**Recommended Module Outline**

* *Online pre-assessment/baseline assessment (based on learning outcomes)*
  + What do students already know? Given that, what should they focus on?
  + These should be worth points, but not penalize students (100% for completion)
* *Online lecture component* 
  + Start the lecture with relevance and a certain phenomenon. For example, the closed terrarium that has been sealed since 1972. How is it possible for the plants to survive in a closed system? Also there are a lot of careers that use photosynthesis information such as…. Revisit the phenomenon at the end of the lecture.
  + Recommendation: have online lecture videos that students watch before coming to class if class is in person. There should be very little in-class lecture time.
* *Online mid-assessment (based on learning outcomes)*
  + Now what do students know after the lecture component? Have they improved since their pre-assessment?
  + Assess on how the material is relevant and on potential future careers
  + These should be worth points and students should be given multiple attempts and/or flexibility in how they earn those points
* *In-class/online activity to support learning, engagement, and career relevance* 
  + Practice problems, case studies, and/or worksheets done in small groups
  + How is this material relevant in both everyday life and potential future careers?
* *In-class engagement/accountability assessment (during learning)*
  + This assessment should evaluate their engagement in class. Have they come prepared and are they actively engaged in the activity to support their learning?
  + This should be worth points with limited flexibility in earning the points. If they are there and paying attention, they will receive the most points. Overall flexibility should be given for “when life happens” course policies.
* *In-class/online post-assessment (based on learning outcomes) (after learning)*
  + After all of the support has been given, what do students really know at the end of the module?
  + These should be closed-notes, one attempt assessments to measure true learning.
* *In-class/online summative assessments* (all assessments above should be evaluated again in a summative nature with exams and/or other summative assessment means)

**Recommended Semester Schedule**

*Module 1 (Introduction and Relevance)*

* Introduction to the course
* Information on effective study strategies (active learning classrooms vs lecture, talking-writing in groups, interleaving, recall)
* Metacognitive activities that focus on reflection and evaluation of why is biology important, how can it be used to inform life decisions, and how can it be used in a future career
* Start to introduce **CLO #8: Apply evidence-based reasoning and biological knowledge to inform health, environmental, and/or societal related decisions.**

*Module 2*

* Topics
  + Biochemistry of water
  + Lipids
* Phenomenon:
* Every day relevance:
* Connection to career:
* **CLO #1: Identify the structural components, functions, and relevance of water, carbohydrates, lipids, proteins, and nucleic acids in various biological processes.**

*Module 3*

* Topics
  + Nucleic acids
  + Carbohydrates
  + Proteins
  + Comparing major classes of biomolecules
* Phenomenon:
* Every day relevance:
* Connection to career:
* **CLO #1: Identify the structural components, functions, and relevance of water, carbohydrates, lipids, proteins, and nucleic acids in various biological processes. (Biochemistry)**

*Module 4*

* Topic
  + Membrane structure and support
  + Cell structure and organelles
* Phenomenon:
* Every day relevance:
* Connection to career:
* **CLO #2: Explain how the structure of a cell’s organelles and membrane impacts its function. (Cell Structure and Function)**

*Module 5*

* Topic
  + Comparing major classes of biomolecules (review and prep for enzymes)
  + Enzymatic reactions
* Phenomenon:
* Every day relevance:
* Connection to career:
* **CLO #1: Identify the structural components, functions, and relevance of water, carbohydrates, lipids, proteins, and nucleic acids in various biological processes.**
* **CLO #4: Summarize how energy is obtained and transformed through a series of biochemical reactions to perform functions in the cell.**

*Module 6*

* Topic
  + Photosynthesis
* Phenomenon:
* Every day relevance:
* Connection to career:
* **CLO #4: Summarize how energy is obtained and transformed through a series of biochemical reactions to perform functions in the cell.**

*Module 7*

* Topic
  + Cellular respiration
  + Comparing photosynthesis and cellular respiration
* Phenomenon:
* Every day relevance:
* Connection to career:
* **CLO #4: Summarize how energy is obtained and transformed through a series of biochemical reactions to perform functions in the cell.**

*Module 8*

* Topic
  + Cells need energy to go through central dogma
  + Comparing major classes of biomolecules (review and prep for flow of information in the cell)
  + Central dogma
* Phenomenon:
* Every day relevance:
* Connection to career:

*Module 9*

* Topic:
  + Central dogma
* Phenomenon:
* Every day relevance:
* Connection to career:
* **CLO#5: Discuss the molecular mechanisms responsible for generating mutations and the impact of those mutations on genetic variation in populations**

*Module 10*

* Topic:
  + **CLO#5: Discuss the molecular mechanisms responsible for generating mutations and the impact of those mutations on genetic variation in populations**
* Phenomenon:
* Every day relevance:
* Connection to career:

*Module 11*

* Topic:
  + Cell Cycle
  + DNA Replication
* Phenomenon:
* Every day relevance:
* Connection to career:
* **CLO #3: Describe how in a cell, genetic information flows and is regulated from DNA to mRNA to proteins.**

*Module 12*

* Topic:
  + Mitosis
* Phenomenon:
* Every day relevance:
* Connection to career:
* **CLO #6: Describe how new alleles resulting from mutations can be inherited through the processes of mitosis, meiosis, and cell division**

*Module 13*

* Topic:
  + Meiosis
* Phenomenon:
* Every day relevance:
* Connection to career:
* **CLO #6: Describe how new alleles resulting from mutations can be inherited through the processes of mitosis, meiosis, and cell division (Evolution/Genetics) (12 learning outcomes)**

*Module 14*

* Topic:
  + **CLO #7: Extract information about genes, alleles, and gene functions from genetic crosses and human pedigree analysis. (Evolution/Genetics)**
* Phenomenon:
* Every day relevance:
* Connection to career:

[**https://www.drcrean.com/storylines**](https://www.drcrean.com/storylines)

[**https://www.colorado.edu/program/inquiryhub/curricula/inquiryhub-biology**](https://www.colorado.edu/program/inquiryhub/curricula/inquiryhub-biology)

## ***HS Life Science - Molecules to Organisms***

***HS-LS1-1*** *- Construct an explanation based on evidence for how the structure of dna determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.*

***HS-LS1-2*** *- Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.*

***HS-LS1-3*** *- Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.*

* [*The Immortal Cells of Henrietta Lacks*](https://thewonderofscience.com/phenomenon/2018/7/8/the-immortal-cells-of-henrietta-lacks) *- HS-LS1-2*
* [*Hemingway’s Polydactyl Cats*](https://thewonderofscience.com/phenomenon/2018/7/5/hemingways-polydactyl-cats) *- HS-LS1-1*
* [*White Blood Cell Chases Bacteria*](https://thewonderofscience.com/phenomenon/2018/7/8/white-blood-cell-chases-bacteria) *- HS-LS1-1, HS-LS1-3*
* [*Synesthesia*](https://thewonderofscience.com/phenomenon/2018/7/9/synesthesia) *- HS-LS1-2*
* [*Malaria and Sickle Cell Anemia*](https://thewonderofscience.com/phenomenon/2018/7/5/malaria-and-sickle-cell-anemia) *- HS-LS1-1, HS-LS1-2*
* [*Hox Genes*](https://thewonderofscience.com/phenomenon/2018/7/8/hox-genes) *- HS-LS1-1*
* [*The Potential and Ethics of CRISPR*](https://thewonderofscience.com/phenomenon/2018/7/8/the-potential-and-ethics-of-crispr) *- HS-LS1-1*
* *Darius Goes West - (video,* [*Darius Goes West - Watch the Movie and Join the Movement*](http://www.dariusgoeswest.org/)*,*[*Duchenne Muscular Dystrophy*](https://en.wikipedia.org/wiki/Duchenne_muscular_dystrophy)*,*  [*Darius Goes West - Wikipedia*](https://en.wikipedia.org/wiki/Darius_Goes_West)*, HS-LS1-1, HS-LS1-2)*
* [*Runner’s High*](https://thewonderofscience.com/phenomenon/2018/7/9/runners-high) *- HS-LS1-2, HS-LS1-3*
* [*Killer T Cell - The Cancer Assassin*](https://thewonderofscience.com/phenomenon/2018/7/9/killer-t-cell-the-cancer-assassin) *- HS-LS1-1, HS-LS1-2, HS-LS1-3*
* [*Alligators Survive in Ice*](https://thewonderofscience.com/phenomenon/2018/7/5/alligators-survive-in-ice) *- HS-LS1-3*
* [*Why Do Sunflowers Follow the Sun?*](https://thewonderofscience.com/phenomenon/2018/6/15/why-do-sunflowers-follow-the-sun) *- HS-LS1-3*
* [*Shamrocks at night*](https://www.youtube.com/watch?v=jBW11QzbkiQ&feature=youtu.be) *- HS-LS1-3*
* *Microscopic images of different cells*
* *Disorder images*
* *Heart vs activity*
* *Runners high*
* *Blood oxygen vs. activity*
* *Goldfish in ice*
* *Crickets with different concentration of CO2*
* *Alka seltzer (whole vs broken)*
* *Reptile morphs*
* *Clot formation*
* *Lactation*
* *Immune system*
* *Diabetes*
* *Sickle-cell disease*
* *Broken bone*
* *Malnutrition*
* *Outbreak - Ebola, bird flu, pandemic*
* *Lactose intolerance, lactase persistence*
* *Growth and development*
* *Paralysis*
* *COPD*
* *Cell specialization and differentiation*
* *Mitochondrial disease*
* *Stem cells*
* *Fitness - getting in shape*
* *Low sodium levels*
* *Cancer*
* *Alcohol detoxification*
* *Thermoregulation*
* *Infection and immune response*
* *Snake venom*
* *Albinism*
* *Circadian rhythms*
* *Emergent properties*
* *Autoimmune response*
* *PKU*
* *You are what you eat*
* *Blood typing*
* *3 Parent baby*
* *Triple Crown Winner Doping*
* *Sex Change*
* *23 & Me*
* *Ancestry.com*
* *GenoPalate*
* *Dengue*
* *Free Diving*
* *Genetic CRSPR*
* *Runner’s High*
* *Olympic Runners*
* *Sterile Mosquitos*
* *Skin Color*
* *Mt Everest - Nepalese*
* *Chickungunya Virus*
* *Snake Toxins*
* *Drugs / Opioids*
* *Deep Sea Mammals*

