COOPERATION
Week 2

Cooperation

Working well together.

Objectives

Cooperation Systems of the Body Week 2

General Objectives

- To practice the character trait of cooperation
- To see cooperation among systems of the human body
- To introduce the human anatomy
- To emphasis God's design in the human body
- To learn how to research about the body

Specific Objectives

- To learn about the cell and make a cell model
- To learn difference between tissue, organs, systems
- To boil a chicken and assemble its bones
- To learn about kind of joint and what joins joints
- To learn by name the bones of the body
- To observe X-rays of bones
- To sing Dry Bones and do the Hokey Pokey with bones
- To continue writing about traveling through the body
- To send a letter of encouragement to Coleson Shaw
- To draw your bones on your roll out body

Alert!

Cooperation Systems of the Body Week 2

- Locate source for pig or cow heart to dissect (Week 6) Mike & Tammy Duby at Tobin's Lab
- Sheep set Mike & Tammy Duby at Tobin's Lab
- Locate source for pig or cow lungs to investigate (Week 7)

Weekly Supplies

Cooperation Systems of the Body Week 2

- Graph paper, butcher paper 58 (p.18)
- Plasticine or clay, enamel paint OR cell parts for room model 16 (p.9)
- Chicken 43 (p.17)
- Chicken foot 44 (p.17)
- Vinegar 45 (p.17)
- Shin bone cut in half 49 (p.18)

Bible Verse

Cooperation Systems of the Body Week 2

Pleasant words are a honeycomb, sweet to the soul, and healing to the bones.

Proverbs 16:24

Focus Books

Cooperation Systems of the Body Week 2

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

O *The Way We Work* by David Mccaulay

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

Understanding Your Muscles and Bones Rebecca Treays and Christyan Fox

Y *Your Body* by Stephanie Turnbull and Adam Larkum (age 4-8)

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

Inspector Bodyguard: Patrols the Land of U by Vicki Cobb

Websites

Cooperation Systems of the Body Week 2

- http://www.cellsalive.com/cells/3dcell.htm (Interactive animal cell - also goes through mitosis and meiosis)
- http://www.biology4kids.com/files/cell_main.html (Basic information on cells)
- http://www.eskeletons.org/ (Interactive skeleton – must use! Select human under "Select A Taxon" on left side of screen)
- http://kidshealth.org/kid/htbw/bones.html (Simple skeleton information) http://www.shockfamily.net/skeleton/JOINTS.HTML (Joints)
- http://www.wisc-online.com/objects/index_tj.asp?objID=MEA304 (Take bone test here. Awesome test)

Music

Cooperation Systems of the Body Week 2

- "Dry Bones"

http://my.homewithgod.com/heavenlymidis2/kidspraise/bones.html (Music and words)

- "Hokey Pokey"

Writing Assignment

Cooperation Systems of the Body Week 2

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

This week continue brainstorming about how voyagers get in the human body and some of the adventures they will have. Begin developing your plot…that is what is going to happen to the voyagers. Make a list of what could happen. Limit it to 10 adventures knowing we will drop some of the adventures off.

Timeline Character

Cooperation Systems of the Body Week 2

Paul the Apostle

Robert Hooke [96] (English scientist who discovered cells, "little boxes" in cork which reminded him of the little rooms where monks lived; 1600s)

Theodore Schwann (cell theory, i.e., all living things are formed of cells)

Anton Van Leeuwenhoek [16] (Father of the microscope; first to see microscopic life and record observations)

Vocabulary

Cooperation Systems of the Body Week 2

General

- Cooperation
- Members
- Unity
- Cell theory (all living things are made up of cells)
- Tissue (similar kinds of cells working together; e.g., skin, nerves, bone, muscle)
- Organ (group of tissues joined together to do a special job; e.g., heart, eyes, lungs, stomach, intestines, brain)
- System (group of organs working together)
- Organism (a living thing; e.g., human being)

Cell Parts

- Cell (50 trillion basic units of the body)
- Cell membrane
- Cytoplasm
- Nucleus
  - Nucleolus
  - Chromosome
  - DNA
- Endoplasmic reticulum
- Lysosomes
- Golgi bodies
- Mitochondria
- Centrioles

Vocabulary (cont'd 2)

Cooperation Systems of the Body Week 2

Bone parts

Periosteum - a thin, dense membrane; contains nerves/ blood vessels nourish bone.

Compact bone – smooth/very hard part you see when you look at a skeleton.

Cancellous bone - looks like a sponge; is not quite as hard as compact bone, but it is still very strong; protects bone marrow

Bone marrow is sort of like a thick jelly; makes blood cells.

