

# Problem-Based Learning Unit Template

## Topic

**Food Desert Needs of Living Organisms**

## Goals/Objectives

### Knowledge and Skills

#### Health

**4.1 The student will explain how nutrition affects personal health and academic achievement. Key concepts/skills include**

- a) the nutrients needed for proper brain functioning;
- b) the importance of balance, variety, and moderation in a meal plan;
- c) the effects of malnutrition;
- d) the impact of nutrients on growth and development;
- e) the impact of fats, carbohydrates, and proteins on physical performance.

**Science SOL 4.4, 4.5, 4.9, 5.5**

**4.4 The student will investigate and understand basic plant anatomy and life processes. Key concepts include**

- a) the structures of typical plants and the function of each structure;
- b) processes and structures involved with plant reproduction;
- c) photosynthesis; and
- d) adaptations allow plants to satisfy life needs and respond to the environment.

**4.5 The student will investigate and understand how plants and animals, including humans, in an ecosystem interact with one another and with the nonliving components in the ecosystem. Key concepts include**

- a) plant and animal adaptations;
- b) organization of populations, communities, and ecosystems and how they interrelate;
- c) flow of energy through food webs;
- d) habitats and niches;
- e) changes in an organism's niche at various stages in its life cycle; and
- f) influences of human activity on ecosystems.

**4.9 The student will investigate and understand important Virginia natural resources. Key concepts include**

- b) animals and plants;
- d) forests, soil, and land.

**5.5 The student will investigate and understand that organisms are made of one or more cells and have distinguishing characteristics that play a vital role in the organism’s ability to survive and thrive in its environment. Key concepts include**

- b) classification of organisms using physical characteristics, and behavior of the organism; and
- c) traits of organisms that allow them to survive in their environment.

**Reading SOL 4.5, 5.6 Writing SOL 5.8**

**5.6 The student will read and demonstrate comprehension of non-fiction**

- c) locate information to support opinions, predictions and conclusions.
- d) identify cause and effect relationships
- g) identify new information gained from reading.

**5.8 The student will write for a variety of purposes to describe, to inform, to entertain and to explain.**

- g) use available technology to assess information.

**Mathematics SOL 5.8**

**5.8 The student will find perimeter, area and volume in standard units of measure**

- e) students will choose a appropriate unit of measure for a given situation involving measurement using U.S. customary and metric units.

**Social Studies VS 1**

**VS.1 The student will demonstrate skills for historical and geographical analysis and responsible citizenship, including the ability to**

- d) draw conclusions and make generalizations
- h) discuss issues orally and in writing.

<b>Theme</b>
Sustainable Food Supply
<b>Scenario</b>

Michelle Obama wants children to get moving, in order to get moving you've got to have energy, and in order to have energy, you've got to have good food. Unfortunately we have limited access to fresh fruits and vegetables in our school and community because we live in a "food desert!" Mrs. Obama is attacking "food deserts" and has commissioned you, The Green Team Scientist to research and create a plan to address this issue in our community.

### **Culminating Activity**

The Greene Team Scientist will present examples of alternative ways of growing a sustainable food source. They will also present a proposal for a school/community green house along with a model and specs for a future full scale green house.

### **Problem Question**

How can we create alternative ways of growing food to address the "food desert" issue in our South Richmond community?

### **Student Role**

Students will take on the roles of Greene Team Scientist-Botanist, Mathematicians and Engineers.