## ***HS Life Science - Inheritance and Variation***

***HS-LS1-4*** *- Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.*

***HS-LS3-1*** *- Ask questions to clarify relationships about the role of dna and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.*

***HS-LS3-2*** *- Make and defend a claim based on evidence that inheritable genetic variations may result from: (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors.*

***HS-LS3-3*** *- Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population.*

* [*The Twins that Everyone Can Tell Apart*](https://thewonderofscience.com/phenomenon/2017/10/8/ls3-heredity)*- HS-LS1-4*
* [*Why Do Humans Have Different Colored Skin?*](https://thewonderofscience.com/phenomenon/2018/5/13/why-do-humans-have-different-colored-skin) *- HS-LS3-1, HS-LS3-2*
* [*Galapagos Finch Evolution*](https://thewonderofscience.com/phenomenon/2018/5/13/galapagos-finch-evolution) *- HS-LS3-3*
* [*Hemingway’s Polydactyl Cats*](https://thewonderofscience.com/phenomenon/2018/7/5/hemingways-polydactyl-cats) *- HS-LS3-1, HS-LS3-2*
* [*Corn Cob Sprouting in Water*](https://thewonderofscience.com/phenomenon/2018/7/9/corn-cob-sprouting-in-water) *- HS-LS1-4, HS-LS3-2, HS-LS3-3*
* [*The Immortal Cells of Henrietta Lacks*](https://thewonderofscience.com/phenomenon/2018/7/8/the-immortal-cells-of-henrietta-lacks) *- HS-LS1-4*
* [*The Inner Life of the Cell*](https://thewonderofscience.com/phenomenon/2018/7/8/the-inner-life-of-the-cell) *- HS-LS1-4, HS-LS3-1*
* [*Malaria and Sickle Cell Anemia*](https://thewonderofscience.com/phenomenon/2018/7/5/malaria-and-sickle-cell-anemia) *- HS-LS3-1, HS-LS3-2, HS-LS3-3*
* [*Hox Genes*](https://thewonderofscience.com/phenomenon/2018/7/8/hox-genes) *- HS-LS3-1*
* [*The Potential and Ethics of CRISPR*](https://thewonderofscience.com/phenomenon/2018/7/8/the-potential-and-ethics-of-crispr) *- HS-LS3-1, HS-LS3-2*
* *Darius Goes West - (video,* [*Darius Goes West - Watch the Movie and Join the Movement*](http://www.dariusgoeswest.org/)*,*[*Duchenne Muscular Dystrophy*](https://en.wikipedia.org/wiki/Duchenne_muscular_dystrophy)*,*  [*Darius Goes West - Wikipedia*](https://en.wikipedia.org/wiki/Darius_Goes_West)*, HS-LS3-1, HS-LS3-2)*
* [*Shrew Caravan*](https://thewonderofscience.com/phenomenon/2018/7/5/shrew-caravan) *- HS-LS3-1*
* *Cloning*
* *Dolly the sheep*
* *Kentucky blue people*
* *Twins with different skin tone*
* *Myostatin bulls (super cows)*
* *Gene drives*
* *RNAi*
* *Identical twins*
* *Zebrafish development*
* *PTC paper*
* *Asparagus pee*
* *Banana extinction*
* *Beets pee*
* *23 and me*
* *Color blindness*
* *Baldness patterns*
* *Nuclear radiation and the effect on humans affected*
* *Down Syndrome*
* *Smoking and Lung cancer*
* *Alcohol and cancer rates*
* *Lesbian lizards (Whiptail lizards)*
* *Clownfish and sex determination*
* *Aphids and telescoping generations*
* *Allp and teens*
* *Aging and progeria*
* *HPV and male vaccine*
* *Cystic fibrosis*
* *Vestigial males (angler fish)*
* *Genetic testing in children*

