COOPERATION
Week 4

Cooperation

Working well together.

Objectives

Cooperation Systems of the Body Week 4

General Objectives

- To learn about the nervous system and the brain
- To see cooperation among systems of the human body
- To introduce the human anatomy
- To emphasize God's design in the human body
- To learn how to research about the body

Specific Objectives

- To learn parts of nervous system
- To learn difference between the three types of nervous systems and understand what those systems do
- To explore levels of sensitivity/nerve endings on your body
- To learn parts and functions of the brain
- To learn how neurons work
- To dramatize how messages travel from brain to body part
- To understand difference between mind and brain
- To explore brain dominance, learning, I.Q, brain diseases
- To draw in the nervous system on your body roll-out
- To continue writing your body novel

Alert!

Cooperation Systems of the Body Week 4

- Tincture of iodine (Week 5)
- Pepsin and diluted hydrochloric acid (Week 5)
- Cheesecloth and chalk dust (Week 5)
- Locate source for pig or cow heart to dissect…Sheep's heart - Tobin's Lab (Week 6)
- Locate source for pig or cow lungs to investigate (Week 7)
- Microscope (Week 8)

Weekly Supplies

Cooperation Systems of the Body Week 4

- Different colored Play-Doh to build brain
- Optional: Plastic skeleton and yarn
- Spray bottle to release neurotransmitters
- Feather 25 (p.79)
- Brain model or cauliflower 12 (p.75)
- Selected materials 16 (p.77)

Bible Verse

Cooperation Systems of the Body Week 4

He answered: "Love the Lord your God with all your heart and with all your soul and with all your strength and with all your mind; and, love your neighbor as yourself."

Luke 10:27

Bible Verses

Cooperation Systems of the Body Week 4

Now God gave Solomon wisdom and very great discernment and breadth of mind, like the sand that is on the seashore. 1 Kings 4:29

Examine me, O LORD, and try me; Test my mind and my heart. Psa 26:2

The mind of the intelligent seeks knowledge, But the mouth of fools feeds on folly. Prov 15:14

The mind of the prudent acquires knowledge, And the ear of the wise seeks knowledge. Prov 18:15

And I set my mind to seek and explore by wisdom concerning all that has been done under heaven. Ecc 1:13

And just as they did not see fit to acknowledge God any longer, God gave them over to a depraved mind, to do those things. Rom 1:28

For Who has known the mind of the Lord, that he will instruct him? But we have the mind of Christ. 1 Cr 2:16

Focus Books

Cooperation Systems of the Body Week 4

A *Blood and Guts: A Working Guide to Your Own Insides* by Linda Allison (A must!)

* *The Human Body* by Bruun and Bruun (excellent!)

Brain Power by Pat Shamp

M *Understanding Your Body* by Rebecca Treays and Christyan Fox (3-4 grade)

Your Brain and Nervous System by Leslie Jean LeMaster

Y *Your Body* by Stephanie Turnbull and Adam Larkum

Flip-Flap Body Book by Alastair Smith, Judy Tatchell, Maria Wheatley, and Ruth Russel

Inspector Bodyguard: Patrols the Land of U by Vicki Cobb

How Your Body Works by Judy Hindley and Christopher Rawson

Websites

Cooperation Systems of the Body Week 4

- http://www.anatomium.com/3dbrain.html (3D brain)
- http://www.youtube.com/watch?v=_6Red0fRDaY&feature=related (Slimgoodbody on the brain #1)
- http://www.youtube.com/watch?v=mMPh28lm7RE&NR=1 (Slimgoodbody on the brain #2)
- http://www.youtube.com/watch?v=5ZPXGpmrGss&feature=related (Slimgoodbody on the brain #3)
- http://www.youtube.com/watch?v=posKuK3tlm8 (Slimgoodbody on the brain #4)
- http://www.iqtest.com/ (Online IQ test)
- http://www.thestrokesong.com/downloads.html (stroke test)
- http://www.mayoclinic.com (Great information)
- http://www.depression.com/depression_animation.html?content=understanding& (Animated depression)

Nervous/Brain Phrases

Cooperation Systems of the Body Week 4

- "Nervous as a cat" -very nervous feeling
- "Nerves on end" -very nervous feeling
- "Nervous wreck" -very nervous feeling
- "Nerve are all a flutter" -very nervous feeling
- "Nerves of steel" –cannot be upset
- "Ice water in his veins" –cannot be made nervous
- "You've got a lot of nerve" –how dare you
- "Of all the nerve" –how dare you
- "Nervy" –a bold move
- "He has a lot of nerve" –a bold move

Nervous/Brain Phrases

Cooperation Systems of the Body Week 4

- "Brainstorming" –to think intensely about new ideas
- "Ice the kicker" –calling timeout just before a field goal try in football to make the kicker more nervous
- "This isn't brain surgery"- this is an easy task. Brain surgery is a difficult task.
- "She is a brain" – she's intelligent
- "He's the brains of the operation" – he is running the show
- "You have a pea brain" – you are not thinking
- "Use your gray matter" – start thinking

Writing Assignment

Cooperation Systems of the Body Week 4

Y-M-O 23 (p.9) Write and illustrate a book about traveling through the body.

