



## SURVIVAL LAB: FOOD EDITION

Duration	Age	Difficulty
45-50 min	15-16	Medium
#NutritionScience #Metabolism #BMR #Biochemistry		

## DESCRIPTION

Students simulate navigating a disaster-struck area with access to a limited food supply. In collaborative teams, they must design a 1-day survival food plan that meets nutritional needs, emphasizes cultural and sustainable choices, integrates data analysis, and highlights gender representation in nutrition science.

Students visualize their plans using inclusive artistic methods and reflect critically on health equity, sustainability, and scientific reasoning.

## KEY COMPETENCES (EU)

- Scientific and critical reasoning
- Digital communication
- Teamwork and inclusion
- Mathematical and visual literacy
- Cultural awareness and expression

## ACTIVITY OBJECTIVES

- Identify and explain nutritional components (protein, carbohydrates, fats) using real-world food labels.
- Analyze the caloric needs using Basal Metabolic Rate (BMR) and justify food choices based on energy balance.
- Use bar/pie charts and infographics to visualize nutritional content and sustainability ratings.
- Integrate cultural food knowledge and highlight traditional food systems through visual and written formats.
- Design inclusive and visually accessible posters or digital infographics.
- Research and creatively present contributions of women and gender-diverse figures in food science or health.
- Reflect on how gender, culture, and accessibility influence food choices and nutrition science.



# MATERIALS



[Food label handouts \(real examples\)](#)



[Macronutrient energy table](#)



Poster templates and Canva accounts



[Printed bios of diverse women in nutrition and traditional knowledge](#)



[Large-print and color-blind accessible visual design guides](#)



Notebook



Pencil



Internet-enabled device



[BMR calculator link](#)



Editable infographic templates (Slides/Canva)

- Provided by students.
- Provided by the teacher/institution
- Downloadable Elements

## PREVIOUS PREPARATION



To begin the lesson, display or share a short introductory video titled "From Food to Fuel: Your Metabolism at Work." This engaging video helps students understand how the body transforms food into energy. Following the video, distribute food label cards and a macronutrient table to each group to support their hands-on learning and analysis. Students should be organized into collaborative teams of three to four, with clearly defined roles such as Analyst, Designer, Researcher, and Presenter to promote accountability and active participation. Distribute the Accessible Poster Design Guide and Inclusive Collaboration Tips handout.

Discuss the ethical implications of nutrition access and the impact of food design on gender and equity.



## CONTEXTUALIZATION AND ADAPTATION

Students receive a fictional emergency card (e.g., post-flood city) and must build a 1-day survival meal plan. The plan must consider caloric requirements, hydration, packaging, and perishability.

Watch video 🎥 - “From Food to Fuel: Your Metabolism at Work”

[From Food to Fuel: Your Metabolism at Work](#)



Classroom activity 💡 **One-Minute Spotlight**

Students research a notable woman in nutrition and share her key contribution in just one minute.

1. Give each student (or pair) one nutritionist name. They spend five minutes finding:
  - One major achievement
  - One quote or “fast fact” about her work
2. In round-robin style, each student has **one minute**: a 30 sec to introduce their nutritionist & achievement b. 30 sec to share the quote/fast fact.
3. Class votes on the most surprising fact and discusses how these women have shaped our understanding of nutrition.

Note for the teacher 📝

Materials:

- A roster of 6–8 famous women nutritionists (e.g., Marion Nestle, Joy Bauer, Rujuta Diwekar, Rhonda Patrick...)
- Index cards or sticky notes
- **Total Time:** ~10 minutes: a. Research: 5 min b. Presentations: 3–4 min (depending on class size) c. Debrief: 1–2 min
- Challenge advanced Learners to add a “connection” statement—how that nutritionist’s work ties back to your class content on metabolism.



## ACTIVITY

### 1. Define the challenge

Each group receives a fictional emergency scenario (flooded urban area, drought-affected town). Students design a sustainable 1-day survival meal plan that meets average caloric needs.

### 2. Food Selection & Cultural Context:

Choose 3–5 foods common in students' cultural background or from global traditional diets. Teams research the origin and cultural role of one selected item. Include a short paragraph explaining its nutritional, ecological, and cultural relevance.

### 3. Nutrition Breakdown & Visualization:

Analyze macronutrients of each item. Create a visual (bar graph, pie chart) showing macronutrient balance. Use symbols to rate sustainability (e.g., = highly sustainable).

### 4. BMR Calculation & Energy Analysis:

Use provided BMR calculator for a fictional profile. Compare caloric needs to the designed meal plan. Justify how the meal plan meets or fails the requirement, suggesting a revision if needed.

### 5. Gender & Inclusion in Nutrition:

Each student selects a woman or gender-diverse figure in STEAM (nutrition, health, biotech). Create a visual tribute: name, portrait/photo, quote, and a short bio. Teams incorporate one figure's legacy into their project (e.g., design philosophy, nutritional focus).

### 6. Design a Culturally Inclusive Poster or Infographic:

Use Canva or poster board with accessible fonts/colors. Visual must include: food list, meals per day, macronutrient chart, sustainability icons, cultural reference, and gender figure. Optional: Add a badge/icon that represents equity in science.

### 7. Peer Review and Feedback Loop:

Gallery walk: teams evaluate each other's posters using sticky notes with prompts:

- What's clear and creative?
- How inclusive is the visual?
- What improvement would you suggest?
- Teams refine their project accordingly.



## CONCLUSION AND SHARING

### Presentation:

Teams present their infographic in a 2-minute gallery walk.

Reflect using prompt worksheet:

- What changed your assumptions about survival or nutrition?
- How did your role affect team decisions?
- What was surprising about the female/gender-diverse figure you studied?



### EXTENSIONS (if time permits or for homework):

- Modify your plan for a specific diet (vegan, diabetic).
- Explore traditional food preservation in another culture.

### Reflection Box for Teachers:

- What would you change if planning a 7-day version?
- How do hydration and packaging affect survival?
- How did your food plan reflect sustainability?



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[Instagram](#)



[X](#)

**Don't forget to take a photo of your experience and share it with us!**

## BIBLIOGRAPHY AND REFERENCES

### REFERENCES & TOOLS

- <https://www.calculator.net/bmr-calculator.html>
- Food Politics by Marion Nestle
- Inclusive Design Toolkit: <https://www.inclusivedesigntoolkit.com/>
- UNESCO – Women in Science Stories
- Canva, Google Slides, or Adobe Express