

LS-HHMI Outreach Curriculum Project Information

Title	Sarah's New Found Friends Examination of the human gut using a clicker based case study		
Resource Type	Lesson Plan <input checked="" type="checkbox"/> Classroom Activity <input checked="" type="checkbox"/> Laboratory Activity <input type="checkbox"/> Homework Assignment <input checked="" type="checkbox"/> Bioinformatics <input type="checkbox"/> Other <input type="checkbox"/> <Specify>		
Description	This case has been designed to explore many of the themes of biology utilizing the human gut as the focal point. The human gut and its microbes provide a natural learning opportunity for exploring biodiversity, ecology, evolution, cells, human body systems and energetics. Embedded within the case are prior knowledge and post activity/lecture questions that students respond to using the clickers.		
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Author Institution(s)	Masconomet Regional High School		
Objective	This lesson has been designed to integrate biological concepts within a system that students are intrinsically interested in. The human gut and its microorganisms provide the framework for all activities and questions. Teachers may utilize this activity as an introduction to the biological themes that will be studied throughout the year. The case study will also provide teachers with the opportunity to revisit and build on the conceptual components presented in the module.		
Key Concepts	Taxonomy, Biodiversity, Ecology, Human Digestive System, Cells		
Student Prep	A life science class in middle school would be the working base of expectations for students.		
Materials	Projector, PowerPoint and classroom set of student clickers (if available)		
Grade and Level(s)	All levels of 9 th and 10 th grade biology. Could easily be adapted for an AP Biology course.		
Teacher Prep Time	Review of content and any student handouts: 1 hour	Class Time	3-5 one hour class periods
National Standards	Cells: 12CLS1.1-6, 12CLS2.1-3, 12CLS3.1-5, 12CLS4.2-5, 12CLS5.4-6		
State Standards	Cell Biology 2.1-3, Genetics 3.3, Human Systems 4.1, 4.6-7, Evolution and Biodiversity 5.1-5.3, Ecology 6.1-6.3		
Sources	See media page		
References	Peter Turnbaugh, Harvard University		

Assessment	Powerpoint has questions that are built in to assess students immediately. This is in the form of clicker response questions as well as reinforcement mini-activities that could be done in class or for homework. Students may also create a product that would help teach younger students about the effects of microbes associated with the gut. This could be in the form of a story, pamphlet or other creative approach.
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