- This week begin writing.
- Finish writing your intro about how voyagers get in the human body AND finish writing one adventure the body adventurers have in the body.
- Illustrate what you have written.

Writing Tips

Cooperation Systems of the Body Week 4

- Share your 10 ideas on the e-loop.
- Game plan:
  - If you write 2 adventures per week, by Week 6 you will have six adventures and a closing, because Week 6 you will only write one adventure plus closing.
  - Option: Write only one adventure per week and end up with four adventures and a closing by Week 6.
  - Week 7 is for editing, cleaning up, re-drawing, designing the cover and title page, printing, binding.
  - Week 8 is for practicing reading the adventure novel like poetry reading in a coffee house to a large group. This will be our show-and-tell about body.

Copy, Tweak, and Twist

Cooperation Systems of the Body Week 4

- Not everyone is creative or imaginative.
- Copy, tweak, and give a twist… imitation is how we learned to speak and even play the piano… it is OK.
- Share your ideas with the co-op.
- Insist on getting something down on paper… anything. It is much easier to edit and change.
- Get it on computer where change is easy.
- Younger children will have to have mom type as they dictate… not a problem. We are going for the flow of ideas and that creative side of the brain.

Timeline Characters

Cooperation Systems of the Body Week 4

NONE

Vocabulary

Cooperation Systems of the Body Week 4

Kinds of Nervous Systems

Central

Peripheral

- Somatic
- Autonomic
  - Sympathetic Nervous System
  - Parasympathetic Nervous System

Neuron Parts

Neuron

Stimulus

Myelin sheath

Axon

Dendrite

Synapse

Neurotransmitters

Brain Parts

Brain

Cerebrum

Cerebellum

Medulla = brain stem

Hypothalamus

Thalamus

Corpus callosum

Meninges

Ventricles

Reticular activating system

Vocabulary

Cooperation Systems of the Body Week 4

Sending Messages

Sense
Sensor
Receptor
Impulse
Reflex
Central nervous system

General

Hemisphere
Gray matter
White matter
Guts
Coordination
Balance

I.Q. (intelligence quotient)
Memory
Concentration

Brain Problems

Alzheimer's disease
Senility
Encephalitis
Hydrocephalic
Spinal meningitis
Stroke
ADD and ADHD
Epilepsy
Tumor
Depression

Activities

Cooperation Systems of the Body Week 4

Monday: Investigate Nervous System

Introduce Overview of Central Nervous System.

4 (p.73) Make a list of everything you are doing and divide it into central, peripheral, or autonomic systems.

2 (p.73) Feel your skull and spine.

3 (p.73) Poke yourself around your body to see if there is anyplace that has no feeling.

10 (p.75) Tap your "funny bone".

23 (p.79) Test your reflexes.

24 (p.79) Test your gag reflex.

25 (p.79) Tickle the lining of your nose.

Nervous System Overview

Cooperation Systems of the Body Week 4

WOW!! Soooooooo MUCH TO THINK ABOUT!!!

- Brain and nerves controlling body movements
- Brain thinking and making decisions and choices
- Brain and nerves controlling actions and behavior
- Brain feeling emotions
- Brain learning
- Brain injured physically
- Brain hurting psychologically
- Brain deteriorating and shrinking

Explaining X 10

Cooperation Systems of the Body Week 4

- Think about what you are going to explain
- Line up diagrams, internet pictures, visuals of all kinds
- Get out props to demonstrate
- Goal is NOT to cover material…but to explain so they remember
- Build your brain
- Work through each part of the brain covering name and function bit by bit
- Review what you have covered every 3-4 parts
- Let students build their own brain.

Nervous System Overview

Cooperation Systems of the Body Week 4

NERVOUS SYSTEM

- JOB
  - Receive information
  - Interpret information
  - Respond to information
- PARTS
  - CENTRAL NERVOUS SYSTEM-controls actions/sensations, thoughts, emotions, memories (command center)
    - Brain
    - Spinal cord - carries messages brain to lower body
    - Cerebrospinal fluid – covers spinal cord
  - PERIPHERAL (outer) NERVOUS SYSTEM (wiring sending messages out)
    - Cranial nerves-from brain to eyes, tongue, head, face
    - Spinal nerves-from spinal cord to body
    - Autonomic Nervous System -controls involuntary activities

