Nutrition and Wellness Topic Guide

Nutrition Topic	Mathematics Topic	Problem/Policy Issue
Homeostasis	Basic algebra: Metric system	
Dietary Guidelines & Food Labels	Introduction to functions and graphs	Policies and Labels; Marketing Issues
Physiology	Risk Assessments	Expressions of Risk (how to interpret physicians' advise, press data)
Energy	Linear Equations	Energy Balance, Institutional Diets and the American Diet Trends
Fuels – Structure Function Relationships.	Linear equations;	Energy Balance, Institutional Diets and the American Diet Trends
Carbohydrates	Rates, Glycemic Index expressions	Simple/Complex/Fiber carbohydrates in the American Diet – trends, fad diets, medical advice
Proteins	Body Composition expressions (%, concentration, impedence measuring)	Diets and Protein Quality; Socioeconomic factors

Fats	Body Composition expressions (%, concentration, impedence measuring)	Saturated and unsaturated fats – health, fast foods
Integration of Metabolism	Spreadsheets	Healthy body weight and body image
Vitamins, Minerals, water	Spreadsheets	Supplements – Megadoses? Herbal supplements?
Cardiovascular Disease	Calculations and representations of Risk factors; statistics	Understanding lipid profile data and risk expressions
Alcohol	Calculations and representations of Risk factors; statistics	Cost – nutritionally, socially; genetics vs behavior
Cancer	Calculations and representations of Risk factors; statistics	Nutrition effects and trends in the American Diet; how to evaluate health claims

The Iowa Environment
Introduction to Complex Environmental Systems
Topic Guide

Science Topic	Problem/Policy	Math topic
Human and Natural Systems		
Water quality – nutrients/contaminants hydrogeology,	Industrial Farming methods (Hog Lots;) Human Activities	Algebra Ratios. Velocity, Dimensional analysis,
Water quality Solutions, scientific method	Risk /Benefit and politics	Statistics and Probability Modeling
Biological and Physical Systems		
Ecosystems	Mono-cropping Pesticides Fertilizers Pathogens	Probability Curves Extrapolation Statistics
Ecosystems Urbanization problems	Urban Planning	
Ecosystems Genetic Engineering	Cost/Benefit analysis Biodiversity?	Modeling
Ecosystems Climate variability and change	Air quality, greenhouse effect, etc	Nonlinear functions Feedbacks
Energy	Resource management	Logs, log graphs., exponential growth
Energy – rural issues	Alternative energy Wind farming	
Energy – urban issues	Ethanol fuels vs MTBE	Chaos theory