Chapter 4 – Nutrition, Enzymes, Metabolism

The Peanut Butter Project: One doctor’s crusade to end malnutrition in Africa, a spoonful at a time

Driving Questions
1. What are the macronutrients and micronutrients provided by food?
2. What are essential nutrients?
3. What are enzymes, how do they work, and how do they contribute to reactions of metabolism?
4. What are the consequences of a diet lacking sufficient nutrients?

Story Summary
This chapter profiles Mark Manary, a pediatrician from Washington University in St. Louis, Missouri, who developed a novel approach to treating malnutrition in Africa. Manary’s method utilizes a peanut butter–based ready-to-use therapeutic food (RUTF) that is rich in both macronutrients and micronutrients. Because it does not spoil, RUTF can be consumed at home, away from the hospital, and provides needed nutrients quickly. Manary is the founder of The Peanut Butter Project, a non-profit organization that seeks to address malnutrition if Africa.

By considering the importance of both macronutrients and micronutrients for a healthy diet, students learn to appreciate what the foods on their plate have to do with proper nutrition. The way that the macromolecules in foods are broken down and used to build new cell structures provides a concrete way for students to learn about metabolism and the role of enzymes in facilitating chemical reactions in the body.

Core science includes:
- Macronutrients and micronutrients in food
- Use of subunits from dietary macronutrients to build new molecules
- Essential nutrients and their roles
- Enzymes and how enzymes catalyze reactions

Science for a changing world (story-specific science) includes:
- Global and national hunger, malnourishment and food insecurity
- PB RUTF and its role in treating malnourished children
- Balanced diets

For more information:
- The Peanut Butter Project: http://www.projectpeanutbutter.org/
- UN World Food Programme, Malawi: https://www.wfp.org/countries/malawi
- Film: A Place at the Table: http://www.magpictures.com/aplaceatthetable/. Documents food scarcity in America.