Detail Overview

Cooperation Systems of the Body Week 4

I. CENTRAL NERVOUS SYSTEM-controls actions/sensations, thoughts, emotions, memories

- Brain
  - Cerebrum-voluntary movements, learning, thinking, creativity
  - Cerebellum-regulates physical coordination, balance, equilibrium
  - Brain stem-control involuntary breathing, heart rate, blood pressure
- Spinal cord - carries messages brain to lower body
- Cerebrospinal fluid – covers spinal cord

II. PERIPHERAL (outer) NERVOUS SYSTEM

- Cranial nerves-from brain to eyes, tongue, head, face
- Spinal nerves-from spinal cord to body
  - Sensory nerves - message from skin/muscle, eye/ear to CNS
  - Motor nerves - message from CNS to muscle
    - Somatic Nervous System – controls voluntary muscles
    - Autonomic Nervous System -controls involuntary muscles and glands from hypothalamus
      - Sympathetic nervous system - fight or flight
      - Parasympathetic nervous system – get back to normal

Activities (cont'd 2)

Cooperation Systems of the Body Week 4

Tuesday: Brain Parts

12 (p.75) Learn the parts and functions of the brain.

Build a brain out of colored Play Doh.

14 (p.75) Explain how your body can perform different functions at once.

15 (p.75) Play Concentration with the parts of the brain.

16 (p.77) Do activities related to each part of the brain.

Draw the brain parts on your body roll-out.

2-2-4 Cerebrum

Cooperation Systems of the Body Week 4

CEREBRUM

- 2 folded layers of gray and white matter
  - http://www.brainexplorer.org/gallery/Coronal_section.shtml
  - Gray matter= cerebral cortex that covers the white matter like bark on a tree
    - Gray only in dead people; red in living
    - Most neurons but neurons not covered w/ myelin sheaths
    - Covers both hemispheres conceal most of the rest of brain
    - Relatively large in humans when compared to chimpanzees/gorillas
    - Place of thinking/reasoning, perception, memory, language, will
  - White matter –myelin-covered nerve cells under the gray matter
    - Found in brain and spinal cord
    - Connects gray matter to gray matter, or gray matter to sensory organs
- 2 hemispheres
  - Right hemisphere-controls left side of body
  - Left hemisphere-controls right side of body
- 4 lobes in each hemisphere
  - Frontal lobe -emotions, reasoning, thinking, planning, movement, parts of speech, conscious acts such as creativity, judgment, problem solving, and more
  - Parietal Lobe – senses like touch, pain, taste, pressure, temperature and some language
  - Temporal Lobe- hearing, memory, interpreting and processing auditory sounds
  - Occipital Lobe -vision

More Brain Parts/Functions

Cooperation Systems of the Body Week 4

- **Ventricles - several cavities that produce and are filled with cerebrospinal fluid which surrounds brain to cushion it from blows and circulate hormones. Spinal taps remove cerebrospinal fluid to check if there is infection in or around brain.**

- **Reticular Activating System - a network which influence wakefulness, overall degree of arousal and consciousness**

Activities (cont'd 3)

Cooperation Systems of the Body Week 4

Wednesday: Neurons; sending messages

5 (p.74) Draw a neuron.

6 (p.74) Learn about receptors or nerve endings.

7 (p.74) Dramatize the stimulus to certain actions.

9 (p.74) Act out how messages travel along a neuron.

17 (p.78) Choose an activity and list the messages your brain is sending to different parts of your body.

18 (p.78) Pantomime a movement and have younger children guess what message the brain is sending.

Draw Peripheral Nervous System to body roll-out.

Neurons

Cooperation Systems of the Body Week 4

Neurons=Nervous System cells that look like a tree with roots and pass messages

- **Parts:**
  - Cell body with nucleus
  - Dendrites-many projecting from cell body like branches
  - Axon; most neurons have only one axon like tree trunk
- **Function to Pass Information**
  - Neurons pass information from one neuron to another without touching each other using a liquid called a neurotransmitter.
  - Neurotransmitters are released by one neuron into small space between the next neuron called the synapses.
  - Myelin sheath wrapped around neurons causes messages to travel faster.
  - Electrical message travels down nerve; changes to chemical at synapses; back to electrical down next nerve and so on
- **Neuron Support**
  - Glia cells are helper nerve cells that are smaller than neurons
  - Lack axons and dendrites and do not transmit messages
  - Support the synapses and help absorption of neurotransmitters
- **Damaged Neurons**
  - Majority of neurons cannot repair themselves or make more of themselves.
  - Irreversible damage to nervous system after trauma, intoxication, or stroke.