Bones

Head

- Cranium (skull)
- Mandible (jawbone)

Body

- Sternum (breastbone)
- Rib cage
- Clavicle (collarbone)
- Scapula (shoulder bone)
- Vertebrae (backbone; spine)
- Coccyx (tail bone)

Vocabulary (cont'd 3)

Cooperation Systems of the Body Week 2

Arm

- Humerus (upper arm bone)
- Funny bone (nerves at elbow end of humerus)
- Radius (lower arm, thumb side)
- Ulna (lower arm, pinky side)
- Carpals (wrist bones)
- Metacarpals (hand bones)
- Phalanges (finger bones)

Leg

- Pelvis (hip bone)
- Femur (thigh bone)
- Patella (knee bone)
- Tibia (shin bone)
- Fibula (calf bone)
- Tarsals (ankle bones)
- Metatarsals (foot bones)
- Phalanges (toe bones)

Vocabulary (cont'd 4)

Cooperation Systems of the Body Week 2

Strong Bones

Calcification

Calcium

Phosphorus

Joining Bones

Joint

Ligament

Tendon

Cartilage

Bone Diseases

Arthritis

Osteoporosis

Rheumatism

Bone Doctors

Orthopedic physician

Osteopath

Chiropractor

Podiatrist

Activities

Cooperation Systems of the Body Week 2

Monday: Cell and Cell Theory

Read about the cell and list parts on index cards.

Read a function of a cell part and have children point to part in diagram AND pick up name. Repeat.

Gen. 17 (p.9) Dramatize the workings of the cell.

Pack a "cell backpack" with all the cell carries.

Read about cell theory.

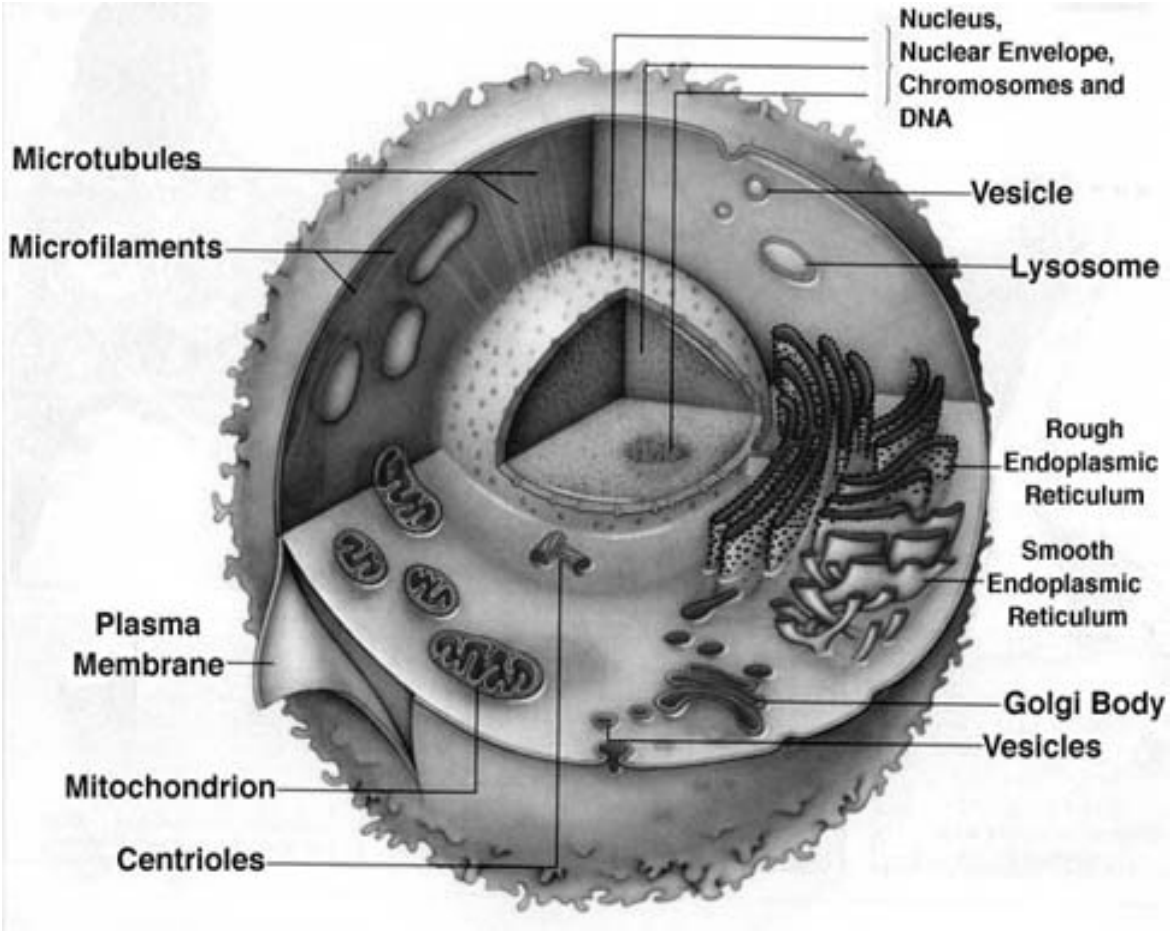
Gen. 16 (p.9) Make a three-dimensional cell model and label the parts…OR

Turn your bedroom into a cell (use a vacuum for the lysosome).

