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BIOLOGY

PHOTOSYNTHESIS

- Macro view of a leaf
- Close up of stomata with night and day option
- Close up of the cells in the leaf
- The chemical reaction in one cell
- Cells dividing
- Close up of the chloroplast
- The inside of the chloroplast
- Chloroplast outer membrane
- Chloroplast inner membrane
- Stroma lamellae
- Stroma
- Granum
- Thylakoid

THE HUMAN BODY

Digestive System

- The intestines
 - Stomach
 - Small and large intestines
 - Esophagus
- The gallbladder
 - Gallbladder orientation and macro view
- The liver
 - The liver orientation and macro view
- The pancreas
 - The pancreas orientation and macro view
- Digestion
 - The liver, the stomach, large and small intestines and esophagus
 - Cut section of the small intestines
 - Inside of small intestines
 - Villi and cut plane of villi
 - Fatty acid protein chain that becomes amino acids, carbohydrates and where they go
 - Protein broken down in to amino acids by micro villi
 - Amino acids journey from villi to liver

Lymphatic System

- Lymphatic system
 - Lymphatic system orientation and macro view

- The spleen
 - The spleen orientation and macro view

Urinary System

- The kidneys
 - Structure
 - The kidneys orientation and macro view
 - The kidneys attached to the arterial tree
 - Adrenal gland, cortex, hilus, renal pelvis, renal vein, renal artery, medulla
- Medulla
 - Medullas
 - Renal pelvis
- The Nephron
 - Bowman's capsule
 - Loop of Henle
 - Collecting duct
 - Glomerulus
 - Proximal tubule
- Bowman's capsule
 - Bowman's capsule (close up)
 - Glomerulus (close up)
 - Loop of Henle (close up)
- Glomerulus
 - Inside of glomerulus (journey)
 - Primary urine (follow it out of the blood stream)

Cardiovascular System

- The lungs
 - Lung lobes
 - Lung sacs
 - Muscles
 - Skeleton
 - Heart
 - Intestines
 - Liver
 - Stomach
 - Diaphragm
 - Accessory muscles
 - Intercostal muscles
 - Punctured lungs
 - Normal breathing schematic view
 - FRC – amount of air remaining after normal breath, schematic
 - Trachea
 - Bronchus

- Tertiary bronchus
- Bronchiole
- Laryngeal
- Upper respiratory tract
- Journey following a breath of air from the outside of the body all the way to the alveoli
- Alveoli (outside)
- Alveoli (inside)
- Alveolus
- Gas exchange (cut plane alveolus and capillary)
- O₂ traveling in to bloodstream
- CO₂ traveling from bloodstream to alveolus
- H₂O traveling from bloodstream to alveolus
- Blood cell
- Hemoglobin
- Hemoglobin attracting O₂ and releasing O₂
- Hemoglobin attracting CO₂ and releasing CO₂
- Journey following a breath of air from the alveoli all the way to the outside of the body
- Pulmonary circulation (macro)
- Systemic circulation (macro)
- Cilia (on cells)
- Transportation from bronchus
- Mucus (and mucus producing cells)
- Smoking
- Damaged transportation system in bronchus
- Damaged alveoli
- Emphysema
- The Heart
 - Heart (outside)
 - Heart (inside, dynamic cut plane)
 - Rib cage
 - Lung lobes
 - Right and left ventricle
 - Right and left atrium
 - Aortic valve
 - Pulmonary valve
 - Tricuspid valve
 - Mitral valve
 - Inferior vena cava
 - Superior vena cava
 - Pulmonary artery
 - Aorta
 - Coronary vessels

- Pulmonary circulation
- Systemic circulation
- The Arterial Tree
 - Systemic circulation
 - Circulation in foot
 - Circulation in hand
 - Circulation in kidney connection
 - Circulation in head
 - Pulmonary circulation

Nervous System and Senses

- The Eyes
 - Eyes (macro)
 - Extra ocular muscles
 - Ciliary body
 - Cornea
 - Iris
 - Sclera
 - Vitreous body
 - Optic nerve
 - Retina
 - Optic disc
 - Choroid
 - Lens
 - Aqueous
 - Pupil (reaction to light)
 - Color perception low light simulation
 - Lens function
 - Lens function simulation
 - Hyperopia (function and correction)
 - Myopia (function and correction)
 - Hyperopia function simulation
 - Myopia function simulation
- The Ears
 - Outer ear
 - Ear canal
 - Eardrum (tympanic membrane)
 - Tympanic cavity
 - Malleus
 - Incus
 - Stapes
 - Semicircular canals
 - Cochlea
 - Vestibular nerve

