**Introduction**



**Major Themes for the Unit**

* **Scientific Themes: Science Themes:**General Nutrition, Biochemical Pathways, Energy Systems in Sport
* **Scientific Practice(s):**Constructing Explanations, Engaging in Argumentation from Evidence
* **SSI:**“Fat Tax” (taxation of food deemed to be obesogenic, based on their macronutrient profile and/or ingredients)
* **First-hand exploration of scientific themes and synthesis of related societal dimensions through analysis of significant historical and current events**

**Driving (Unit) Question:**Should the U.S. consider implementing a "fat tax" on non-nutritious foods to discourage people from unhealthful nutrition choices?

**Concepts needed to explore the driving question:**

* Science concepts:
	+ Macronutrients as energy sources
	+ Chemical structure and function of macro- and micronutrients
	+ Carbohydrate & fat metabolism: pathways and hormonal regulation
	+ Nutrition and energy systems in athletic performance
* Societal dimensions:
	+ Socioeconomic disparity, food deserts
	+ Conflicts among economic ideologies
	+ Conflicts among political ideologies
	+ Healthcare regulation
	+ Political motives influencing government recommendations
	+ Uncertainty & disagreement in “new” and complex science field

**Unit-level performance expectations**

* 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-LS1-6).
* 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-LS1-7).
* (All Sports, Exercise, and Health Science Core Syllabus Assessment Statements, International Baccalaureate Organization) \*link to PDF

**Unit Assessment(s)**

* Daily Starter Question (revisiting Essential Science Question)
* 3-Day Food Diary: documentation and stepwise analysis of own dietary intake
	+ macronutrient content analysis & related energy calculations
	+ micronutrient content analysis
	+ tracing of fat & carbohydrate metabolic pathways
	+ comparison to current and historical nutrition recommendations
* Culminating Event: position paper on proposed Fat Tax

[**Overall Instructional Sequence**](https://web.archive.org/web/20191025042008/http%3A/ri2.missouri.edu/ri2modules/Fat%20Tax/sequences)

**Acknowledgements**

The materials associated with the Nutrition unit are based upon work The Missouri Transect, a National Science Foundation EPSCoR Program, Cooperative Agreement IIA-1355406. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.​