Limbic + Auto = Emotions

Cooperation Systems of the Body Week 4

I. Limbic System
   - Hypothalamus-gland that controls emotions through pituitary and autonomic nervous system
     - Regulates homeostasis like a thermostat; keeps body at set point
     - Regulates appetite, thirst, response to pain, levels of pleasure, anger/aggressive behavior
     - Regulates autonomic nervous system=parasympathetic and sympathetic nervous systems
   - Hippocampus –horseshoe shaped neurons important in converting thoughts in short-term memory into long-term memory; if the hippocampus is damaged, a person cannot build new memories or access older memories
   - Amygdale - two almond-shaped masses of neurons at the lower end of the hippocampus; responsible for aggression; if removed in wild animals, they get very tame and no longer respond to things that would have caused anger; they do not respond to stimuli that would have caused fear before

Emotions (cont'd 2)

Cooperation Systems of the Body Week 4

II. Autonomous System has 2 parts, sympathetic nervous system and parasympathetic nervous system which function in opposition

- Sympathetic nervous system starts in spinal cord; prepares body for "fight or flight," from danger/violence
  - dilates the pupils and opens the eyelids
  - stimulates the sweat glands
  - dilates the blood vessels in large muscles
  - shut down digestion
  - opens up the bronchial tubes of the lungs
  - effects adrenal glands to release adrenalin into blood stream
- Parasympathetic nervous system in brainstem and in the spinal cord of lower back brings the body back after emergency
  - pupil constriction
  - activation of the salivary glands
  - stimulating the secretions of the stomach
  - stimulating the activity of the intestines
  - constricting the bronchial tubes
  - decreasing heart rate

Activities (cont'd 4)

Cooperation Systems of the Body Week 4

Thursday: Brain Dominance and Learning

19 (p.79) Look up mind in the concordance; discuss how mind and brain are different.

21 (p.79) Research brain dominance.

22 (p.79) Test to see if which side of your brain is more dominant.

Left Brain/Right Brain Dominance

Cooperation Systems of the Body Week 4

Left brain learners

- Book learning
- Organized
- Parts to whole
- Sequential
- Strong in math and spelling

Right brain learners

- Hands-on learner
- Disorganized
- Whole to parts
- Random
- Strong in art and drama

Left Brain vs Right Brain

Cooperation Systems of the Body Week 4

LEFT BRAIN	RIGHT BRAIN
TAXON	SPACIAL
MEMORY	COLORS
TEL #'s	FEELINGS
NAMES	STORYTELLING
LISTS	HANDS-ON
MATH FACTS	(LONG TERM)
(SHORT TERM)	

Left Brain	Right Brain
Words	**Pictures**
Familiar	**New**
Sequential	**Random**
Listen	**Participate**
Joiner	**Independent**
Step-by-step	**Demonstrate**
Routine	**Impulsive**
Organize	**Creative**
Linear Thinking	**3D Thinking**
Writing/Talking	**Drawing**
Detailed	**Oblivious to detail**
Focused	**Distractible**

Activities (cont'd 5)

Cooperation Systems of the Body Week 4

Friday: Brain Potential and Problems

Research I.Q.

Research best way to learn and retain.

Research ADD and ADHD.

Research physical problems of the nervous system.

Research psychological problems of the brain.

Review the nervous system.

