

Introduction to the Biomedical Sciences Syllabus

| Day: 1 | <u>Course Intro./Cell Biology Agenda</u> | Supplies/Planning/ Copies |
|--------|---|---|
| AM | <ul style="list-style-type: none"> ○ Team Building Activities/Ice Breakers ○ Course Intro./Procedures/Safety/Rules Poster ○ Scientific method—notes ○ Anatomical Positions—notes ○ Chemistry of Life—use Thibodeau text & Modern Bio PowerPoinnt—Organic Compounds | Rules Poster Safety Contract |
| PM | <ul style="list-style-type: none"> ○ Lab: Microscope—Identify Parts & Function ○ Practice focusing ○ Wet mount slide “e” | Scopes handout (x2) Scopes Letter e Slides, cover slips Water, droppers Paper towels |
| Eve | <ul style="list-style-type: none"> ○ Microscope Quiz (Written & Practical) ○ Body Outline ○ Fantastic Voyage Ch 1-3 ○ Case Study #2 or #3 p. 131 ○ Hand washing Materials & Methods (writing clear materials & methods) ○ Complete Microscope Lab Worksheet | |

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| Day: 2 | <u>Cell Biology Agenda</u> | Supplies/Planning/Copies |
|--------|---|---|
| AM | <ul style="list-style-type: none"> ○ Scientific method/Organic Compounds quiz & songs ○ Review Microscope Lab Questions ○ Check Hand washing Materials & Methods ○ Characteristics of Living Things ○ Mechanisms of Disease---Viruses & Bacteria Discovery Video—Use Thib. CD for Ch 5—go over outline from text ○ Organization & Homeostasis—use PH tutorial (cells book)—different types of tissues-use Fig.3-13-3-16 ○ The Cell Theory (PH cells book) ○ Cell & Cell Parts—use CellsAlive.com (cells parts, function & labels) ○ Cell Processes & Energy—quick overview: notes ○ Cells Alive—How Big is...and Cell Cycle ○ Presentations/Evaluation | Quiz Cell diagrams Edible cell supplies Scopes Prepared slides (animal and plant) |
| PM | <ul style="list-style-type: none"> ○ Microscope—animal vs. plant cell ○ Edible Cell Construction ○ Cell Membrane In depth—use Modern Bio PowerPoint (Ch 4 or 5) & PH Cells Text “Membrane” video—Cell Transport: Osmosis/Diffusion Lab | Toothpicks Scopes Slides Cover slips Methylene blue Kim wipes Paper towels NIH Worksheet |
| Eve | <ul style="list-style-type: none"> ○ Osmosis/Diffusion ○ NIH Cancer Activity ○ Fantastic Voyage Ch 4-6 | |

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| Day: 3 | <u>Genetics Agenda</u> | Supplies/Planning/Copies |
|--------|--|---|
| AM | <ul style="list-style-type: none"> ○ Cell ID Quiz ○ Complete Edible Cells & NIH Cancer ○ Lab: Cheek Cell ○ Cell Cycle Discussion & Animation ○ Intro. To Genetics—Lecture/PowerPoint— use Hippocampus (PH Bio Mendelian Model Part 1) & Brainpop & Discovery Video & Dominant Trait Data Collection ○ DNA, Genes, Heredity notes ○ Overview: Gel Electrophoresis—online animation ○ Lab: Simulated Gel Electrophoresis | Copies of PPT for notes Build DNA Ladder Gel Lab handouts |
| PM | <ul style="list-style-type: none"> ○ Computer Lab Rules/Expectations ○ Genetics Project Directions ○ Genetic Disorder Research & Presentations @ Computer Lab (Library) | Rubric for Project |
| Eve | <ul style="list-style-type: none"> ○ Build DNA Model & Complete Edible Cell ○ Fantastic Voyage Ch 7 & 8 ○ Work on presentation/visual ○ Case of Nathaniel Wu—Bioethics Debate (if time) ○ Genetics Case Studies (handout) | |

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| Day: 4 | <u>Cardiovascular System Agenda</u> | Supplies/Planning/Copies |
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| AM | <ul style="list-style-type: none"> ○ DNA Quiz ○ Schedule Genetics Presentations ○ GATTACA Clip & Discussion ○ Brainpop—Circulatory System ○ “The Heart” PPT—3D Turntable, Thib. Ch 4 ○ CV System notes (handout) and Readings ○ Stethoscopes & Pulse ○ Act-out CV system (I am a red blood cell) ○ CV Genetic Disease Presentations ○ <u>Disease Spotlight</u>: Sickle Cell ○ Microscope Sickle Cell Slides (if time) <ul style="list-style-type: none"> ○ <u>CV Diseases</u>: ○ Leukemia ○ Hypertension ○ Heart Disease | Copies of PPT Stethoscopes Signs for Act-out Sickle cell kit Scopes Prepared slides—sickle cell |
| PM | <ul style="list-style-type: none"> ○ Heart Dissection ○ Hippocampus—PH Text “The Human Circ. System” ○ CV Class Poster ○ Genetic Disorder Presentations | |
| Eve | <ul style="list-style-type: none"> ○ Regulation of Human Heart Rate Lab ○ Body Map—CV System ○ CV System Coloring Page ○ Fantastic Voyage Ch 9-11 | |

