

What Is an Engineering Design Process?

Science Words

Say each word quietly to yourself. Then read the meaning.

Read the tip to help you remember.

engineering [en•juh•NEER•ing] the use of scientific and mathematical principles to develop something practical

Engineering and *scientific* have four syllables, or parts. *Engineering* makes use of scientific ideas.

design [dih•ZEYEN] conceive something and prepare the plans and drawings for it to be built

Design and *drawings* begin with the same sound. Part of *designing* something is to create drawings of it.

prototype [PRO•tuh•tayp] a test version of a design

Prototype and *product* begin with the same sounds. Making a *prototype* is an important step in creating a new product.

Science Concepts

Read the Ideas more than once. Do your best to remember them.

1. Engineers use science and math to develop things that people use.
2. Some engineers may use biology; others may use chemistry or geology.
3. Engineers use the design process to create and build new technology.
4. The first step in the design process is to identify a need or a problem to solve.
5. The second step is to brainstorm possible solutions to the problem.
6. The third step is to choose the best solution to test.
7. One way to test a solution is to build a prototype, or test model.
8. Keeping good records and drawings of the prototype makes it possible to copy it exactly.
9. The next step in the design process is to test the prototype and analyze the results of the tests.
10. A final step is to communicate the design with sketches, blueprints, and data.

What Is Technology?

Science Words

Say each word quietly to yourself. Then read the meaning.

Read the tip to help you remember.

tool [TOOL] anything that helps people shape, build, or produce things to meet their needs

The vowel sound in *tool* is the same as the vowel sound in the second part of *produce*. A *tool* is an object that helps you produce something you need.

technology [tek•NAHL•uh•jee] any designed system, product, or process that people use to solve problems

Technology, train, and television begin with the same sound. Trains and televisions are examples of *technology*.

Science Concepts

Read the Ideas more than once. Do your best to remember them.

1. Most technology, including books, desks, bikes, bricks, and medicine, does not use electricity.
2. A technology process is a series of steps used to achieve a goal to make a product.
3. Tying shoes and adding music to an MP3 player are examples of technology processes.
4. Tools, parts, and processes that work together form a designed system.
5. Transportation is a designed system that includes sidewalks, roads, traffic signs, buses, trains, and planes.
6. New technology can better meet people's needs, but can also bring new risks.
7. The possible harm from burning coal helps people think of ways to improve technology.
8. The way technology, such as pesticides, is used can cause harm such as contamination of soil, water, and air.
9. Electronic technology in landfills may release harmful chemicals into the environment.
10. Setting limits on computer and game time are ways to use electronic technology responsibly.