## ***HS Life Science - Matter and Energy in Life***

***HS-LS1-5*** *- Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.*

***HS-LS1-6 -*** *Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules.*

***HS-LS1-7*** *- Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.*

***HS-LS2-3*** *- Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.*

***HS-LS2-4*** *- Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.*

***HS-LS2-5*** *Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere.*

* [*50 Year old sealed ecosphere*](https://thewonderofscience.com/phenomenon/2017/10/8/ls2-ecosystems) *- HS-LS2-3, HS-LS2-4*
* [*12 Years in a Sealed Ecosphere*](https://paul-andersen-xw6e.squarespace.com/phenomenon/2018/4/29/12-years-in-a-sealed-ecosphere) *- HS-LS1-5, HS-LS1-7, HS-LS2-3, HS-LS2-4*
* [*Farming Fish with Vegetables*](https://thewonderofscience.com/phenomenon/2018/5/2/farming-fish-with-vegetables) *- HS-LS1-5, HS-LS1-7, HS-LS2-3, HS-LS2-4*
* [*Air Plants - No Soil Needed*](https://thewonderofscience.com/phenomenon/2018/5/13/air-plants-no-soil-needed) *- HS-LS1-5, HS-LS2-5*
* [*Attack of the Killer Fungi*](https://thewonderofscience.com/phenomenon/2018/5/14/attack-of-the-killer-fungo) *- HS-LS2-3, HS-LS2-4*
* [*Algae Fuel and Food*](https://thewonderofscience.com/phenomenon/2018/6/10/algae-fuel-and-food) *- HS-LS1-5, HS-LS1-7, HS-LS2-5*
* [*Vegetable Oil as Fuel*](https://thewonderofscience.com/phenomenon/2018/6/10/vegetable-oil-as-fuel) *- HS-LS1-5, HS-LS1-7, HS-LS2-5*
* [*Biosphere 2*](https://thewonderofscience.com/phenomenon/2018/6/10/biosphere-2https://thewonderofscience.com/phenomenon/2018/6/10/biosphere-2) *- HS-LS1-5, HS-LS1-7, HS-LS2-3, HS-LS2-4, HS-LS2-5*
* [*Reconstructing Ancient Diets with Isotopes*](https://thewonderofscience.com/phenomenon/2018/6/15/reconstructing-ancient-diets-with-isotopes) *- HS-LS1-6, HS-LS1-7, HS-LS2-3, HS-LS2-4, HS-LS2-5*
* [*If We Are What We Eat, Americans Are Corn and Soy*](https://thewonderofscience.com/phenomenon/2018/6/15/if-we-are-what-we-eat-americans-are-corn-and-soy) *- HS-LS1-6, HS-LS1-7, HS-LS2-3, HS-LS2-4, HS-LS2-5*
* [*Crown Shyness*](https://thewonderofscience.com/phenomenon/2018/6/15/crown-shyness) *- HS-LS1-5*
* *Sugar plant explosion in Georgia*
* *Losing weight while you sleep*
* *Bubbles in water weeds*
* *Bacterial mats in hot springs*
* *Mitochondrial diseases*
* *Running a marathon*
* *CAM and C4 plants*
* *Biosphere II*
* *Endosymbiotic theory*
* *Lactic acid fermentation*
* *Alcoholic fermentation*
* *CO2 levels and plant growth*
* *Electron transport chain*
* *Recycling ATP*
* *Rigor mortis*
* *Biofuels*
* *Euglena*
* *Photosynthetic sea slug*
* *Aphids*
* *Lichen*
* *Burning sugar*
* *Calorimetry*
* *Screaming gummy bear*
* *Van Helmont experiment*
* *Man who lived on a scale*
* *Living in a space station*
* *Measuring basal metabolic rate*
* *Increasing CO2 levels and plant growth*
* *Russia loves global warming*
* *Lactic acid and muscles*
* *Making alcohol - fermentation*
* *Calories - burning energy*
* *Carbon sequestration*
* *Eutrophication*
* *Mangroves as natural desalination*
* *Bioremediation*
* *Tetanus*
* *Long-term terrariums*
* *Biosphere II*
* *Carbon footprint*
* *Isotopes and ancient diet*
* *C3 / C4 and CAM plants*
* *Sulfur eating bacteria*
* *Hydrothermal vents and life*

