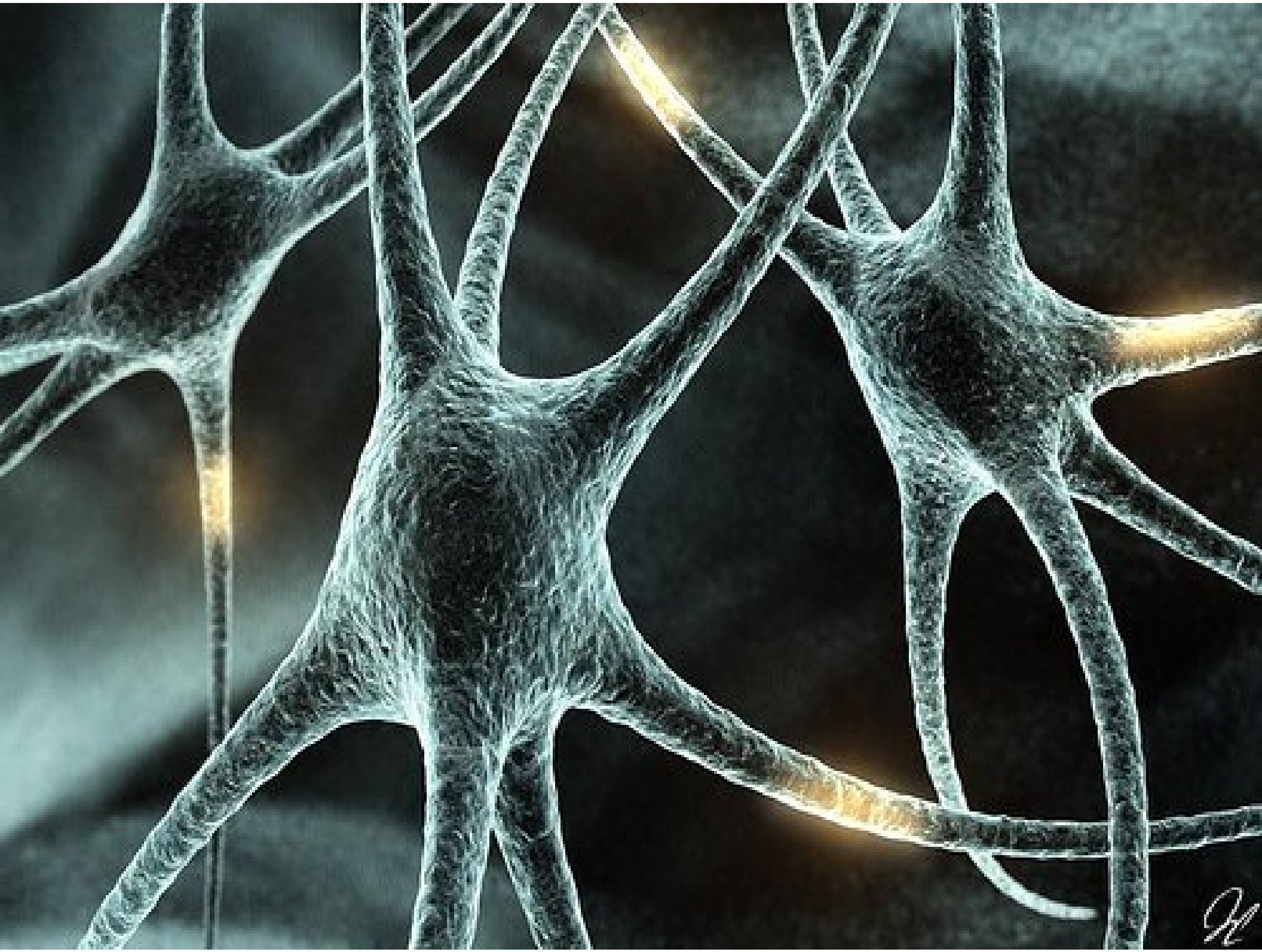
The Neuron

Cell body

Axon

Dendrites





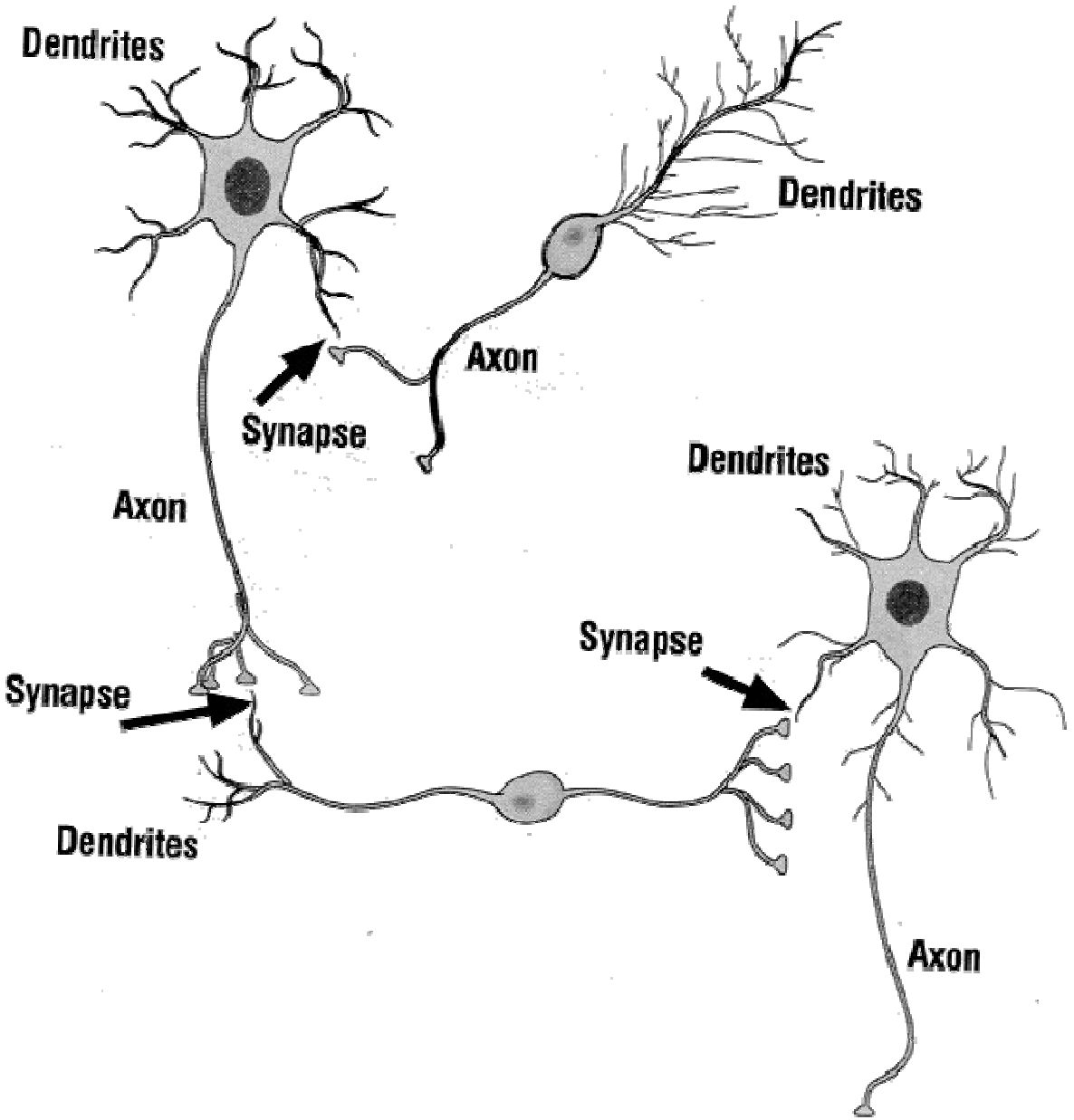