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| Day: 5 | <u>Respiratory System Agenda</u> | Supplies/Planning/Copies |
|--------|--|---|
| AM | <ul style="list-style-type: none"> ○ Review “You Are a Blood Cell” ○ Review Quiz ○ Balloon Angioplasty—p. 401 ○ Brainpop—Respiratory System ○ Respiratory System PPT/Notes ○ Mini-Lab: Effects of Exercise on Breathing ○ Lab: Investigating Human Respiration Kit ○ Use stethoscopes to listen to breath sounds (if time) ○ Coloring page (if time) ○ Preview Fetal Pig <p><u>Research Lung Diseases:</u></p> <ul style="list-style-type: none"> ○ Asthma ○ Bronchitis ○ Emphysema ○ Cancer | Notes Straws Small cups Bromothymol blue |
| PM | <ul style="list-style-type: none"> ○ Fetal Pig—Cardiovascular & Respiratory ○ Hippocampus—Resp. System ○ Respiratory Class Poster | |
| Eve | <ul style="list-style-type: none"> ○ Body map—Resp. System ○ Regulation of Human Heart Rate Lab Report—Individual Report ○ Fantastic Voyage Ch 12-13 | |

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| Day: 6 | <u>Lymphatic/Immune System Agenda</u> | Supplies/Planning/Copies |
|--------|---|---|
| AM | <ul style="list-style-type: none"> ○ Respiratory System Review ○ Infectious Disease/Immune Response Research Brochure Project—Choose any topic in Chapter 15 ○ Immune System WebQuest (Computer Lab 10-11 am) ○ Culminating Activity Groups | Review Quiz PPT handout Webquest handout Culminating activity instructions |
| PM | <ul style="list-style-type: none"> ○ Respiratory System Presentations ○ Lecture: Hippocampus—Lymphatic System & Immune System Animations, Modern Bio PowerPoint ○ Review Webquest ○ The Best Way to Wash Hands ○ Fighting Disease Discovery Video ○ Work on Brochure ○ The Problem with Organ Transplants ○ Lymph/Immune Class Poster | Hand wash handout Soap-2 brands Purell Baby wipes |
| Eve | <ul style="list-style-type: none"> ○ Brochure ○ FV Ch 14-15 ○ Culminating Activity | |

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| Day: 7 | <u>Nervous System—Brain Agenda</u> | Supplies/Planning/Copies |
|--------|--|--------------------------|
| AM | <ul style="list-style-type: none">○ Nervous System Lecture—PowerPoint (Modern Bio), Hippocampus○ Gray's Anatomy Coloring Book○ Brainpop video○ Discovery video○ Brainstorm Brain disorders/diseases○ Genetic Disorder Presentations | |
| PM | <ul style="list-style-type: none">○ Sheep Brain dissection○ <i>Cracking the Code</i> video, Part 1○ Case Studies p. 279 #1-3 | |
| Eve | <ul style="list-style-type: none">○ Body Map○ FV Ch 16○ Nervous System Class Poster○ Culminating Activity | |

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| Day: 8 | <u>Nervous System—Sensory Agenda</u> | Supplies/Planning/Copies |
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| AM | <ul style="list-style-type: none"> ○ Neuron & Brain Quiz ○ Cow eye dissection ○ Lecture (Sensory Organs--Eye)—Modern Bio PowerPoint, Hippocampus, Brainpop ○ Gray’s Anatomy Coloring sheet—focus on the eye ○ Review Nervous System Case Studies ○ Genetic Disorder Presentations (Colorblindness) ○ Color blindness test (online) | Cow eyes, dissecting pans, kits, aprons, goggles Handouts |
| PM | <ul style="list-style-type: none"> ○ Disorders of the Eye group research & presentations ○ Human Senses Lab | Lab-aids Kit |
| Eve | <ul style="list-style-type: none"> ○ Review Human Senses Lab Results ○ Myopia & LASIK ○ Brainpop: Ear & Hearing ○ Hearing PPT ○ Ear model (pairs)—paper plate & modeling clay ○ FV Chapter 17-18 ○ Case Studies #1, #2 or #3 p.307 ○ Culminating Activity Group Work ○ Study for Quiz | |

