



Understanding the language of engineering helps learners see themselves as engineers! Learners have the ability to quickly develop use of engineering vocabulary when they jump into a challenge and are given new words to bring context to the development and sharing of solutions. Providing context and practicing use of vocabulary, both written and orally, encourages learners to use and connect with engineering language. This is especially important for young learners or those developing fluency in English.

FACILITATION

- Refer to learners as engineers! Frame activities around a real-world problem to create context.
- Introduce a few vocabulary words at a time to align with something learners have already experienced using one of the strategies below.
 - Create a visual glossary by adding vocabulary to a word wall as terms are introduced and refer to it for support. Additional visual representations of vocabulary words are also helpful.
 - Connect vocabulary to students' prior knowledge and/or real-world examples by having them develop age-appropriate definitions for key words.
 - Create additional time to digest new words by having student pair/share to discuss a new word. You can add more formal structures like using Concept Circles or having students think of examples/non-examples for each word.
 - Introduce Total Physical Response (TPR), where hand and body motions can represent a term.

ADDITIONAL NOTES ABOUT USING ENGINEERING VOCABULARY

- Using engineering vocabulary can help students focus on iteration and improvement of a device's failure points, helping keep device performance separate from their self-esteem.
- Try integrating engineering vocabulary into other lessons, helping students practice using engineering vernacular.

FACILITATIVE QUESTIONS TO REINFORCE NEW VOCABULARY

- What is another word or way to say ___ (including in other languages)?
- Where have you seen ___ in the real world?
- What is an example of ___? How can we represent that visually?
- As you describe your solution, be sure to include (note specific term) and show/tell us where this occurs.



ENGINEERING TERMS

Constraint	The limitations of a design problem (e.g., budget, schedule, size restrictions).
Criteria	The requirements, desired features, or standards that a solution must meet.
Design problem	The identified challenge, goal or need that a design addresses; what you are trying to solve.
Design process	The process engineers use to guide them as they solve problems. The process is nonlinear but cyclical, meaning that engineers repeat the steps as many times as needed, making improvements along the way of imagining, creating, testing, reflecting and iterating.
Engineer	A person who designs and/or builds innovative solutions (machines, systems or structures) to solve a problem or meet a need.
Engineering	The process of creating, designing, testing and building a solution.
Failure point	A place where a design or system failed.
Function	The action or purpose of an object; how it moves or interacts with other objects.
Iteration	Refining a solution to address a failure point or optimize a design or solution, once or several times.
Optimal design	A design or device that best meets the criteria and constraints.
Optimization	The process of iterating, refining and making trade-offs until a solution best meets the criteria and constraints.
Prototypes	The models that engineers build to test as they develop their final solution.
Structure	The way something is built, arranged or organized.
Trade-off	Balancing between two desirable but incompatible features.

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