Our Learning Brain

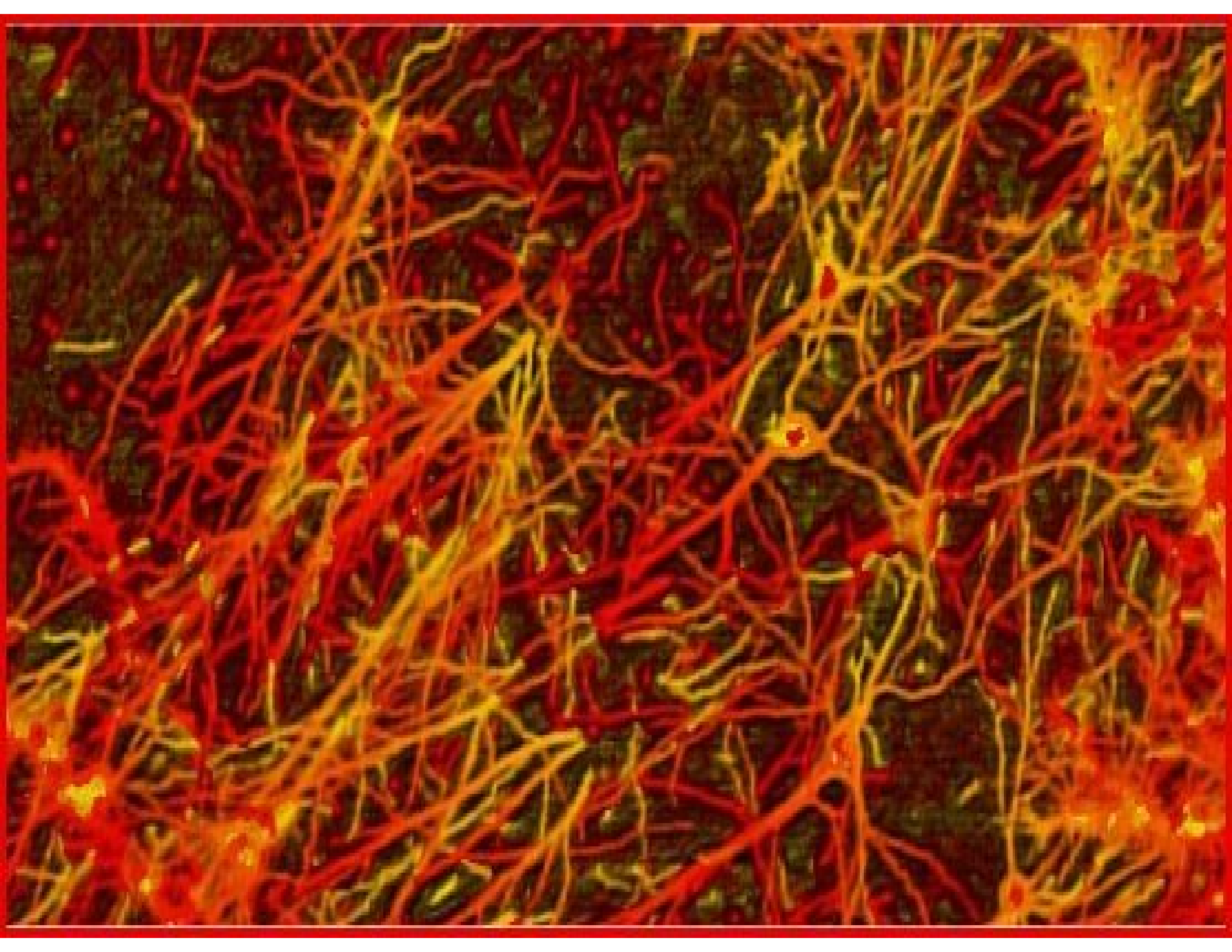
Neuron Network

Created by connections

Synapse

electrical impulse at axon end releases chemicals - received by dendrites, triggers electrical impulse

