

Food Web **STEAM** Project

In this project you will:

SCIENCE	Demonstrate your knowledge of the transfer of energy at each trophic level within an ecosystem.
TECHNOLOGY	Utilize software applications and Internet to research and create final products.
ENGINEERING	Construct a food web, food chain, energy pyramid to model ecological relationships.
ART	Design a food chain collage using dimensional layers of construction paper, yarn, patterns, textures, etc.
MATH	Calculate the caloric energy transferred to each trophic level based on how much energy is consumed at the previous level.

STEP 1 - FOOD WEB (100pts)

Process – Select a ecosystem. Read about the characteristics of your selected ecosystem and research organism’s diet (determine what eats what). Create a food web based on these relationships.

Product – Construct your food web using Office 365 PPT template (provided), images, shapes and other drawing tools. All arrows must point in the direction of the flow of energy. **Label all organisms’ names and trophic level.**

Scoring –

Sun included	5 pts
At least 4 Producers	20 pts
At least 3 Primary Consumers	15 pts
At least 2 Secondary Consumers	10 pts
At least 1 Tertiary Consumers	5 pts
All Trophic Levels Labeled	20 pts
Organisms Specifically Named (ex: Goldenrod, not “flower”)	10 pts
Arrows in the correct direction	15 pts

STEP 2 - ENERGY PYRAMID (40 pts)

Process – Choose one food chain from the food web you created. Place the organisms from the food chain into the proper location on an energy pyramid. Calculate the caloric energy transferred to each trophic level.

Product - Construct your energy pyramid in the same Office 365 PPT template as you built your food web. Label all organisms' names, trophic levels, and energy transfers.

Scoring –

All 4 Organisms Included on Pyramid	10 pts
All Trophic Level Labels Included	10 pts
Caloric Energy Calculated for Each Trophic Level	20 pts

STEP 3 – FOOD CHAIN COLLAGE (60 pts)

Process – Using the food chain from your energy pyramid (Step 2), create a food chain collage that demonstrates all the organisms/energy transferred to the apex predator.

Product – Using construction paper and other common craft supplies, create a collage poster by layering or “nesting” the prey inside of its predator’s mouth (see samples). The apex predator should be the largest mouth on the poster and inside its mouth we should see its prey, and inside the prey’s mouth should be its prey, and so on. Layers should be dimensional with multiple layers of construction paper, paint, yarn, googly eyes, patterns, and textures.

Scoring –

Producer Included	10 pts
Primary Consumer Included	10 pts
Secondary Consumer Included	10 pts
Tertiary Consumer Included	10 pts
All organisms are dimensional and detailed.	10 pts
Color scheme accurately represents biome/organisms.	10 pts

Name: _____ Class: _____

Food Web **STEAM** Project Rubric

STEP 1 - FOOD WEB	
Sun included	5 pts
At least 4 Producers	20 pts
At least 3 Primary Consumers	15 pts
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At least 1 Tertiary Consumers	5 pts
All Trophic Levels Labeled	20 pts
Organisms Specifically Named (ex: Goldenrod, not "flower")	10 pts
Arrows in the correct direction	15 pts

TOTAL: _____

STEP 2 – ENERGY PYRAMID	
All 4 Organisms Included on Pyramid	10 pts
All Trophic Level Labels Included	10 pts
Caloric Energy Calculated for Each Trophic Level	20 pts
STEP 3 – FOOD CHAIN COLLAGE	
Producer Included	10 pts
Primary Consumer Included	10 pts
Secondary Consumer Included	10 pts
Tertiary Consumer Included	10 pts
All organisms are dimensional and detailed.	10 pts
Color scheme accurately represents biome/organisms.	10 pts

TOTAL: _____