MAHALO!

Aloha

I am thrilled to offer you these worksheets. My email address is educationwithaloha@gmail.com.

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If you and your students enjoy this, a review would be greatly appreciated. Mahalo for choosing Education with Aloha!

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Instructions

Review the Lesson Plan: Familiarize yourself with the lesson plan, its objectives, and the aligned standards so you understand the flow of the lesson and the learning targets.

Assign the Digital Lesson: This lesson is a self-grading Google Form. Share the link below or assign it in Google Classroom. Each student clicks “Make a copy” and works in their own copy at their own pace.

Self-Paced Learning: Students move through the pages in order — a real-world phenomenon, a short reading, the “Learn it” instruction, a data graph or simulation where included, and guided practice. The form teaches the concept step by step.

Automatic Grading: The multiple-choice questions are graded automatically with instant feedback on every answer. In the form, turn on Settings → Quizzes → ‘Release grade immediately’ so students see their score at the end.

Discussion and Review: After students finish, hold a short class discussion to revisit the phenomenon and the key ideas, clear up misunderstandings, and extend the learning.

Extended Thinking — CER: The lesson ends with a claim–evidence–reasoning prompt that asks students to apply the concept. These short written responses are teacher-scored.

Re-Teaching: Students who score below 80% are guided to revisit the Learn and Review pages, then retake the lesson for mastery.

Flexibility: Use this resource the way that best fits your class — a full lesson, a station, early-finisher work, a sub-day activity, homework, or distance learning. It works on any device with internet access.

Link to the digital lesson — open it here.

I hope you and your students find this resource valuable and engaging. Mahalo, and best wishes for the rest of your school year!

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The Case of the $125 Million Unit Mix-Up
The Metric System & Unit Conversions

Objectives:
Define and explain the key ideas of the metric system & unit conversions.
Analyze a real data graph and interpret what it shows.
Apply the concept to a new scenario, supporting a claim with evidence and reasoning.

Warm Up:
Phenomenon Hook: Project the opening scenario — "the spacecraft lost to a missing conversion" — and give students a minute to study it. Ask: How could two teams using different unit systems cause a spacecraft to be lost? What single habit would have prevented it? Let a few students share their thinking before any vocabulary is introduced.
Real-World Relevance: Connect the metric system & unit conversions to something students have already seen in everyday life or the news, then frame the lesson as a way to investigate it.

Direct Instruction:
Assign the Google Form link. Each student clicks "Make a copy" (or opens it in Google Classroom) and works at their own pace.
Students read the short background passage, then the "Learn it" sections that teach the concept step by step.
On the data page, students analyze a real graph and answer an interpretation question.
Students complete the interactive PhET simulation task and report back what they found.
In the "Try it" section the form auto-grades every multiple-choice question and gives instant feedback.
Circulate and support as needed — the form does the grading for you.

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Closure:
Students finish with a claim–evidence–reasoning (CER) write-up applying the concept.
Bring the class back together to revisit the opening phenomenon and discuss a few CER responses.
In the form: Settings → Quizzes → 'Release grade immediately' so students see their score and feedback.
Re-teach: students who score below 80% revisit the Learn and Review pages, then retake.

Tips for Flexibility:
For advanced students, add a short research or design extension related to the metric system & unit conversions.
For students who need support, allow partner work or oral responses to the written prompts.
Use it as a full lesson, a station, early-finisher work, a sub-day activity, or homework.
Because it is self-grading and self-paced, it works equally well in class or at a distance.

Standards:
Next Generation Science Standards (NGSS):
1. MS-PS1-1 — Develop models to describe the atomic composition of simple molecules and extended structures.
2. MS-ETS1-4 — Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.
3. HS-PS1-7 — Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.
Common Core ELA/Literacy Standards:
1. RST.6-8.3 — Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
2. RST.9-10.7 — Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.
3. WHST.6-8.2 — Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

Additional Resources:
metric unit conversions shortcut: fast, easy how-to with examples
Converting in the Metric System
Shortcut for Metric Unit Conversion

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