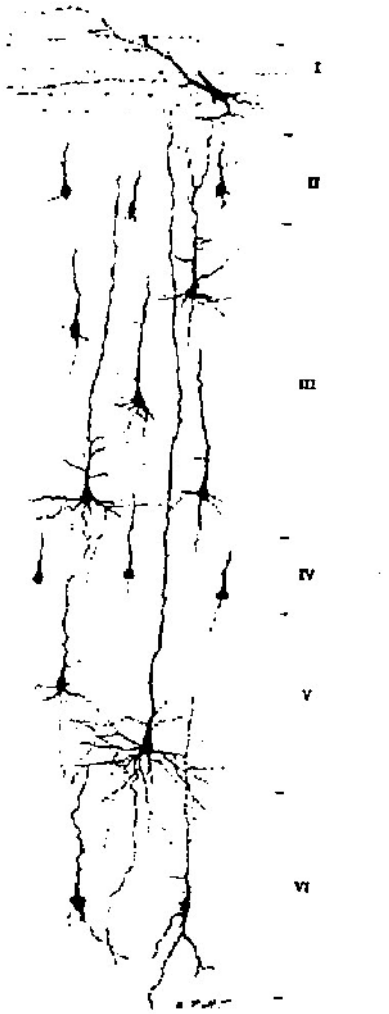




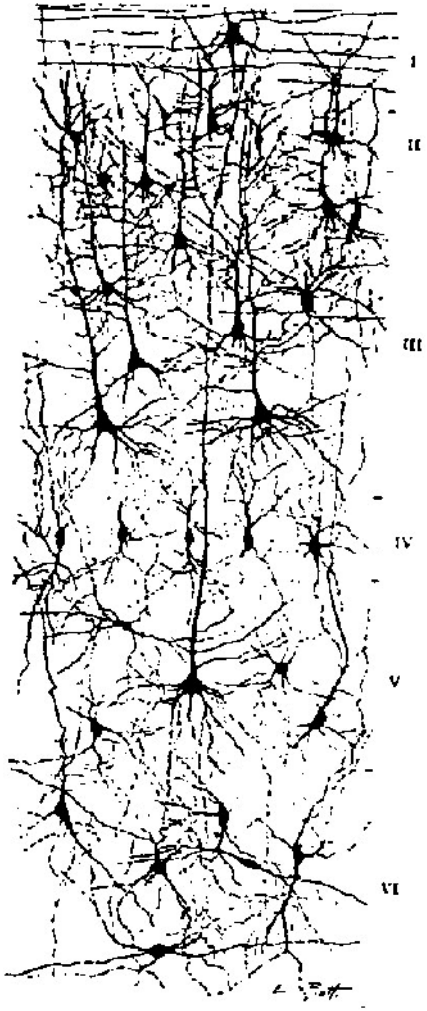
Our Learning Brain

Neuron Network

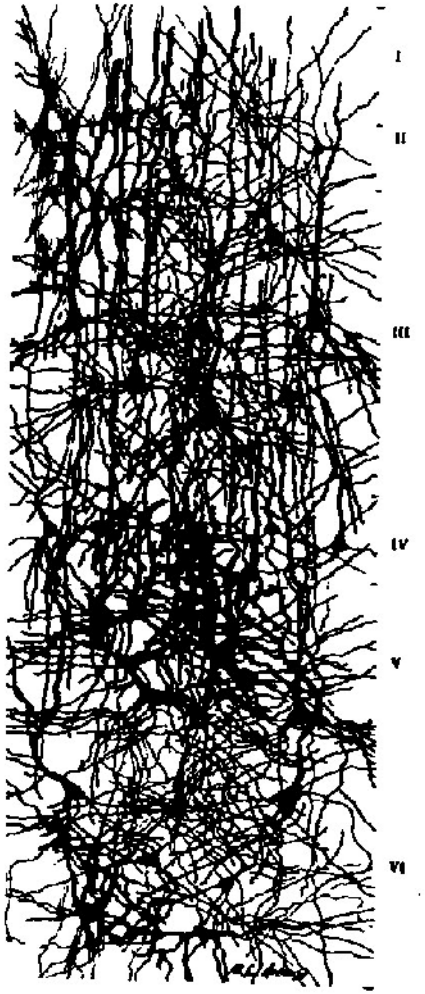
at birth



3 months

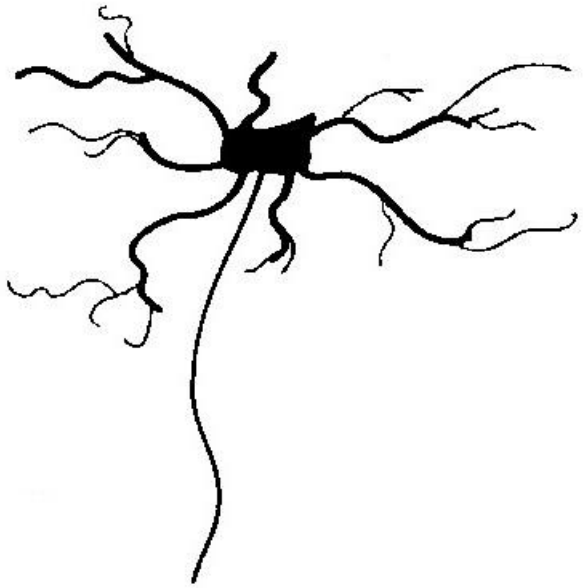


24 months

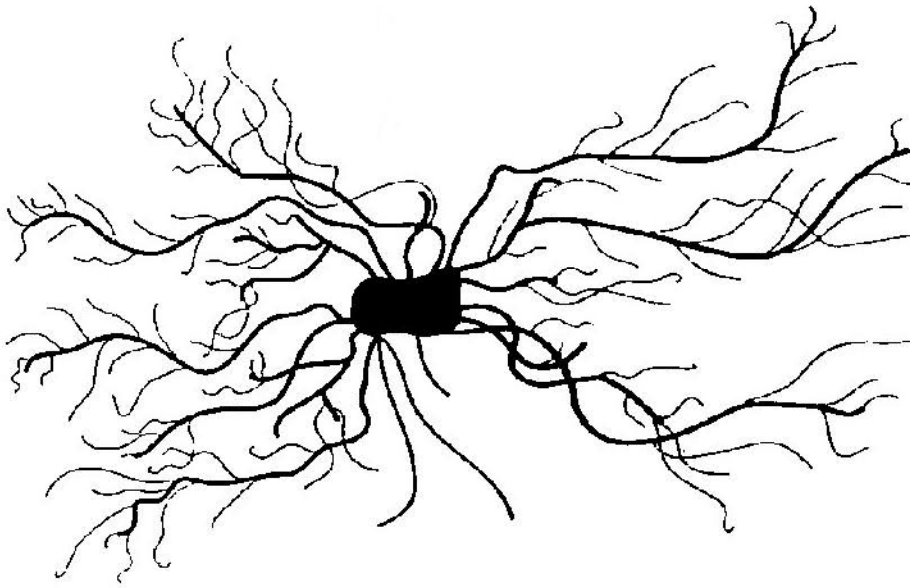


Neuron Network

impact of enriched environment