- Cochlear nerve
- Cochlear wall
- Scala vestibuli
- Cochlear duct
- Scala tympani
- Tectorial membrane
- Basilar membrane
- Organ of Corti
- Spiral ganglion
- Hair cells
- Stereocilia (hair)
- Sound waves
- Sound waves simulation all the way from outside of the ear to the spiral ganglion
- The nervous system
 - The nervous system (macro)
 - Peripheral nervous system
 - Human brain
 - Cerebellum
 - Brain Stem
 - Pituitary gland
 - Cerebrum
 - All the lobes
 - Medulla oblongata
 - Mid brain
 - Pons
 - Hypothalamus
 - Spinal nerves

Reproduction (Sensavis Premium only)

- Female reproduction
 - Female reproduction organ
 - Vagina
 - Body of uterus
 - Fallopian tube
 - Fimbriae
 - Ovary
- Male reproduction
 - Male reproduction organ
 - Penis
 - Prostate gland
 - Testes
 - Epididymis
 - Ductus deferens

- Seminal vesicle
- Urine bladder

Anatomy

- All the muscles with see through feature
- See through skin
- Skeleton
- Lungs
- Digestion, the liver, the stomach, large and small intestines, esophagus, and gallbladder
- Urinary system
- Circulatory system
- Lymphatic system, spleen
- Nervous system
- The brain, brain stem
- The eyes
- The ears

Skeleton and Muscles

- The skeleton
 - Skeleton (macro view)
 - Shoulder joint
 - Elbow joint
 - Hand
 - Skull and spine joint
 - Pelvis
 - Hip joint
 - Knee joint
 - Foot
- The skull
 - Skull (macro view)
- The spine
 - Spine (macro view)
 - Vertebrae
 - Vertebral discs
 - Sacrum
 - Coccyx
 - Vertebral foramen
- Muscles and movement
 - Human knee in motion
 - Four motions, bend/roll/flex/twist
 - Patella
 - Synovial membrane
 - Bursas

- Ligaments
- Meniscus
- Muscles (for the whole leg including foot and hip)
- Tibia
- Femur
- Fibula

The Cells

- Cells
 - Cocci bacteria (macro view)
 - Prokaryotic cell (macro view)
 - Plant cell (macro view)
 - Animal cell (macro view)
- Endosymbiotic theory
 - Prokaryotic cell
 - Single celled organism
 - Visualization of the process
- Animal and plant cell
 - Cell membrane
 - Golgi apparatus
 - Endoplasmic reticulum
 - Nuclear envelope
 - Nucleus
 - Nucleolus
 - Vacuole
 - Chloroplast, inner and outer membrane, stroma lamellae, stroma, granum and thylakoid
 - Mitochondrion
 - Peroxisome
 - Chromosomes
 - DNA
 - Centrioles
 - Lysosome
 - Ribosomes
 - Vesicles
- Meiosis
 - Interphase
 - Early Prophase
 - Late Prophase
 - Metaphase
 - Anaphase
 - Telophase
 - Cytokinesis
 - Prophase II

- Metaphase II
- Anaphase II
- Telophase II
- Cytokinesis II
- Centrioles
- Nuclear envelope
- Spindle fibers
- Chromatin threads
- Chromosomes
- Cytoplasm
- Centromere
- Mitosis
 - Interphase
 - Early Prophase
 - Late Prophase
 - Metaphase
 - Anaphase
 - Telophase
 - Cytokinesis
 - Chromatin
 - Threads
 - Centrioles
 - Asters
 - Nucleolus
 - Nuclear envelope
 - Spindle fibers
 - Chromosomes
 - Cytoplasm
 - Centromere

DNA

- Structure
 - DNA double helix
 - Base pairs
 - Sugar phosphate back bone
 - Adenine
 - Thymine
 - Guanine
 - Cytosine
- G-C and T-A Molecule
 - G-C and T-A molecule with all the elements
 - Labeled elements
- Replication
 - Double helix dividing (visualization)

- Hydrogen bonding, G-C and T-A molecules (visualization)
- Nitrogen containing base
- Phosphate group
- Deoxyribose sugar
- Helicase
- Polymerase
- Repelling Molecules
 - G-C and T-A molecules with wrong polarity (visualization)
 - Double helix flat with one base pair with wrong polarity
 - Double helix twisted with one base pair with wrong polarity
- Transcription
 - Transcription factors
 - Activator protein
 - mRNA
 - Look inside the polymerase
 - Uracil
 - Thymine
 - Adenine
- Translation
 - mRNA
 - Nucleus
 - Ribosome
 - tRNA
 - Amino acid
 - Polypeptide

Fertility (Sensavis Premium only)

