

Introduction to Biomedical Sciences

CTY Course Syllabus

Date	Topics	Lab Equipment
Monday Day 1	<i>Introduction & Rules</i> Morning <ul style="list-style-type: none"> • Rules and regulations: go over CTY and class policies • Lab safety overview • Pretest • Make your own Poster Activity • Medical Science Trivia Afternoon <ul style="list-style-type: none"> • Notes: Body systems and body directions overview • Activity: Fruit! • The cell as the basic unit of life • Cell parts and organelles overview • Read <u>Complications</u> introduction Evening <ul style="list-style-type: none"> • Read pg. 4-13 • Read pg 36-51 	None
Tuesday Day 2	<i>Introduction to Cell Biology</i> Morning <ul style="list-style-type: none"> • Video: Inner life of cell • Review of cell organelles • Molecular biology Central Dogma • Notes: Protein Synthesis • Notes: Biochemistry Afternoon <ul style="list-style-type: none"> • <i>Build a (specific) cell made of candy activity</i> Evening <ul style="list-style-type: none"> • Cancer computer activity - http://science.education.nih.gov/supplements/nih1/cancer/default.htm ** COMPUTER LAB** 	<ul style="list-style-type: none"> • Gumdrops • 8 packets of jello • Sprinkles • Baby musketeers • Twizzlers pull and peel • Mike and Ikes • Twizzlers • Mitosis poster
Wednesday Day 3	<i>Genetics</i> Morning <ul style="list-style-type: none"> • Finish up Biochemistry • Cell Life Cycle and Basic Heredity • The Genome (DNA, genes, and chromosomes) • Genotype vs. Phenotype • The Genetic Basis of Disease Afternoon <ul style="list-style-type: none"> • <i>DNA Fingerprinting Lab</i> Evening <ul style="list-style-type: none"> • Study Guide Assignments 	<ul style="list-style-type: none"> • BioRad DNA Fingerprinting

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Thursday Day 4	<p style="text-align: center;"><i>Musculoskeletal System</i></p> <p>Morning</p> <ul style="list-style-type: none"> • Anatomy: Appendicular and Axial Skeletons • Basic bone structure • Bone use • Demonstration: Lactic Acid build-up • Osteoporosis discussion • <i>Bone forensics and/or bone anatomy demonstrations</i> • Basic muscle structure • Different types of muscle • Exercise and muscle growth effects <p>Afternoon</p> <ul style="list-style-type: none"> • <i>Awesome Anatomy and Muscle Histology microscope labs</i> <p>Evening</p> <ul style="list-style-type: none"> • Finish up muscle slide lab • Worksheets 	<ul style="list-style-type: none"> • Microscopes • 95 V 2636 Ward's Science General Muscle Tissues
Friday Day 5	<p style="text-align: center;"><i>Nervous System</i></p> <p>Morning</p> <ul style="list-style-type: none"> • Central Nervous System • Action potential and structure of neuron • <i>Rope neuron demonstration</i> • Peripheral Nervous System • Understanding Brain Functions WS <p>Afternoon</p> <ul style="list-style-type: none"> • Guest speakers – P and B • Brain overview • <i>Sheep Brain Dissection</i> <p>Evening</p> <ul style="list-style-type: none"> • <i>Build a Brain Activity</i> • Review Worksheets 	<ul style="list-style-type: none"> • 15 – 20 feet of rope • 6 plastic balls • 2 plastic containers, 8” in diameter • 1 pool buoy • Sheep Brains (Carolina Biological 228701) • Dissecting tools and gloves
Monday Day 6	<p style="text-align: center;"><i>Cardiovascular System</i></p> <p>Morning</p> <ul style="list-style-type: none"> • Build a Brain Presentations • Structure and function of heart • Blood circulation through heart • <i>Sheep Heart Dissection</i> <p>Afternoon</p> <ul style="list-style-type: none"> • <i>Sheep Heart Coronary Bypass</i> • Blood circulation through body – arterial/venous systems • Blood cells and their function <p>Evening</p> <ul style="list-style-type: none"> • Heart activity explorations on the web** COMPUTER LAB** 	<ul style="list-style-type: none"> • Sheep Hearts • Dissecting tools and gloves