impoverished

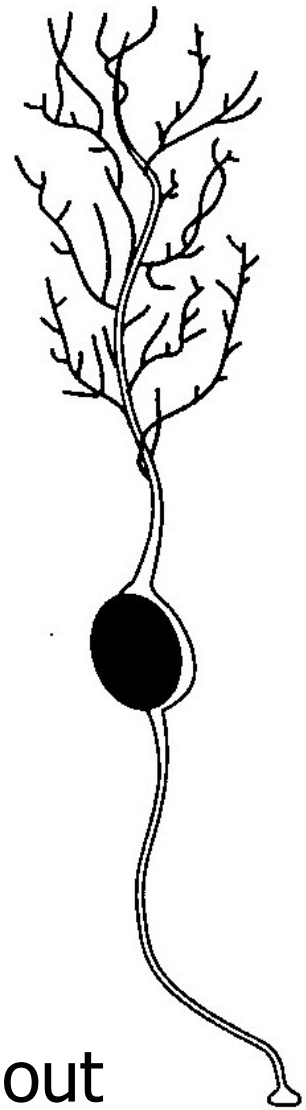


enriched

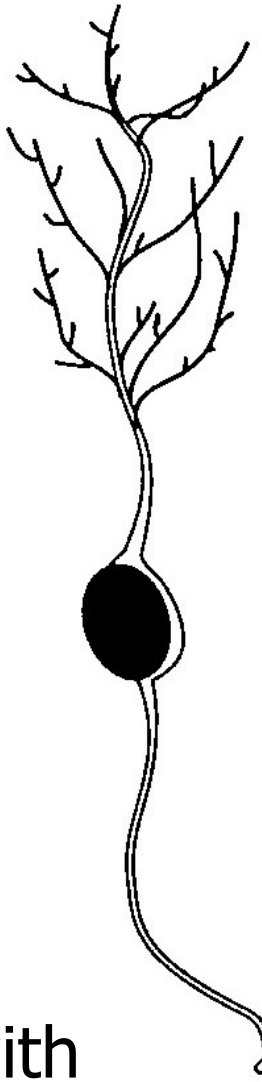
Our Learning Brain

Neuron Network

impact of stress



without stress



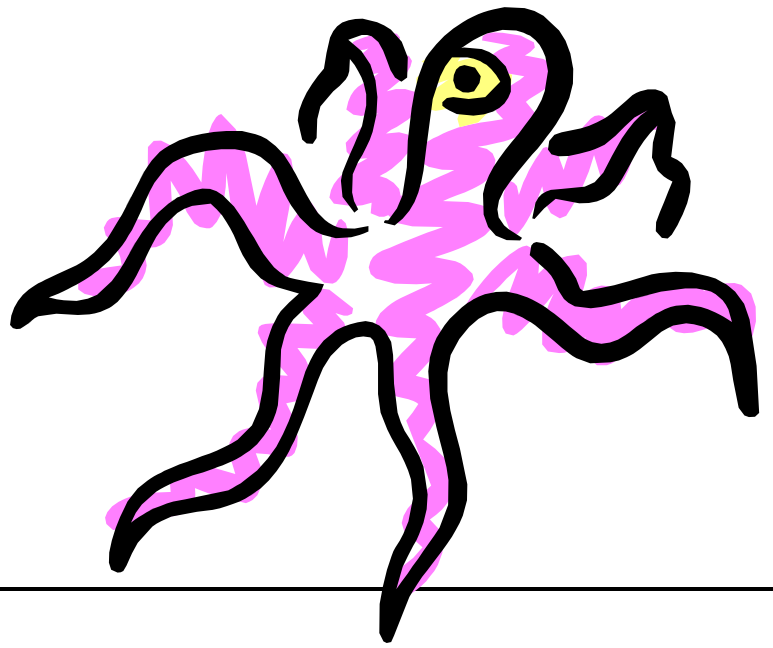
with stress

Our Learning Brain

Neuron Network

conditions to improve neuron network