- IVF
 - Vagina
 - Cervix
 - Uterus
 - Uterine cavity
 - Fallopian tube
 - Fimbria
 - Ovary
 - Ultrasound probe
 - Needle
 - Vesicular follicle
 - Ovary cortex
 - Ovary fluid
 - Oocyte (egg)
 - Antrum
 - Lab environment with glass for fertilization
 - Sperm penetrating egg

- Fertilized egg
- Embryonal development, Zygote, 2 cell stage, 4 cell stage, 8 cell stage, morula (72 hours)
- Insertion of embryo to uterus
- Sperm
 - Sperm
 - Acrosome
 - Cell membrane
 - Nucleus
 - Centrioles
 - Mitochondria
 - Axial filament

GEOGRAPHY

CLIMATE

Temperature

- Planet earth
- Earth axis
- The sun with vectors
- Temperature visualization (on planet earth)
- Temperature reference
- Changes in temperature over a year (visualization)
- Interaction, all twelve months

Precipitation

- Planet earth
- Earth axis
- The sun with vectors
- Precipitation visualization (on planet earth)
- Precipitation reference
- Changes in precipitation over a year (visualization)
- Interaction, all twelve months

Vegetation

- Planet earth
- Equator
- Tropical lines
- The Köppen System
- Tropical/mega thermal climates (group A)
- Tropical rainforest climate (Af)

- Tropical monsoon climate (Am)
- Tropical wet and dry climates (dry season during time of higher sun and longer days) (As)
- Tropical wet and dry or savanna climate (Aw)
- Dry (arid and semiarid) climates (group B)
- Desert climate (at least one month averages below 0°C, 32°F) (BWk)
- Desert climate (coldest month has an average temperature above 0°C, 32°F) (BWh)
- Steppe climate (middle-latitude climate) (BSk)
- Steppe climate (low-latitude climate) (BSH)
- Humid subtropical (Cfa)
- Marine mild winter (Cfb)
- Marine cool winter (Cfc)
- Interior Mediterranean (Csa)
- Coastal Mediterranean (Csb)
- Dry winter, Wet summer (Cwa, Cwb, Cwc)
- Humid continental, hot summer, wet all year (Dfa)
- Humid continental, mild summer, wet all year (Dfb)
- Subarctic, cool summer, wet all year (Dfc)
- Subarctic, cold winter, wet all year (Dfd)
- Humid continental, hot summer, dry summer (Dsa)
- Humid continental, mild summer, dry summer (Dsb)
- Subarctic, cool summer, dry summer (Dsc)
- Subarctic, cold winter, dry summer (Dsd)
- Humid continental, hot summer, wet all year (Dwa)
- Humid continental, mild summer, dry winter (Dwb)
- Subarctic, cool summer, dry winter (Dwc)
- Subarctic, cold winter, dry winter (Dwd)
- Tundra (EF)
- Ice cap (ET)

THE EARTH

The Earth

- Planet earth
- Moon
- Sun
- Earth, moon and sun moving at correct speed
- All the moon phases
- Interaction with the time scale (changing time)
- Ability to produce eclipse
- Choose if you want the weather texture and moon

The Sun, Earth and Moon

- Planet earth
- Moon
- Sun
- Mercury
- Venus
- Mars
- Jupiter
- Saturn
- Uranus
- Neptune
- Earth, moon and sun moving at correct speed
- All the moon phases
- Interaction with the time scale (changing time)
- Ability to produce eclipse
- Choose if you want the weather texture and moon
- Interact with planet scale (enhancing planet size)
- Orbit markers (on or off)

The Solar System

- A correct size relevance of the planets in the solar system
- The Sun
- The Earth
- The Moon
- Mercury
- Venus
- Mars
- Jupiter
- Saturn
- Uranus
- Neptune

EARTH'S INTERIOR

Earth's interior

- Planet earth without weather structure and with daylight all over
- Planet earth cut in half, visible inside
- Crust
- Mantle
- Outer core
- Inner core
- Comparing the thickness of the different layers
- Crust (0-100 km thick)
- Mantle (100-2900 km deep, 2000-3000°C)
- Outer core (2900-5100 km deep, 3800°C)

- Inner core (5100-6378 km deep, 6000°C)
- Planet earth cut in half and the different layers split apart

Tectonic plates

- All tectonic plates, how the tectonic plates move, color separation to distinguish the different plates

Strato Volcano

- Outside structure of a strato volcano, inside view, magma chamber, vent, blocked vent, cone, crater, ash and steam, eruption

PHYSICS

NEWTON'S LAW

Forces

- Block on a plane
- Interaction, change gravity and mass
- Arrows symbolizing force
- Equation for the action
- $F_g = m \times g$ (changes with input of force)

