



Science Suitcases

The science suitcases were originally developed with support from the Howard Hughes Medical Institute. These comprehensive portable labs with a week's worth of curriculum activities (animation videos, teacher/student manuals, games, wet labs/lab supplies, and more) were developed by students in the Biomedical Communications master's degree program at the School of Health Professions in collaboration with the Dallas Museum of Nature and Science. We currently have 6 science suitcases for check-out (Enzyme Instigator, Organelle Extravaganza, Photosynthesis, Evolution, Genetic Mutations, and Cellular Respiration) and 1 (Membranes) that is in production. Contents are as follows:

Enzyme Instigator

- 1) Pre-Quiz
- 2) Homework Handout
- 3) Animation Video (with study questions)
- 4) Manipulable hands-on model - teacher demo (enzyme & 3 substrates)
- 5) Jeopardase game
- 6) 2 Labs a) (Milk & Renin) b) (Gelatin & Fruit Juice) Roles of pH and temperature enzyme activity
- 7) Post-Quiz

Organelle Extravaganza

- 1) Pre-Test
- 2) Animation Video (23 minutes) (with study questions)
- 3) Protein Production Game
- 4) 3 Labs a) Plant vs. Animal Lab (onion skin & cheek cells)
- b) Paper Chromatography (spinach & acetone)
- c) Feeding Paramecia Lab
- 5) Post-Test

Lights, Carbon, Action: Photosynthesis Suitcase

- 1) Pre-Test
- 2) Award Winning Animation Video (with study questions)
- 3) Leaf Cell Model
- 4) Sugar Rush! Board Game
- 5) 3 Wet-Labs a) Stomata! Stomata! b) Reactions in the Dark C) Floating Leaf Disks
- 6) Post-Test

Evolution

- 1) Pre-Test
- 2) Animation Video (with study questions)
- 3) Beak Niche Adaptation Game (natural selection, gene flow, and genetic drift)
- 4) Fossil Lab
- 5) Post-Test

Genetic Mutations

- 1) Genetic Mutations Video
- 2) Mutations: How Changes in DNA Effect Organisms Slideshow (AP & Pre-AP level)
- 3) Tulip Breaking Virus Lab
- 4) Tulip Breaking Virus Activity

- 5) Identifying Causes of Mutations Card-Matching Game (8 sets of laminated cards)
- 6) Nucleotide Base Cards (5 sets of laminated cards, plus Amino Acid cards & codon charts)
- 7) Mrs. Potato Head Activity (Mutation & Natural Selection Activity)

Cellular Respiration

- 1) Cellular Respiration PowerPoint Slideshow (AP & Pre-AP level)
- 2) A Yeasty Mess Fermentation Lab
- 3) The Blue & Yellow Test Tube Challenge (Simulated lab evaluation activity)
- 4) Act It Out, Stages of Cellular Respiration Activity
- 5) Cell Respiration Review Card Games

Membranes

- 1) The Cell Membrane DVD and Guided Notes
- 2) The Hydrophobic Effect Activity
- 3) Solutions and Moles Lab
- 4) Dialysis Labs
- 5) Osmometer Lab
- 6) Membranes and Microscopes Lab
- 7) Temperature and the rate of Diffusion Lab
- 9) Build-A-Membrane Activity
- 10) Post-Quiz
- 11) Case Study
- 12) Membrane Disease Research Project *extension

Teachers can also watch STARS Science Suitcases Videos on Vimeo by going to the links below.

"Lights, Carbon, Action!" (Photosynthesis): <http://vimeo.com/18544535>

"Evolution": <http://vimeo.com/19796663>

"Membranes": <http://vimeo.com/31411881>

"Genetic Mutations": <http://vimeo.com/32418190>