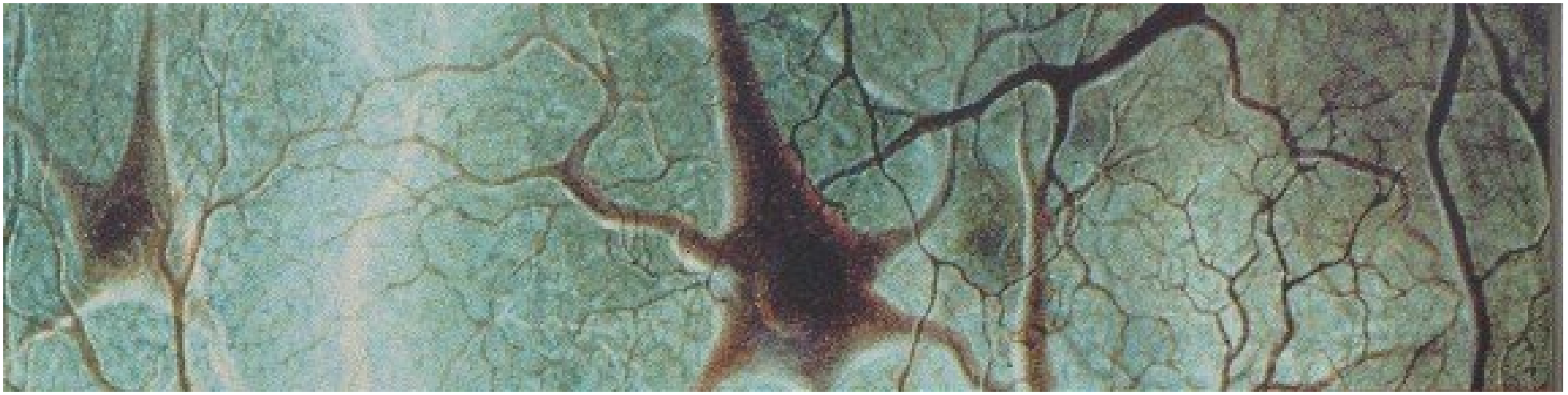
- Level of oxygen
- Level of water
- Existence of dopamine
- Threat free environment
- Bodily movement
- Rest for the brain



Our Learning Brain

Learning

How smoothly we can facilitate transmission of electrical impulses and establish network among neurons