Date	Topics	Lab Equipment
Tuesday Day 7	<p style="text-align: center;"><i>Respiratory System</i></p> <p>Morning</p> <ul style="list-style-type: none"> • Review of cardiovascular system • <i>ABO Blood typing Lab</i> • Structure and function of lungs • Gas exchange • Emphysema and asthma discussion <p>Afternoon</p> <ul style="list-style-type: none"> • Introduction to Nutritional Analysis Project (NAP) • <i>CO2 in lungs activity</i> <p>Evening</p> <ul style="list-style-type: none"> • Study guide activities • Cardiovascular Crossword Puzzle • <i>Complications</i> 1 page reaction - finish 	<ul style="list-style-type: none"> • Straws • pH indicators • beakers • distilled water • paper bags
Wednesday Day 8	<p style="text-align: center;"><i>Sensory System</i></p> <p>Morning</p> <ul style="list-style-type: none"> • Heart disease and cancer worksheets • Respiratory review packet • Tongue and taste buds • General senses: touch, pressure, temperature, position, and pain • Sensory adaptation • Eye and surrounding structures • <i>Eye Dissection</i> <p>Afternoon</p> <ul style="list-style-type: none"> • <i>Crash Clips</i> • Fovea blind spot and optical illusions <p>Evening</p> <ul style="list-style-type: none"> • Study for midterm exam • Midterm exam • NAP (Nutritional Analysis Project) time 	<ul style="list-style-type: none"> • Cow eyes • Dissection tools and gloves
Thursday Day 9	<p style="text-align: center;"><i>Immune System</i></p> <p>Morning</p> <ul style="list-style-type: none"> • Eye review activities in Study Guide • Body defenses – lymphocytes and lymphoid organs • Vaccines • <i>Common Cold activity</i> • Antigens, antibodies, immunity <p>Afternoon</p> <ul style="list-style-type: none"> • <i>Outbreak!</i> Clip <p>Evening</p> <ul style="list-style-type: none"> • NAP time 	<ul style="list-style-type: none"> • Common Cold Kit (WW4658900 from Science Kit)

Date	Topics	Lab Equipment
Friday Day 10	<p style="text-align: center;"><i>Digestive System</i></p> <p>Morning</p> <ul style="list-style-type: none"> • Immune System review • Influenza case studies • Mouth and esophagus • <i>Peristalsis Demonstration</i> • Stomach, small intestine and large intestine • <i>GastroWorld Activity</i> <p>Afternoon</p> <ul style="list-style-type: none"> • Finish GastroWorld and do presentations • <i>Investigating Digestive Processes Lab</i> <p>Evening</p> <ul style="list-style-type: none"> • NAP time – hand in NAPs 	<ul style="list-style-type: none"> • One stocking • A few tennis balls • WARD'S Investigating Digestive Processes Lab Activity
Monday Day 11	<p style="text-align: center;"><i>Excretory System</i></p> <p>Morning</p> <ul style="list-style-type: none"> • <i>HIV Patient Role Playing Activity</i> • Review of Digestive System • Digestive System worksheets • Video: Ben's Hens • Kidney structure and function • Formation and excretion of urine <p>Afternoon</p> <ul style="list-style-type: none"> • <i>Simulated urinalysis activity</i> <p>Evening</p> <ul style="list-style-type: none"> • Begin health disease pamphlet ** COMPUTER LAB** 	<ul style="list-style-type: none"> • Simulated Urinalysis Kit
Tuesday Day 12	<p style="text-align: center;"><i>Endocrine System</i></p> <p>Morning</p> <ul style="list-style-type: none"> • Finish Urinalysis Lab • Overview of endocrine structures and hormone secretions • Work on health disease pamphlet ** COMPUTER LAB** <p>Afternoon</p> <ul style="list-style-type: none"> • Hormone secretion pathways and structures • Video: George's Diet <p>Evening</p> <ul style="list-style-type: none"> • Work on health disease pamphlet ** COMPUTER LAB** • Finish Digestive Enzyme Lab 	<p>None</p>

Date	Topics	Lab Equipment
Wednesday Day 13	<p style="text-align: center;"><i>Reproductive System</i></p> <p>Morning</p> <ul style="list-style-type: none"> • Endocrinology review • <i>Female and Male Growth Rates</i> • Male reproductive system • Female reproductive system • Similarities and differences between each • Menstrual cycle • Fertilization and development • Introduction to embryology <p>Afternoon</p> <ul style="list-style-type: none"> • Genetics debate preparation • <i>Genetics debate</i> <p>Evening</p> <ul style="list-style-type: none"> • Finish up notes • <i>Better</i> chapter read-through 	Female and male growth rates
Thursday Day 14	<p style="text-align: center;"><i>Field Trip and Final Labs</i></p> <p>Morning</p> <ul style="list-style-type: none"> • Walking trip to Regional Medical Center • Evaluations <p>Afternoon</p> <ul style="list-style-type: none"> • <i>Fetal Pig Dissection</i> <p>Evening</p> <ul style="list-style-type: none"> • Finish up fetal pigs • <i>Sea Urchin Activity</i> 	<ul style="list-style-type: none"> • Sea Urchin Embryology Kit (Wards 87 V 9030) • Fetal Pigs (eNASCO)
Friday Day 15	<p style="text-align: center;"><i>Medical Movie</i></p> <p>Morning</p> <ul style="list-style-type: none"> • Lorenzo's Oil • Class wrap-up 	None