'Understanding by Design' Curricula Plan
GEN FOOD PRODUCTION ECO-SERVICE MODULE

MODULE OVERVIEW: In this module, learners work as naturalists, displaying curiosity as they investigate sources of food and food webs on their site. Sample activities include investigations into the eating habits of seed eating animals on their site, food chain game, migration activities, owl pellet dissections and a survey of food producers on their site. A GEN take-home pamphlet allows learners to extend their knowledge by looking for sources of wildlife food near their home and sharing their knowledge about ecosystem food production concepts with other family members. Related stewardship/service learning projects involve enhancing their site for wildlife and developing feeding stations for birds. Titles of the 'Quick Guide' Lessons for this Module include: Lesson 1- Welcome to the Food Production Department! ; Lesson 2 - Madame Squirrel's Restaurant; Lesson 3 - A Naturalist's Buffet!; and Lesson 4 - Global Food Distribution.

Stage 1 – Desired Results

Established Goals: G

Related GPS Science Content

Third Grade

S3L1. Learners will investigate the habitats of different organisms and the dependence of organisms on their habitat.
b. Identify features of green plants that allow them to live and thrive in different regions of Georgia.
c. Identify features of animals that allow them to live and thrive in different regions of Georgia.
d. Explain what will happen to an organism if the habitat is changed.

S3L2. Learners will recognize the effects of pollution and humans on the environment.
a. Explain the effects of pollution (such as littering) to the habitats of plants and animals.
b. Identify ways to protect the environment (conservation of resources, recycling of materials).

Fourth Grade

S4L1. Learners will describe the roles of organisms and the flow of energy within an ecosystem.
a. Identify the roles of producers, consumers, and decomposers in a community.
b. Demonstrate the flow of energy through a food web/food chain beginning with sunlight and including producers, consumers, and decomposers.
c. Predict how changes in the environment would affect a community (ecosystem) of organisms.
d. Predict effects on a population if some of the plants or animals in the community are scarce or if there are too many.

S4L2. Learners will identify factors that affect the survival or extinction of organisms such as adaptation, variation of behaviors (hibernation) and external features (camouflage and protection).
a. Identify the external features of organisms that allow them to survive or reproduce better than organisms that do not have these features (e.g. camouflage, use of hibernation, protection, etc.)
b. Identify factors that may have led to the extinction of some organisms.

Fifth Grade

S5L1. Learners will classify organisms into groups and relate how they determined the groups with how and why scientists use classification.
a. Demonstrate how animals are sorted into groups (vertebrate and invertebrate) and how vertebrates are sorted into groups (fish, amphibian, reptile, bird and mammal).
b. Demonstrate how plants are sorted into groups.

S5L4. Learners will relate how microorganisms benefit or harm larger organisms.
a. Identify beneficial microorganisms and explain why they are beneficial.
b. Identify harmful microorganisms and explain why they are harmful.

Habits of the Mind:

3rd grade skills
- Records investigations
- Makes sketches
- Compares and describes numerically
- Researches
- Uses tools
- Answers their own questions
- Communicates findings

4th grade skills
- Ask questions that lead to investigations
- Conduct simple investigations
- Uses tools for collecting data
- Uses data to answer questions
- Writes and uses instructions
- Justifies reasonable answers
- Identifies patterns of change
- Researches for information

5th grade skills
- Records observations
- Offers and considers reasoning
- Quantifies data
- Uses scientific tools
- Identifies parts and makes models
- Describes changes
- Compares physical attributes
- Draws and sketches
- Questions and seeks to find answers
- Researches for scientific information
- Replicates investigations

Enduring Understandings: **U**

Learners will understand that…

All living things need energy from the sun to survive.

Many creatures use their school site as a source of food.

Our (the club members) activities can help wildlife survive on their site.

Essential Questions: **Q**

- How do living things feed themselves?
- What wildlife visit and feed on our school site?
- What foods are produced on our school site?
- What foods do local wildlife prefer?
- What can I do to help wildlife find appropriate food on my site?

Learners will know… **K**

- A major function of any healthy ecosystem is producing nutritious food for the animals that live there.
- The names of several species that feed on their site.
- The sun is the base of all food chains.
- Organisms have adapted to "eat" a variety of foods.
- Relationships between producers (plants) and consumers (animals) can be diagrammed in food chains.
- Migratory animals require suitable habitat, and food, in all places along their migration route.
- Environmental stewardship activities that help local wildlife.

Learners will be able to… **S**

Look for evidence/signs of mammals and birds on their school site.
Describe 4 predator prey relationships on their site.
Identify foods that animals eat to create a food web.
State the importance of plants and small animals to the school site Food Department.
Investigate feeding habits of seed eating animals on their site.
Discuss the special adaptations of bird beaks for feeding in their local community.
Explain the survival benefit of migration to birds.
Determine threats to wildlife/food webs both on their school site and in the larger environment.
Develop a plan to help local wildlife species. i.e. create a habitat and food for animals by planting native plants.

Stage 2 – Assessment Evidence

Performance Task: **T**

1. AT HOME: Complete 'A Visit to the Food Department', six page pamphlet with insert letter to parents; visit designated websites and complete associated questions. Teach parents and other siblings about the Food Department. Bring form signed by parents back to club for 4H travel points.
2. Examine individual GEN club calendars for recorded observations related to the food department at their homes and in the local environment.

Key Criteria

Other Evidence **OE**

1. Develop and perform a puppet show for younger learners that interprets the importance of the school site food department; puppet show can also be performed at GEN Science Night.
2. Grow plants in classroom from seed for school site wildlife.
3. Plant appropriate plants that serve wildlife food sources either on the school site or at another location.
4. Set up bird feeders to support bird feeding needs in the winter.

Stage 3 – LEARNING PLANS: See 'GEN Quick Guides 1-4'