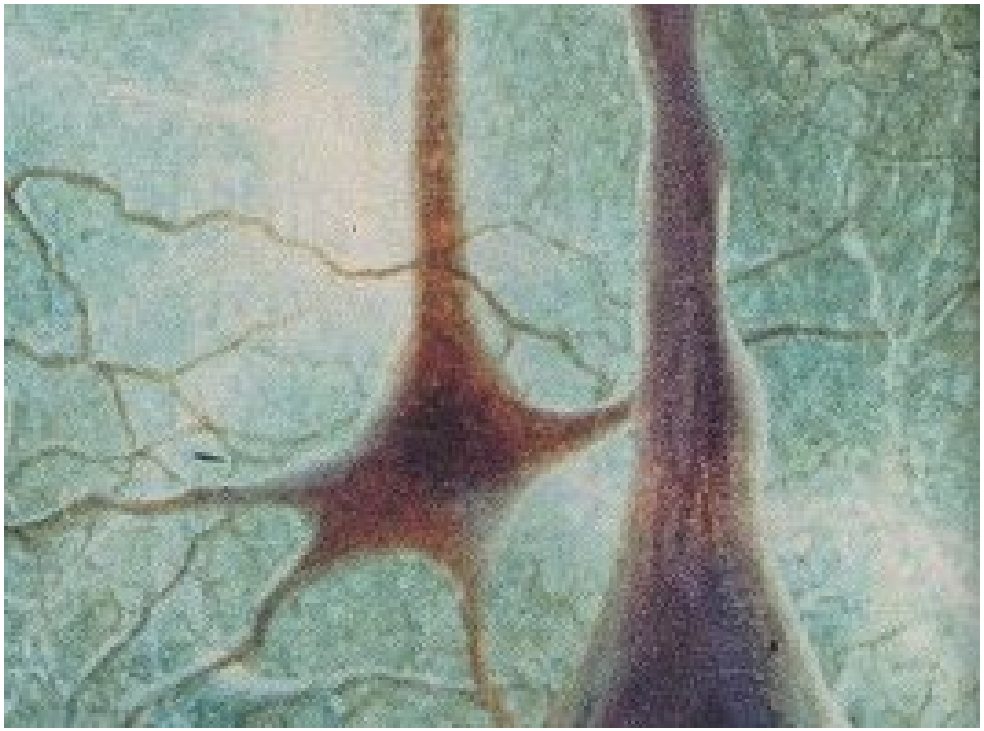
Our Learning Brain

Learning

tremendous amount of information received - processing is done unconsciously, long after input is received

learning has to 'imprint' - need time to reflect on learnt material

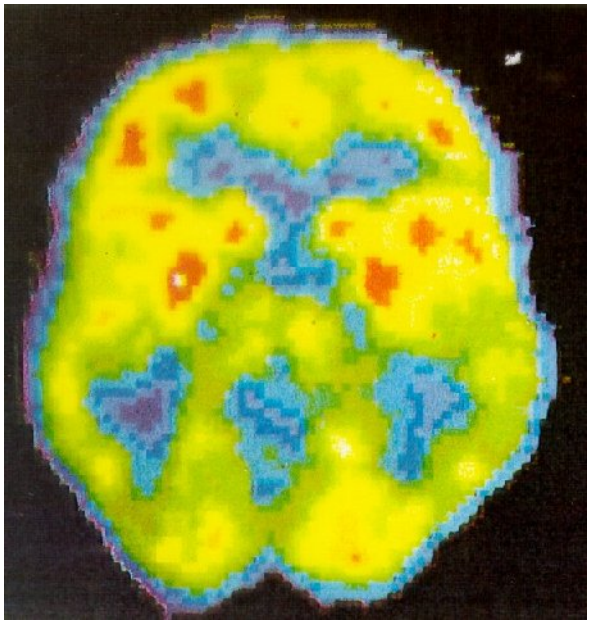
meaning is generated from within



Our Learning Brain

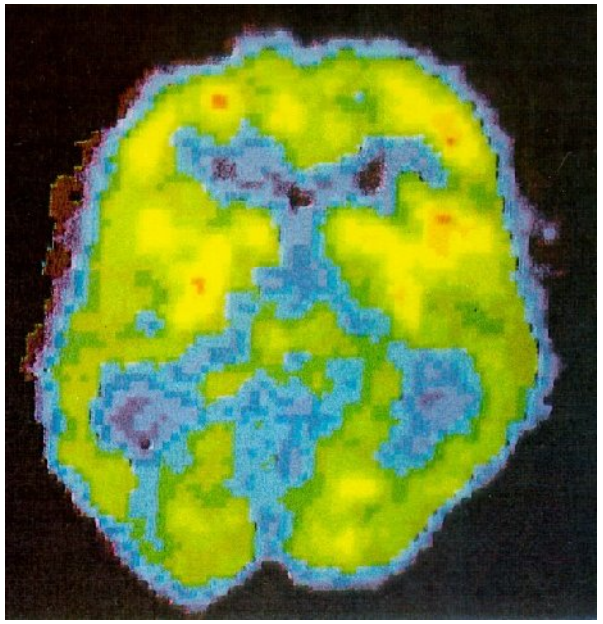
Learning and brain activity

Brain MRI (Magnetic Resonance Imaging)



