**BI 103 Topic List and Suggested Activities**

**Using Openstax: BMCC 103 – Concepts of Biology**

**OR Openstax: Concepts Biology + Supplement**

Chapter 2: Diversity of Life

* Taxonomy \*\*
  + Possible activity: Follow or build a Dichotomous key
* Mechanisms of macroevolution
* Evolutionary relationships
  + Possible activity: Follow or build a cladogram
  + Possible short film: The origin of species: lizards in an evolutionary tree
* Examine the role that different roles animals play in ecosystem function

Chapter 3: Diversity of Animals

* Taxonomy \*\*
* Evolutionary relationships
  + Possible activity: categorize animals into correct taxonomic groups
* Relate anatomical and physiological concepts
  + Possible activity: compare various systems in different types of animals
* Body Plan / Symmetry
* Overview of major groups + evolutionary acquisitions
  + Invertebrates
  + Early triploblastic examples
  + Chordates
  + Vertebrates

Chapter 4: The Animal Body: Basic Form & Function

* Primary Tissues
* Homeostasis
  + Possible activity: Heat loss experiment
  + Possible activity: Online simulation on smoking & lung development

[www.biology.arizona.edu/chh/activities/tobacco\_smoke/sign\_in.html](http://www.biology.arizona.edu/chh/activities/tobacco_smoke/sign_in.html)

Chapter 5: Animal Nutrition & Digestive System

* Nutrition & Energy production \*\*
  + Possible activity: comparison of BMI, BMR, etc.
  + Possible activity: exercise experiment
* Digestive system processes
* Digestive system regulation

Chapter 6: Circulatory System

* Components of blood
* Mammalian heart and blood vessels
* Blood flow and pressure regulation
  + Possible activity: blood pressure and body position comparison

Chapter 7: Respiratory System

* Gas exchange across respiratory surfaces
* Breathing
* Transport of gases in human bodily fluids

Chapter 8: Osmotic Regulation & Excretion

* Kidneys and osmoregulatory organs
* Excretion systems
* Nitrogenous wastes

Chapter 9: Immune System & Disease \*\*

* Viruses
* Replication cycle + Lytic vs lysogenic cycle
  + Possible lab: soil bacteriophage exploration
* Innate Immunity
* Adaptive Immunity
* Antigen-antibody binding
  + Possible lab: ELISA
  + Possible lab: blood typing
* Memory Response
* Disruptions in the Immune System

Chapter 10: Musculoskeletal System

* Bone
* Joints and Skeletal movements
* Muscle contraction and locomotion

Chapter 11: Nervous System

* How neurons communicate
* The central nervous system
* The peripheral nervous system
* Nervous system disorders

Chapter 12: Sensory Systems

* Somatosensation
* Taste and smell
* Hearing and vestibular sensation
* Vision

Chapter 13: Endocrine System

* How hormones work
* Regulation of body processes
* Regulation of hormone production
* Endocrine glands

Chapter 14: Animal Reproduction & Development

* How animals reproduce
* Development and organogenesis
* Human reproduction

\*\*Indicates it comes up in other sections/units well