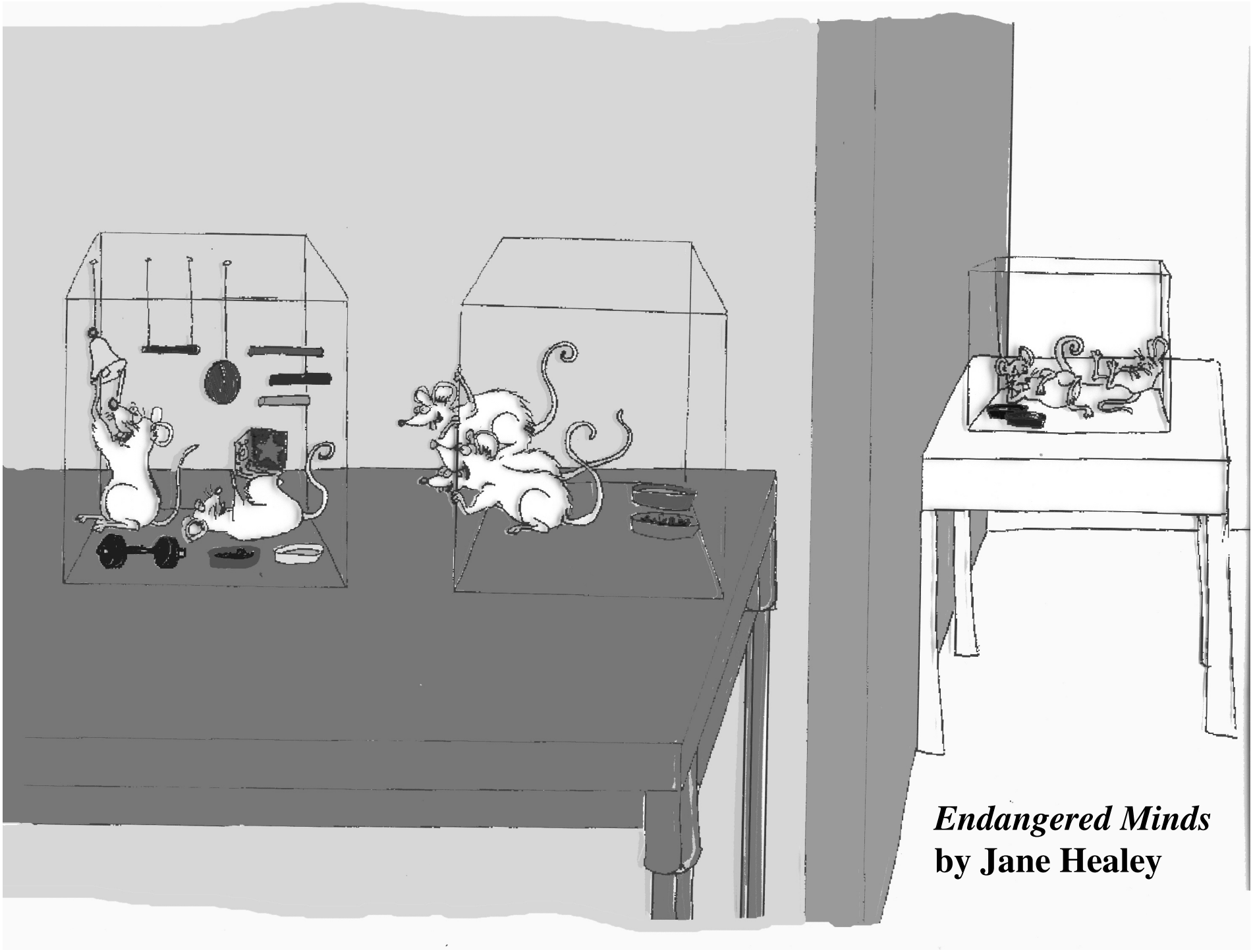
Write on adventure novel.

I.Q.

Cooperation Systems of the Body Week 4

Intelligence Quotient test is a mental test developed in 1905 by two Frenchmen, Binet and Simon, who wanted to quantify (put a number to) brain equivalent of retarded children compared to their peers

- IQ = 100 Mental Age/Chronological Age
  Ex. 12 mental age/ 10 year old child = 120 IQ
- 80% of population range from 80 to 120 IQ
- 10% of population score below 80 IQ
- 10% of population score above 120 IQ
- Scores can go up to 200 for adults and 250 for children
- IQ remains fairly constant throughout life



Endangered Minds
by Jane Healey

ADD/ADHD

Cooperation Systems of the Body Week 4

Attention Deficit Disorder - a person has trouble focusing and through he may understand what's expected, has trouble following through because he cannot sit still, pay attention, or attend to details.

Occurs:

- In 8% to 10% of children
- Boys 3 times more likely to have disorder than girls

Types:

- 6 types according to Daniel G. Amen, M.D.

Hyperactive-impulsive

- Fidgeting or squirming, difficulty sitting and playing quietly
- Excessive running or climbing, being "on the go,"
- Excessive talking, blurting out answers before hearing the full question,
- Difficulty waiting for a turn or in line, problems with interrupting

Combination of the two:

- Most common

ADD/ADHD (cont'd 2)

Cooperation Systems of the Body Week 4

Causes:

- Certain brain areas may be 10% smaller or inactive
- Missing neurotransmitters causing brain inactivity
- Family tendency

Treatment:

- Drugs
  - Stimulants – used for more than 50 years
  - Non-stimulants – approved in 2003; longer lasting
  - Anti-depressants – 2004 warning of suicidal possibilities
- Supplement- Omega 3; missing amino acids
- Exercise
- Behavior therapy/bio-feedback
- Nutrition
- Schooling in non-traditional teaching methods
- Untreated children WILL self-medicate when older. (See Dr. Daniel Amen's books)

Dopamine

Cooperation Systems of the Body Week 4

Dopamine is a neurotransmitter linked to motor/movement disorders, ADHD, addictions, paranoia, and schizophrenia. Dopamine strongly influences both motor and thinking areas of the brain.

Types

- One type works in the brain movement and motor system. A decrease below the "normal range" creates gross-movement problems. Very low levels produce Parkinson's Disease.
- The 2nd type affects the thinking and focus parts of the brain. Low levels of dopamine can cause ADHD, a lack of focus and attention span as well as hyperactivity. It can also cause hyperfocus "locking on" to an activity. Elevated levels of dopamine cause hypersensitivity, and at high levels, Schizphrenia and paranoia.

http://www.enotalone.com/article/4115.html

Spinal Meningitis

Cooperation Systems of the Body Week 4

Spinal meningitis is an infection/inflamation of the fluid around the spinal cord and brain.