Look for different cells online like muscle and skin cells.

Animal Cell

Cooperation Systems of the Body Week 1



Activities (cont'd 2)

Cooperation Systems of the Body Week 2

Tuesday: Cell, Tissues, Organs, Systems/ Skeleton Purpose

Review cell parts OR finish your cell model.

Gen. 14 (p.8) Learn the difference between cells, tissues, organs, and systems. (no boxes, use pictures instead)

Look online for pictures of different cells, muscles, skin, etc.

Gen. 20-21 (p.9) Learn the systems of the body.

Talk about teams that get a job done. (Feel, move, breath, eat, etc.)

Discuss the purpose of skeleton.

Skel. 49 (p.18) Ask a butcher to saw a shin bone lengthwise and observe the inside of the bones.

Learn the parts of a bone.

Purpose of the Skeleton

Cooperation Systems of the Body Week 2

- Provides framework to body
- Protects internal organs
  - Skull protects brain
  - Ribs protect heart, lungs, kidneys, etc.
- Makes blood cells
- Anchors muscles
- Stores calcium and other elements

Bone Parts

Cooperation Systems of the Body Week 2

Periosteum - a thin, dense membrane; contains nerves/blood vessels nourish bone.

Compact bone – smooth/very hard part you see when you look at a skeleton.

Cancellous bone - looks like a sponge; is not quite as hard as compact bone, but it is still very strong; protects bone marrow

Bone marrow - sort of like a thick jelly; makes blood cells.

Number of Bones

Cooperation Systems of the Body Week 2

- Infant - 350
- Adult – 206
  - Skull – 29 bones
  - Spine – 26 bones (vertebrae)
  - Ribs and Sternum – 25 bones
  - Collar - 2 bones
  - Arms – 3 bones
  - Hands – 59 bones
  - Pelvis - 2 bones
  - Legs – 4 bones
  - Feet – 56 bones

Bone Marrow

Cooperation Systems of the Body Week 2

- Soft fatty tissue found in the hollow of bones
- Found in hollow center of all bones of pre-born baby
- Found in hollow center of a few bones of adults
  - sternum
  - cranium
  - vertebrae
  - pelvis
  - ends of long bones
- Red bone marrow – produces blood cells
  - 1/2 pound of red bone marrow in an adult
  - 5,000,000,000 blood cells produced per day
  - Yellow bone marrow is in reserve to become red bone marrow if needed

Activities (cont'd 3)

Cooperation Systems of the Body Week 2

Wednesday: Bones of Head and Body

Skel. 43 (p.17) Dissect chicken and assemble chicken bones.

Skel. 59 (p.18) Learn bone names for head and body. Correspond human bones to chicken bones.

Skel. 45 (p.17) Soak 2 chicken bones (water and vinegar) and watch the changes.

Skel. 57 (p.18) Decide which bones are long bones, short bones, flat bones, and irregular bones when you look at skeleton.

Skel. 59 (p.18) Learn the "joining bones" parts.

Skel. 65 (p.20) Sing "Dry Bones".

Discuss joint injuries.

Joints

Cooperation Systems of the Body Week 2

Purpose: To tie bones together AND allow movement

- Non-moving – skull
- Little movement – spine and ribs
- Big movement knees, hips, arms, and shoulders

Joint Connections

Cooperation Systems of the Body Week 2

- Ligaments – connect bone to bone
- Tendons – tie muscle ends to bones
- Cartilage
  - Provides smooth surface for bones to slide on
  - Provides cushion as a shock absorber
- Synovial fluid - lubricates the joints

Joint Injuries

Cooperation Systems of the Body Week 2

- Dislocation – joint has move out of position
- Swollen – excess fluid to the joint
- Hyper-extended – bending hinged joint too far the wrong way
- Sprained – tendons or ligaments that have been stretched too far
- Torn or severed – tendon or ligaments that have been ripped

  - ACL – anterior cruciate ligament (knee)
  - MCL – medial collateral ligament (knee)
  - UCL – Ulnar collateral ligament (elbow)
  - Patellar tendon (knee)
  - Achilles tendon (heel)
  - Rotator cuff (shoulder)
  - Turf toe – (toe)

Big Movement Joints

Cooperation Systems of the Body Week 2

- Ball and socket – hip
- Hinge – elbow and knee
- Saddle – thumb
- Pivot – neck and forearms
- Gliding – metacarpals and carpals

Activities (cont'd 4)

Cooperation Systems of the Body Week 2

Thursday: Bones of Legs and Feet

Skel. 59 (p.18) Learn all your leg bones.