## ***HS Life Science - Ecosystems***

***HS-LS2-1*** *- Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.*

***HS-LS2-2*** *- Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.*

***HS-LS2-6*** *- Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.*

***HS-LS2-7*** *- Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.*

***HS-LS2-8*** *- Evaluate the evidence for the role of group behavior on individual and species’ chances to survive and reproduce.*

***HS-LS4-6*** *- Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.*

* [***Termite Olympics***](https://thewonderofscience.com/phenomenon/2017/10/8/ls1-from-molecules-to-organisms) ***- HS-LS2-8***
* [*Easter Island Deforestation*](https://thewonderofscience.com/phenomenon/2017/10/8/ess3-earth-and-human-activity) *- HS-LS2-7, HS-LS4-6*
* [*Dolphins and Humans Fishing Together*](https://thewonderofscience.com/phenomenon/2018/5/3/dolphins-and-humans-fishing-together) *- HS-LS2-8*
* [*Google Maps Timelapse*](https://thewonderofscience.com/phenomenon/2018/4/29/google-maps-timelapse) *- HS-LS2-7, HS-LS4-6*
* [*Galapagos Finch Evolution*](https://thewonderofscience.com/phenomenon/2018/5/13/galapagos-finch-evolution) *- HS-LS2-6*
* [*The Salmon Cannon*](https://thewonderofscience.com/phenomenon/2018/5/14/sz0fzx8ald4vhpd9hn1p72uyufv2tq) *- HS-LS2-7*
* [*Can Prairie Dogs Talk?*](https://thewonderofscience.com/phenomenon/2018/5/13/can-prairie-dogs-talk) *- HS-LS2-8*
* [*Attack of the Killer Fungi*](https://thewonderofscience.com/phenomenon/2018/5/14/attack-of-the-killer-fungo) *- HS-LS2-2*
* [*Ant Cooperation*](https://thewonderofscience.com/phenomenon/2018/5/14/ant-cooperation) *- HS-LS2-8*
* [*Megafauna Extinction: Humans or Climate?*](https://thewonderofscience.com/phenomenon/2018/5/13/megafauna-extinction-humans-or-climate) *- HS-LS2-2*
* [*Algae Fuel and Food*](https://thewonderofscience.com/phenomenon/2018/6/10/algae-fuel-and-food) *- HS-LS2-7*
* [*Vegetable Oil as Fuel*](https://thewonderofscience.com/phenomenon/2018/6/10/vegetable-oil-as-fuel) *- HS-LS2-7*
* [*Shrew Caravan*](https://thewonderofscience.com/phenomenon/2018/7/5/shrew-caravan) *- HS-LS2-8*
* *Shopping cart with zebra mussels*
* *Hydroponics system*
* *Polar bears*
* *Biodiversity loss*
* *HIPPO*
* *Bradford pear trees*
* *Kudzu*
* *Japanese beetles*
* *Oh Deer*
* *Rabbit and Lynx case study*
* *Carbon capture*
* *Climate change*
* *Fuel to food*
* *Carbon footprint*
* *Planetary boundaries*
* *Fruit solar panels*
* *Ecosystem services*
* *Air pollution*
* *Coral bleaching*
* *Plastic islands in the ocean*
* *Microplastics*
* *Sustainability*
* *N2 cycles*
* *El Nino*
* *La Nina*
* *Energy pyramid*
* *DDT and bioaccumulation*
* *Before and after landscaping photos*
* *Potato bug tank lab*
* *Wolves changing the rivers in Yellowstone park*
* *DDT bioaccumulation*
* *Asian carp (videos)*
* *Anemone and clownfish*
* *Hunting debate*
* *Lichen*
* *Succession after the fires of 88*
* *Barnacles and the whale*