- **Causes:**
  - **Viral infection**
  - **Bacterial infection**
  - **Other causes – head trauma, reaction to medicines, cancer, and inflammatory diseases like Lupus.**
- **Symptoms:**
  - **High fever**
  - **Headache**
  - **Stiff neck**
  - **Nausea or vomiting**
  - **Sleepiness or confusion**
  - **Discomfort looking into bright lights**

Spinal Meningitis (cont'd 2)

Cooperation Systems of the Body Week 4

- **Results:**
  - Brain can swell causing pressure and death
  - High fever can cause seizures and death
  - Infection can kill
  - Dehydration can cause system failures
- **Transmission:**
  - Coughing
  - Sharing food and drink
  - Kissing
- **Treatments:**
  - Bacterial Meningitis (Highly contagious)
    - Early detection
    - Treat with antibiotics
    - Good chance of recovery
  - Viral Meningitis: (Not deadly)
    - Bed rest
    - Medicine to relieve fever and headaches
    - Force fluids

Encephalitis

Cooperation Systems of the Body Week 4

The term "encephalitis" literally means "inflammation of the brain," it usually refers to brain inflammation resulting from a viral infection.

- **Viral infection**
  - **Herpes viruses**
  - **Mosquitoes, ticks and other insects**
  - **Rabies transmitted through animal bites**
- **Encephalitis takes two forms**
  - **Primary encephalitis - virus directly invades your brain and spinal cord**
  - **Secondary encephalitis - virus first infects another part of your body and secondarily enters your brain.**
- **Results**
  - **Severe cases can cause coma, respiratory arrest, and death**
- **Treatments**
  - **Many viruses don't respond to antibiotics**
  - **Herpes will respond to antiviral drugs**
- **Prevention**
  - **Vaccinate for childhood diseases**
  - **Wear insect repellant**

Hydrocephalus

Cooperation Systems of the Body Week 4

Hydrocephalus is excess fluid in your brain "water on the brain"

- Causes: obstruction prevents fluid drainage
- Symptoms:
  - An unusually large head
  - A rapid increase in the size of the head
  - A bulging "soft spot" on the top of the head
  - Vomiting, Sleepiness, Irritability, Seizures
  - Eyes fixed downward (sunsetting of the eyes)
  - Developmental delay
- Results:
  - Excess fluid can push fragile brain tissues against skull — causing brain damage or even death.
  - Critical to treat early
  - About one out of 500 children are born with the disorder
- Treatment:
  - Shunt to drain fluid and relieve pressure build up
  - Treat cause of fluid build up

Strokes

Cooperation Systems of the Body Week 4

Stroke is lack of oxygen to part of the brain for a period

Types:

- Blocked artery to the brain
- Hemorrhage=bleeding in the brain; too much blood in the skull causes pressure on brain; aneurysm = weakened blood vessel bursts

Results:

- Deprives brain tissue of oxygen and nutrients
- Brain cells begin to die within a few minutes; strokes destroyed 1.9 million brain cells (neurons), 14 billion synapses, and 7.5 miles of myelinated fibers through which thoughts pass each minute
- Medical emergency; prompt treatment is crucial; can minimize damage to brain; neurologist say they can totally reverse a stroke's effects IF they can get to a stroke victim within 3 hours

Risk factors:

- High blood pressure
- Smoking
- High cholesterol

Strokes (cont'd 2)

Cooperation Systems of the Body Week 4

Symptoms:

- Trouble with walking
- Trouble with speaking
- Trouble with seeing
- Headache (extremely acute)
- Often affects only one side of body

Treatment:

- Aspirin (daily regimen is recommended)
- Tissue plasminogen activator, TPA (clot busting drug)
- Surgery
- Angioplasty and stents (balloon or tube to open the blood pathway

Physical Therapy:

- Speech
- Walking
- Exercising the non-working area (face, hand, arm, leg, etc.)
- Many therapies used for stroke recovery are good for children w/ learning difficulties

3 Tests for Stroke

Cooperation Systems of the Body Week 4

1. **Ask the individual to SMILE.**
   Look for facial weakness, especially on one side.

2. **Ask the person to say "It's a sunny day outside."**
   Listen for slurring.

3. **Ask him or her to RAISE YOU HANDS.**
   Watch for both arms to be at the same height

If he or she has trouble with any of these 3 tasks, call 911.