Skel. 60 (p.19) Measure your bones.

Skel. 61 (p.20) Use these measurements to do bone proportions.

SKel. 62 (p.20) Measure your femur in centimeters to estimate your height.

Skel. 44 (p.17) Dissect a chicken foot.

Activities (cont'd 5)

Cooperation Systems of the Body Week 2

Friday: Bones of Arm and Hand

Skel. 59 (p.18) Learn the bones of the arms and hands.

Skel. 58 (p.18) Trace your body onto butcher paper and draw what your bones actually look like.

Skel. 67 (p.20) Play "Simon Says" using the names of bones.

Skel. 68 (p.20) Do the Hokey Pokey with bone parts.

Discuss the disease and injuries to bones.

Skel. 70 (p.21) Talk about interesting facts about bones by guessing true or false.

Skel. 80 (p.21) Have a quiz on skeletal system facts (give wishbones for prizes).

Add bones to roll out body.

Bone Diseases

Cooperation Systems of the Body Week 2

- Osteoperosis word osteoporosis literally means "porous bones" ; occurs when bones lose an excessive amount of calcium; over time, bone mass and bone strength decreased; bones become fragile and break easily; even a sneeze or sudden movement could break a bone in someone with severe osteoporosis.
- Arthritis inflammation of a joint
- Rheumatism a variety of disorders marked by inflammation, degeneration, or derangement of the connective tissue structures, especially the joints and related structures, and attended by pain, stiffness, or limitation of motion.

Bone Breaks

Cooperation Systems of the Body Week 2

- Complete fracture - bone has broken into two pieces
- Greenstick fracture - bone cracks on one side only, not all the way through
- Single fracture - bone is broken in one place
- Comminuted fracture (kah-muh-noot-ed) - bone is broken into more than two pieces or crushed
- Bowing fracture (kids only), bone bends but doesn't break
- Open fracture - bone is sticking through the skin

Coleson Shaw

Cooperation Systems of the Body Week 2

- 7 year-old KONOS Kid in Louisiana
- Coleson had Diamond Black Fan Anemia
  - He never made any red blood cells
  - He needed a transfusion every 3 to 4 weeks
  - Because of the transfusions, iron built up in his liver
  - He took a 10 hr. chelation treatment 6 nights per week
- Bone marrow has 3 strands: platelets, red, and white blood cells

Sacrificial Love

Cooperation Systems of the Body Week 2

- Brother, Cade, was perfect match as a donor
- Bone marrow transplant - July 2007
- Coleson is 100% cured! PTL
- Coleson now has a hip socket disease
- What your family can do:
  - Send a card to Coleson and the Shaws
  - Read the Shaw's incredible story on their website
  - Send a donation
  - Pray for the Shaws

www.caringbridge.org/la/coleson
305 S. Tanglewood Dr.
Minden, La 71055

Permission Slip

Permission Coupon

Free pass to skip one activity or other assignment

(Feel free to copy as often as needed)

Permission Coupon

Free pass to skip one activity or other assignment

(Feel free to copy as often as needed)

Permission Coupon

Free pass to skip one activity or other assignment

(Feel free to copy as often as needed)

Permission Coupon

Free pass to skip one activity or other assignment

(Feel free to copy as often as needed)

Field Trips

Cooperation Systems of the Body Week 2

- 55 (p.18) Observe real bones by visiting a doctor or a chiropractor.
- 56 (p.18) Look at x-rays at the office of a chiropractor or a radiologist.

Suggestions for Dad

Cooperation Systems of the Body Week 2

- Model cooperation for your family
- Set up a reward system for the most cooperative of the week
- Help your children build the room cell model
- Cut up a chicken with the kids and help them find bones, bone marrow, ligaments, tendons, and cartilage.
- Quiz them on the bones of your body.
- Tickle and hug them as they name the bones of their bodies.

Focus of the Week

Cooperation Systems of the Body Week 2

- Practicing the character trait of cooperation
- Seeing cooperation among systems of the human body
- Emphasizing God's design in the human body
- Learning how to research about the body
- Learning about the cell and make a cell model
- Learning difference between tissue, organs, systems
- Boiling a chicken and assemble its bones
- Learning about kind of joint and what joins joints
- Learning by name the bones of the body
- Observing X-rays of bones
- Singing Dry Bones and do the Hokey Pokey with bones
- Continuing writing about traveling through the body
- Sending a letter of encouragement to Coleson Shaw
- Drawing your bones on your roll out body

Copyright

- The information contained herein is for the use of the KONOS Co-op members and their families.
- Sharing this information with other families, groups, or on the world wide web without express permission of the staff at Homeschool Mentor is prohibited.

Thanks,

Wade and Jessica Hulcy