## ***HS Life Science - Natural Selection and Evolution***

***HS-LS4-1*** *- Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.*

***HS-LS4-2*** *- Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.*

***HS-LS4-3 -*** *Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait.*

***HS-LS4-4*** *- Construct an explanation based on evidence for how natural selection leads to adaptation of populations.*

***HS-LS4-5*** *- Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.*

* [*Natural Fish Lure | Lampsilis Mussel and Bass*](https://thewonderofscience.com/phenomenon/2017/10/8/ls4-biological-evolution) *- HS-LS4-3, HS-LS4-4*
* [*A Peacock’s Tail*](https://thewonderofscience.com/phenomenon/2018/5/13/a-peacocks-tail) *- HS-LS4-3*
* [*Why Do Humans Have Different Colored Skin?*](https://thewonderofscience.com/phenomenon/2018/5/13/why-do-humans-have-different-colored-skin) *- HS-LS4-2, HS-LS4-3, HS-LS4-4*
* [*The Asteroid That Killed the Dinosaurs*](https://thewonderofscience.com/phenomenon/2018/5/13/the-asteroid-that-killed-the-dinosaurs) *- HS-LS4-5*
* [*Galapagos Finch Evolution*](https://thewonderofscience.com/phenomenon/2018/5/13/galapagos-finch-evolution) *- HS-LS4-1, HS-LS4-2, HS-LS4-3, HS-LS4-4, HS-LS4-5*
* [*The Great Oxygenation Event*](https://thewonderofscience.com/phenomenon/2018/6/15/the-great-oxygenation-event) *- HS-LS4-5*
* [*Malaria and Sickle Cell Anemia*](https://thewonderofscience.com/phenomenon/2018/7/5/malaria-and-sickle-cell-anemia) *- HS-LS4-2, HS-LS4-3, HS-LS4-4*
* [*Hox Genes*](https://thewonderofscience.com/phenomenon/2018/7/8/hox-genes) *- HS-LS4-1*
* [*Inflation of Moth Coremata*](https://thewonderofscience.com/phenomenon/2018/7/11/inflation-of-moth-coremata) *- HS-LS4-3*
* *Rock pocket mouse*
* *Stickleback fish*
* *Beaks of the finches*
* *Peppered moth*
* *Cute Baby Animals - HS-LS4-3*
* *Chromosomes in primates*
* *Dinosaurs*
* *Bacterial megaplate evolution*
* *Birds and dinosaurs*
* *Peppered moth*
* *Jack Horner making a dinosaur from a chicken*
* *The 6th extinction*
* *The 6th genesis*
* *Evolutionary arms race (newt and garter snake)Antibiotic resistance (MRSA)*
* *Neanderthal and*
* *DNA and all living things related on a tree*
* *Odd chromosome #*
* *The giraffes neck*
* *Embryos*
* *Human evolution*
* *Vestigial traits*
* *Artificial selection*
* *Skin color variation - vitamin D and folate*
* *Lactose intolerance*
* *Eugenics*
* *Sickle cell and malaria*
* *Warm-blooded vs. cold-blooded organisms*
* *Skull comparisons*
* *Amino acid comparisons*
* *Biointeractive Human Sickle cells*
* *Bacterial resistance to antibiotics*
* *Biodiversity lab*