

Know Your Metrics!

Goal:

Students will compete individually in a competition of naming the correct metrics! Through this activity students will learn the correct metrics for many variables and therefore build a strong foundation for their STEM future!

Video Engagement:

Study Links:

- [Learn the Metric System in 5 minutes](#)
- [A beginners guide to the Metric System](#)
- [Metric Conversion Trick!! Part 1](#)

Materials for each student

Multiple pieces of scratch paper/white board

Competition

Each student will attempt to answer questions about the metric system provided by the teacher. The metric system questions will be based off of the sheet provided below. Students will attempt to answer 10 questions each, and the top 2 students with the most correct answers will face off in the final round with harder variables like sound, light, etc.

How it all plays out:

- Students will be asked questions individually, with no perceivable limit to the number of students who can participate.
- Each student will be asked 10 questions to which the amount of correct answers they provide will be documented
- These questions are ideally to be based off the sheet provided below
- The top 2 students with the most correct answers will face off in the final round involving much more complex metrics!

Rubric:

Objective	Rating (1-5)
Communication - All voices are heard equally, and all students are communicating well with the teacher and each other	
Discipline - The student displays discipline and patience throughout the activity	
Correct Answers - The student's number of correct answers	
Problem Solving - Remains committed to the task in hand, with extra points awarded to students who derive answers through "out of the box" thinking	

Final Steps:

- Ask the students each term again and check their understanding
- Ask them if they could remember the metrics sheet provided below
- Show the videos before the activity to help with their memorization and learning
- Explain the importance of the activity and how applicable it will be to future classes of mathematics, chemistry, biology, etc.

Metrics Sheet

	PREFIX	SYM.	S.N.
THE	TERA	T	10^{12}
GREAT	GIGA	G	10^9
MERCIFUL	MEGA	M	10^6
KING	KILO	K	10^3
HATES	HECTO	h	10^2
DRAGONS	DECA	da	10^1
BECAUSE	-BASE-	-	1
DRAGONS	DECI	d	10^{-1}
CONTINUOUSLY	CENTI	c	10^{-2}
MURDER	MILLI	m	10^{-3}
MEN	MICRO	μ	10^{-6}

Hard SI sheet

electric charge or quantity of electricity	coulomb	C	s·A F·V	s·A
electrical capacitance	farad	F	C/V s/Ω	(s ⁴ ·A ²)/(kg·m ²)
electrical conductance	siemens	S	1/Ω A/V	(s ³ ·A ²)/(kg·m ²)
electrical resistance	ohm	Ω	1/S V/A	(kg·m ²)/(s ³ ·A ²)
energy, work, heat	joule	J	N·m C·V W·s	(kg·m ²)/s ²
force, weight	newton	N	kg·m/s ²	(kg·m)/s ²
frequency	hertz	Hz	1/s	s ⁻¹
magnetic field strength	tesla	T	V·s/m ² Wb/m ² N/(A·m)	kg/(s ² ·A)
power	watt	W	J/s V·A	(kg·m ²)/s ³
pressure	pascal	Pa	N/m ²	kg/(m·s ²)
temperature relative to 273.15 K	degree Celsius	°C	K	K
voltage, electrical potential	volt	V	W/A	(kg·m ²)/(s ³ ·A)

SI base units

Quantity	Base Unit	Symbol
Time	second	s
Length	meter	m
Mass	gram	g
Temperature	Kelvin	K
Amount of a substance	mole	mol