Parallel Forces

- Block on a plane
- Interaction, change F1 (force one) and F2 (force two)
- Force arrows with labels (F1, F2, Res)
- Resultant
- Equation for the action
- $F_{res} = F1 + F2$
- Show acceleration
- Show constant speed
- Show deceleration

REFRACTION

Refraction

- Light waves
- Light waves through concave lens
- Light waves through convex lens

Human Eye

- Human eye
- Light waves through eye lens
- Light waves through concave lens and eye lens
- Light waves through eye lens
- Light waves through convex lens and eye lens

CHEMISTRY

WATER

Molecule

- One H₂O molecule
- Many H₂O molecules

Water

- Water molecules (liquid water)
- Hydrogen bonding with the molecules

Ice

- Water molecules (solid water)
- Hexagonal crystalline structure due to hydrogen bonding
- Interaction, from zero degrees Celsius to 273,15 degrees Celsius (absolute zero, zero degrees Kelvin)

THE PERIODIC TABLE

Periodic Table

- The periodic table
- All the elements as an atom (interaction choose any element)
- Electrons
- Neutrons
- Protons

NaCl

- Water, Na and Cl in water, the reaction, electrons, vaporation, change in polarization, structure of NaCl molecules, salt crystals, salt

Covalent Bond

- Oxygen atom with protons, neutrons and electrons
- Hydrogen atom with proton and electron
- Bonding with shared electrons in valence shell

- Rejection of bonding when valence shell is full

MATHEMATICS

GEOMETRY

Points

- Cross, visualizing a position in universe
- Point, interaction removing the cross
- Interaction, fill the space with points

Lines

- A line, visualizing a line with no beginning and no end
- A direction

Rays

- A ray, visualizing a line that begins in a point

Line Segment

- Two points
- Filling up the distance between the points

Angles

- Protractor
- Angle
- Interaction, choose angle
- Change the angle
- Angle degrees in numbers
- Graphic reference of angle

Corresponding angles

- Protractor
- Two parallel base lines
- Interaction, choose angles
- Change the angles
- Angles degrees in numbers
- Graphic reference of angles

Area

- Two points
- Line segment

- Break up into four other points
- Rectangle
- Filling of the square with small rectangles
- Twist to show that area has no height
- Empty the square (area is not physical)

Volume

- Four points
- Two line segments
- Break up into four new points for each line segment
- Build up the walls
- Cube
- Fill the cube with smaller cubes

Pythagorean Theorem

- Right angled triangle
- Right angle marked
- Length of sides marked
- The formula ($3^2 + 4^2 = 5^2$)
- Rectangles (areas) forming from each side of the triangle
- Visualization showing that the smaller areas are equal to the bigger area
- New right angled triangle with different composition
- Right angle marked
- Length of sides marked
- The formula
- Rectangles (areas) forming from each side of the triangle
- Visualization showing that the smaller areas are equal to the bigger area

Circle

- Concept of area
- Radius
- Diameter
- Circumference
- Pi
- Circumference formula
- Area formula

Pyramid and cone

- Cube
- Base
- Height
- Formula: $V=Bxh$
- Pyramid

- Different pyramid configurations
- Three pyramids inside one cube
- Formula: $V = (B \times h) / 3$
- Three cones
- Cylinder

LINEAR EQUATIONS

Connection and Change

- Coordinate system with x and y axis
- Line (Graph)
- Interaction, change the k (b) and the m value
- The equation
- The equation and graph equals

MATHEMATICS

Negative numbers

- Thermometer, number line
- Formula, reacting with input
- Interact with starting point
- Interact with adding positive or negative input
- Interact with subtracting positive or negative input

ENGINEERING

ELECTRICITY

Basic DC

- Schematic view of a circuit
- Cables
- Light bulb
- Battery
- Interaction, click on battery to engage or disengage current

AC/DC

- Cable
- Switch
- Light bulb
- Battery
- Electric outlet (AC socket)
- Both AC and DC circuit in schematic and with real objects

- Interaction, click the switch to engage or disengage current
- Interaction, show circuit in schematic view
- Interaction, show current view

LEVERS

The Golden Rule

- Lever
- Fulcrum (pivot point)
- Weight
- Force (arrow that changes in size with changes in force)
- Interaction, change the fulcrum position
- Interaction, change the force

Human Arm

- Moving human arm
- All the muscles
- All the bones from hand to shoulder
- Transparent skin
- Dumbbell
- Schematic view with fulcrum (pivot point) force and weight, graphic
- Interaction, turn off skin
- Interaction, turn on biceps view