



FOOD TRUCK TYCOON · 5TH GRADE DATA CHALLENGE

Planning Guide

Duration: 5 Days | ~ 6 Activities



Activity Overview and Pacing

Activity	Name	Day	Time	Essential Question
1	What is Data?	Day 1	~60 min	How can data help us make better decisions?
2	Introducing the Food Truck Challenge	Day 2	~50 min	How can engineers use data to help a business succeed?
3	Class Data Visualization	Day 3	~50 min	How does the way we display data change what we can learn from it?
4	Working as Engineers	Days 2 & 4	~50 min	How do engineers use a process to break apart a complicated problem?
5	What Does It Cost? Building Your Menu	Day 4	~65 min	How do cost and data together help us make smart business decisions?
6	Logo + Food Truck Expo	Day 5	~60 min	How can a name, logo, and data display communicate your concept persuasively?

Activities Descriptions and Materials

Activity 1 — What is Data? | Day 1 | ~60 min

Essential Question: *How can data help us make better decisions?*

Students are introduced to the concept of data through a physical Data Lineup warm-up, then complete the “Who Are You?” class survey, which doubles as market research used throughout the challenge. Closes with a discussion of qualitative vs. quantitative data.

Materials:

- “Who Are You?” survey, printed or digital link (Google Form).
- Clear wall space for the Data Lineup warm-up.
- Handout 1: Who Are You? Survey.

Activity 2 — Introducing the Food Truck Challenge | Day 2 | ~50 min

Essential Question: *How can engineers use data to help a business succeed?*

Teams form, read the Food Truck Challenge Brief, and predict top sellers before seeing any data (Predictions Wall). Each team drafts a first problem statement to revise later in Activity 4.

Materials:

- Handout 2: Food Truck Challenge Brief (one per group, or projected).
- “Predictions” wall chart with two columns.
- Sticky notes (one color per group).
- Engineering Design Logs.

Activity 3 — Class Data Visualization | Day 3 | ~50 min

Essential Question: *How does the way we display data change what we can learn from it?*

Students build a class sibling chart, then examine bar graphs of the compiled food-preference survey data. Groups identify which findings matter most for their own food truck concept.

Materials:

- Compiled class survey responses.
- Blank two-axis sibling chart (poster or whiteboard).
- Bar graphs of food preference data (Google Sheets/Excel), printed or projected.

Activity 4 — Working as Engineers | Days 2 & 4 | ~50 min (split)

Essential Question: *How do engineers use a process to break apart a complicated problem?*

Introduces the Engineering Design Process as the framework for the challenge. Part 1 (end of Day 2) walks through all six EDP stages. Part 2 (start of Day 4) has groups apply Identify the Problem and Understand to their own concept ahead of the cost/menu work in Activity 5.

Materials:

- EDP poster or projection.
- Challenge Brief from Activity 2.
- Engineering Design Logs.

Activity 5 — What Does It Cost? Building Your Menu | Day 4 | ~65 min

Essential Question: *How do cost and data together help us make smart business decisions?*

A hands-on Price Tier Sort introduces cost, selling price, and profit. Groups select 3-4 menu items that match survey data AND make financial sense, then estimate daily profit and revisit the Predictions Wall from Activity 2.

Materials:

- Handout 3: Food Item Cards (one set per group, cut apart).
- Card Stock (assorted colors) — for printing the Food Item Cards (Handout 3).
- Three labeled sorting zones per group (Low/Medium/High-Cost).
- Handout 4: Food Truck Menu Planner.
- Class data charts from Activity 3.

Activity 6 — Logo + Food Truck Expo | Day 5 | ~60 min (or split across two days)

Essential Question: *How can a name, logo, and data display communicate your concept persuasively?*

Teams design a name and logo meeting the Logo Requirements, then prepare their Expo display. The session ends with the Food Truck Expo — a gallery walk where teams share concepts and collect peer feedback.

Materials:

- Art supplies: markers, colored pencils, poster paper.
- Optional digital tools: Google Drawings, Canva.
- Handout 5: Food Truck Expo Display Checklist.
- Sticky notes for gallery walk feedback.

Standards Alignment

NGSS Engineering Design Performance Expectations

Standard	Description	Where It Shows Up
3-5-ETS1-1	Define a simple design problem reflecting a need, including criteria for success and constraints on materials, time, or cost.	Activities 2, 4

Science and Engineering Practices

Practice	Where It Shows Up
SEP-4: Analyzing and Interpreting Data	Activities 1, 3, 5
SEP-5: Using Mathematics and Computational Thinking	Activity 5
SEP-8: Obtaining, Evaluating, and Communicating Information	Activity 6

Common Core Standards for Mathematical Practice

Standard	Where It Shows Up
5.NBT.B.7: Add, subtract, multiply, and divide decimals to hundredths.	Activity 5
MP.1: Make sense of problems and persevere in solving them.	Ongoing
MP.3: Construct viable arguments and critique the reasoning of others.	Activities 5, 6

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