Tumors

Cooperation Systems of the Body Week 4

Brain tumor is a mass or growth of abnormal cells in your brain

Types:

- **Noncancerous (benign)**
- **Cancerous (malignant)**

Symptoms:

- **Headaches that gradually become more frequent and more severe**
- **Unexplained nausea or vomiting**
- **Vision problems… blurred vision, double vision, peripheral vision loss**
- **Gradual loss of sensation or movement in an arm or a leg**
- **Difficulty with balance or speech or hearing**
- **Confusion in everyday matters or personality or behavior changes**
- **Seizures, especially in someone who doesn't have a history of seizures**
- **Hormonal (endocrine) disorders**

Treatment

- **Surgery**
- **Radiation or chemotherapy**
- **Targeted drug therapy**

Senility = Dementia

Cooperation Systems of the Body Week 4

Senility, since ancient times, is any type of age-related mental decline

- Commonly called dementia
- Not a normal part of aging process
- Caused by damaged nerve cells, breaks in neuron connections, or plaque build up
- Symptoms:
  - Memory loss or impairment
  - Language skills (reading and speaking)
  - Changes in behavior or mood
  - Problems with judgment
- Types:
  - Alzheimer's
  - Parkinson's

Parkinson's

Cooperation Systems of the Body Week 4

Parkinson is a motor system disorder

- Discovered: James Parkinson described it as "shaking palsy" 1817
- Cause: Dopamine production causes smooth muscle movements in a normal brain; with Parkinson's 80% of dopamine producing neurons are damaged causing jerky muscle movement
- Symptoms:
  - Tremors in hands, arms, legs, jaw, face
  - Stiffness of limbs and trunk
  - Slowness of movement
  - Poor balance and coordination
  - May cause problems walking, eating, sleeping, other daily tasks
- Therapy:
  - Dopamine replacement (bad long-term side effects)
  - Blocking metabolism of dopamine (prolongs supply of dopamine)
  - Dopamine mimics

Alzheimer's

Cooperation Systems of the Body Week 4

Alzheimer's is a kind of dementia; with normal aging cell destruction occurs in everyone; Alzheimer's is too much destruction too fast

- Alois Alzheimer (German doctor) discovered disease in 1906
- Found shrinking in brain cortex and plaque on brain
- Destroys brain cells that control thinking, learning, and remembering
- Caused by:
  - Plaques – protein build-up in tissue between nerve cells
  - Tangles – bundles of twisted filaments in nerve cells

Depression

Cooperation Systems of the Body Week 4

Depression is a mood disorder characterized by:

- persistent feelings of sadness for several weeks
- feelings of worthlessness, helplessness and guilt
- appetite disorders and sleep disorders

Types:

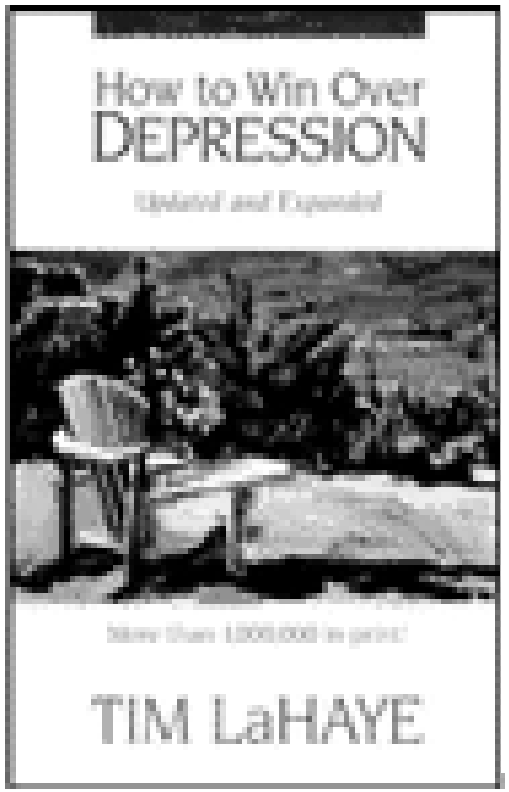
- Unipolar patients experience depressive episodes only
- Bipolar alternates between depression and mania (intense high)

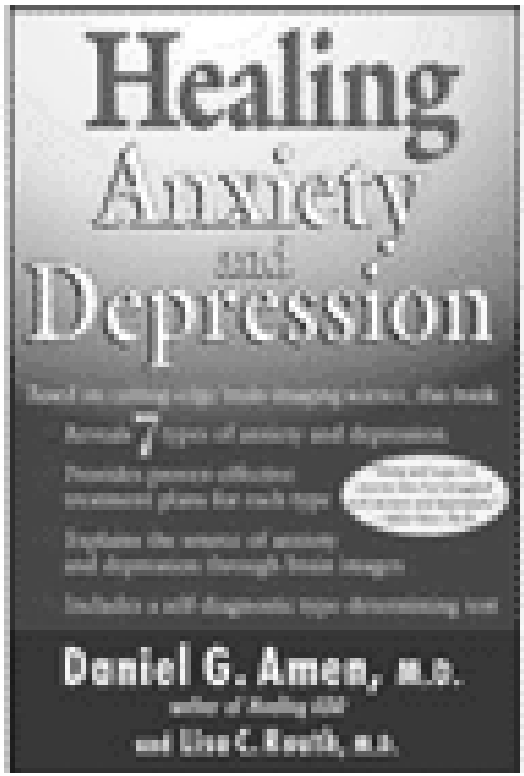
Causes:

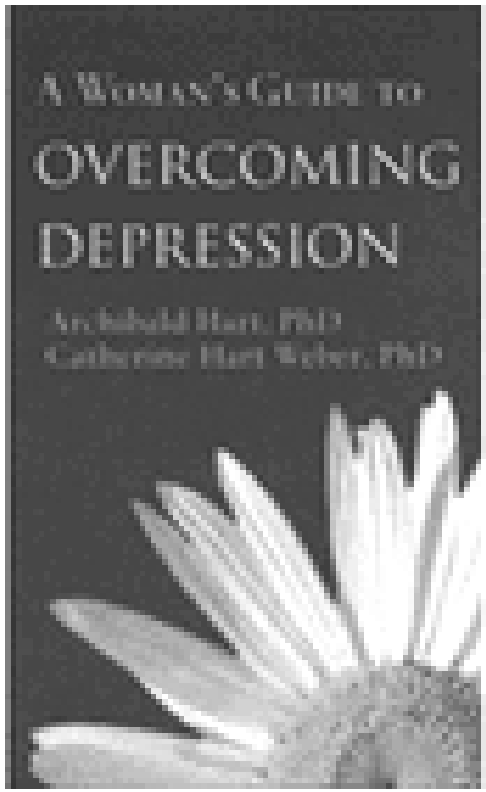
- No single cause; often, results from a combination of things
- Not just a state of mind; related to physical changes in brain, and imbalance of neurotransmitters
- Can run in families for generations.
- Brought on by trauma and stress; financial problems, end of a relationship, death of a loved one, change in your life, like starting a new job, graduating from school, or getting married.
- Pessimistic personality; low self-esteem; negative outlook are at higher risk
- Physical conditions like heart disease, cancer, can contribute to depression, by physical weakness and stress they bring on

Extra Resources

Cooperation Systems of the Body Week 4







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Field Trips

Cooperation Systems of the Body Week 4

NONE

Suggestions for Dad

Cooperation Systems of the Body Week 4

- Give out vocabulary words to the children.
- Do a Bible study on the mind (intellect) in the Bible vs. brain.
- Give the kids "brain teasers" and help them think through the riddles or word meanings. http://brainden.com/
- Give public (at dinner) praise to your wife for teaching and your children for learning so much this week.

Bonus Brain Teaser

Cooperation Systems of the Body Week 4

BOOKS OF THE BIBLE

There are thirty books of the Bible in this paragraph. Can you find them? This is a most remarkable puzzle. It was found by a gentleman in an airplane seat pocket, on a flight from Los Angeles to Honolulu, keeping him occupied for hours. He enjoyed it so much he passed it on to some friends. One friend from Illinois worked on this while fishing from his john boat. Another friend studied it while playing his banjo.

Elaine Taylor, a columnist friend, was so intrigued by it she mentioned it in her weekly newspaper column. Another friend judges the job of solving this puzzle so involving, she brews a cup of tea to help her nerves. There will be some names that are really easy to spot. That's a fact. Some people, however, will soon find themselves in a jam, especially since the book names are not necessarily capitalized. Truthfully, from answers we get, we are forced to admit it usually takes a minister or scholar to see some of them at the worst. Research has shown that something in our genes is responsible for the difficulty we have in seeing the books in this paragraph.

During a recent fund raising event, which featured this puzzle, the Alpha Delta Phi lemonade booth set a new sales record. The local paper, The Chronicle, surveyed over 300 patrons who reported that this was one of the most difficult they had ever seen. As Daniel Humana humbly puts it, 'the books are all right here in plain view hidden from sight.' Those able to find all of them will hear great lamentations from those who have to be shown. One revelation that may help is that books like Timothy and Samuel may occur without their numbers. Also, keep in mind, that punctuation and spaces in the middle are normal. A chipper attitude will help you compete really well against those who claim to know the answers. Remember, there is no need for a mad exodus. There really are 30 books of the Bible lurking somewhere in this paragraph waiting to be found. Good luck!!

Focus of the Week

Cooperation Systems of the Body Week 4

- Practicing cooperation
- Learning about the nervous system and brain
- Recognizing cooperation among systems of the human body
- Recognizing God's design in the human body
- Learning how to research about the body
- Learning parts of the nervous system
- Learning about three types of nervous systems
- Exploring nerve endings and sensitivity
- Learning the parts and functions of the brain
- Learning about neurons and how messages travel
- Learning the difference between brain and mind
- Exploring brain dominance
- Continuing to write your body novel
- Drawing the nervous system on your body roll-out

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Thanks,
Wade and Jessica Hulcy