Novice brain

Learning mode – more energy is used



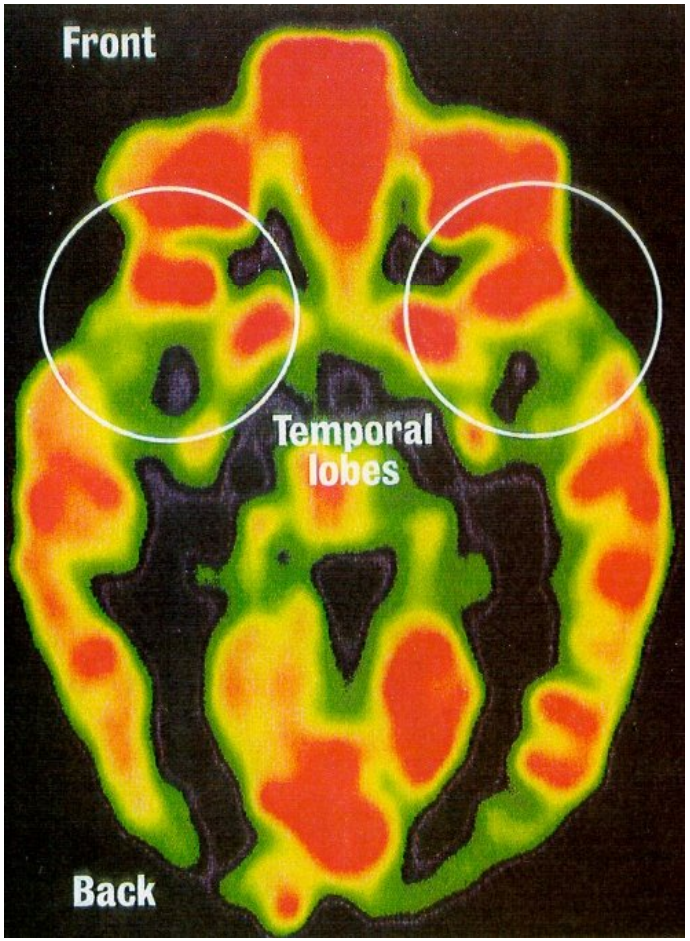
Experienced brain

No further energy is used

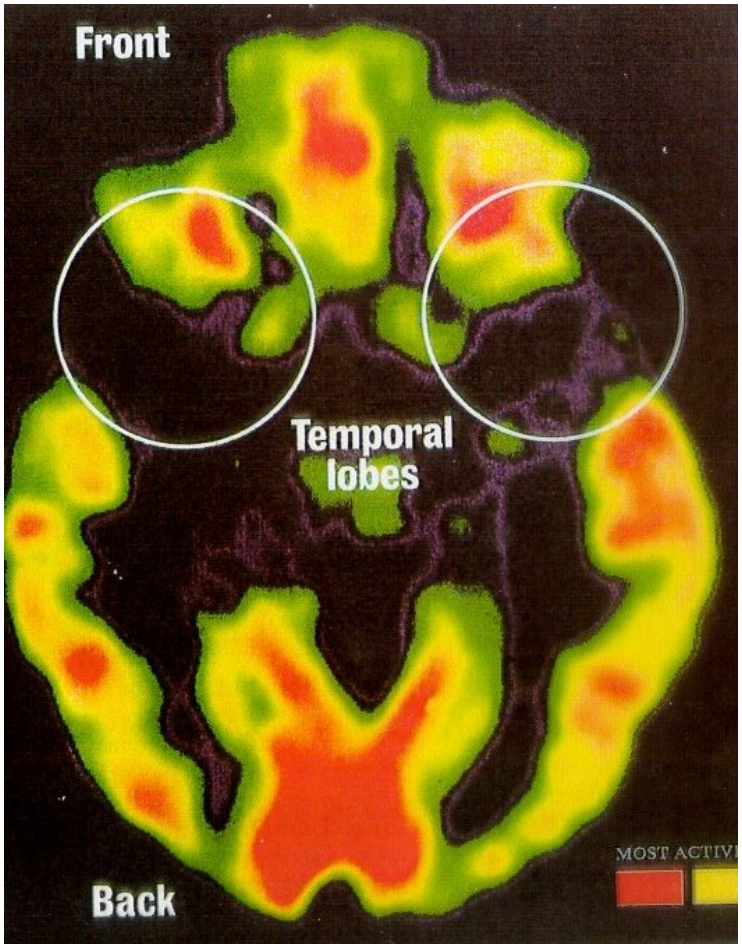
Our Learning Brain

Learning and brain activity

Healthy brain



Impoverished brain



Brain friendly environment

airy, well illuminated room

sufficient space to move

lot of materials to work with

colourful environment

friendly teacher

non-threatening environment

Brain friendly environment

challenging work

providing feedback

multiple exercises

varieties of teaching modes – individual / group

rest for the brain

Now ask yourself:

How shall I enhance my teaching capability

by using this new knowledge ?

Thank You