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| Day: 9 | <u>Musculoskeletal/Skin Agenda</u> | Supplies/Planning/Copies |
|--------|--|---|
| AM | <ul style="list-style-type: none"> ○ Eye/Ear Quiz ○ Brainpop: Muscles ○ Lecture: Functions of the Muscular System- Types of Muscle Tissue, Cartilage/Ligaments ○ Chicken leg ○ Muscle Effectiveness lab | <p>Quiz Video PPT</p> <p>Chicken leg Dissecting Equip. Handout Notes</p> <p>Ice clothespins</p> |
| PM | <ul style="list-style-type: none"> ○ Continue Muscle Effectiveness Lab ○ Discovery Video: Bones ○ Lecture: Function of the Skin & Skeletal System ○ Bones handout—identify & Bones Song ○ Computer Lab (Library 2-3pm): Muscle Webquest | <p>Handout Cardstock Scissors Rulers Rope, Weights</p> |
| Eve | <ul style="list-style-type: none"> ○ Finish Skeletal System Lecture ○ Design a Bone Contest ○ Body Maps—Skeletal/Muscular | |

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| Day: 10 | <u>Digestive System Agenda</u> | Supplies/Planning/Copies |
|---------|---|--------------------------|
| AM | <ul style="list-style-type: none"> ○ Skeletal system quiz ○ Body Map for Skeletal/Muscular ○ Brainpop—Digestive System ○ Lecture: Digestive System PowerPoint ○ Digestion Handout & Labeling ○ Digestive System Simulation: Tennis Ball & Hose ○ Do crackers contain starch? (Iodine Test) ○ Lab: pH—cabbage juice indicator—testing pH | |
| PM | <ul style="list-style-type: none"> ○ Genetic Disorders Presentation ○ Fetal Pig ○ Classroom Poster ○ Begin body maps for digestive system | |
| Eve | <ul style="list-style-type: none"> ○ Body map—digestive system ○ Case Study #3 p. 522 ○ Culminating Activity group work ○ Study for digestion quiz | |

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| Day: 11 | <u>Excretory System--Agenda</u> | Supplies/Planning/Copies |
|---------|---|--------------------------|
| AM | <ul style="list-style-type: none">○ Digestive System Review Quiz○ Lab: Pepsin Lab, Part 1○ Digestive System Activity: "How do Villi..." from PH Bio Text○ Lab: Urinalysis (Lab-Aids) | |
| PM | <ul style="list-style-type: none">○ Lab: Urinalysis (Lab-Aids)○ Discovery Video: Respiration & Excretion○ Brainpop: Urinary○ Excretory System notes (PPT)○ Review Digestive System Case Study○ Present GastroWorld Project | |
| Eve | <ul style="list-style-type: none">○ Culminating Activity Group Work—Presentations Thursday○ Complete Lab Report | |

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| Day: 12 | <u>Endocrine System—Agenda</u> | Supplies/Planning/Copies |
|---------|--|--------------------------|
| AM | <ul style="list-style-type: none">○ Lab: Pepsin Lab, Part 2○ 10-11am: Bubonic Plague Guest Speaker | |
| PM | <ul style="list-style-type: none">○ Fetal Pig—Respiratory, Circulatory, Urogenital, Nervous○ Brainpop: Endocrine System○ Diabetes glucose testing (PH Bio p. 1007) Demo. | |
| Eve | <ul style="list-style-type: none">○ Endocrine Lecture/Notes (Powerpoint) and videos (Brainpop and Hippocampus, Thib. CD)○ Culminating Activity Group Work | |

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| Day: 13 | <u>Reproductive System Agenda</u> | Supplies/Planning/Copies |
|---------|---|---|
| AM | <ul style="list-style-type: none"> ○ Finish NIH Cancer Activity ○ Review Excretory System ○ Finish Endocrine System Notes ○ Lab: Dialysis (Lab-Aids) ○ Lab Activity: Modeling Blood Glucose Regulation (PH Bio p. 1023) ○ Genetic Disorder Research Presentations ○ Endocrine system crossword | Lab-Aids kit Handout Construction paper Scissors |
| PM | <ul style="list-style-type: none"> ○ Brainpop: Reproductive System ○ Discovery Video: Endocrine & Reproduction ○ Reproductive System Overview--notes ○ Virus transmission activity with Phenolphthalein | Notes |
| Eve | <ul style="list-style-type: none"> ○ <i>Cracking the Code</i> video, Part 2 ○ Group work—final planning and rehearsals | |

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| Day: 14 | <u>Agenda</u> | Supplies/Planning/Copies |
|---------|--|-------------------------------------|
| AM | <ul style="list-style-type: none">○ Finish <i>Cracking the Code</i>○ Meiosis: note card activity○ Meiosis: nondisjunction○ Review Games○ Presentations | Note cards Pipe cleaners tape |
| PM | <ul style="list-style-type: none">○ Latin/Greek roots <u>BINGO!</u>○ Post-Test○ Begin <i>Fantastic Voyage</i> movie | |
| Eve | <ul style="list-style-type: none">○ <i>Fantastic Voyage</i> movie! | |

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| Day: 15 | <u>Agenda</u> | Supplies/Planning/Copies |
|---------|--|--------------------------|
| AM | <ul style="list-style-type: none">○ Review Post-test○ Review topics, catch-up○ <i>Fantastic Voyage</i> movie!○ Picture slide-show | |