

1.7 Teacher Tool Box- Vocabulary

An Introduction for High School Engineers



I. Vocabulary

Here is a list of vocabulary that may be unfamiliar to new high school engineers.

- **Process:** A **process** is simply a collection of activities that are arranged in a pattern. All engineering teams use some sort of process to guide them through a project, though different teams use different patterns. For example, the EPICS Design Process has seven phases (which we will discuss later), and is cyclical.
- **Cycle:** Sometimes, activities in a process are arranged into patterns that have loops or **cycles** (which makes those processes “cyclical”). This means that instead of simply moving in a straight line from the first step to the last step and then stopping, engineers who use a cyclical process move in loops, and may go back to revisit places they have already been. For example, the EPICS Design Cycle is a kind of loop found in the EPICS Design Process.
- **Model:** A **model** is a simpler (or smaller) guide that can be used to help us think about something more large or complex. For example, a model of a car has smaller or fewer working parts than the actual car that it represents, because this is easier to handle during the design process. The patterns that engineers use to organize their design processes are models too, since they provide a simple skeleton of the phases that the team will go through to finish the project—filling in the rest of the details is up to the team. You can see visual models of the EPICS Design Process and EPICS Design Cycle on the next page.
- **Phase:** In the EPICS design process, engineering teams go through seven **phases** to complete a project. Each phase includes a number of tasks or steps, which we will discuss later in this lesson.
- **Advancing:** Moving forward to a later phase in a cycle is called **advancing**.
- **Iterating:** When the designer is working through the design process and discusses the information with the stakeholder then moves through the phase again, it is called **iterating**. The review of information and the discussions that arise with the stakeholders, project partners and community partners is **iteration**.
- **Divergent steps:** Creative steps in which teams brainstorm and think of new possibilities are called **divergent steps**. This term comes from the word “diverge”, which means to move apart.

- **Convergent steps:** Decision-making steps in which teams narrow down their options are called **convergent steps**. This term comes from the word “converge”, which means to come together.