Engineering on the Go:
The Technology Deck

2+ PLAYERS

FOR AGES 4+

Technology Tales

Goal: Tell an imaginative story as a family.

Rules: One player starts the story by describing a character and a problem they have. (For example, a kid misses the school bus.) The player chooses a technology card and explains how that technology solves the problem. (For example, the kid rides a bicycle and makes it to school on time.) Then the next player continues the story by describing another problem and choosing a technology that solves it. Interesting or unusual uses of technology are okay, as long as you explain your thinking.

Ending the Game: Keep playing until you decide the story is over.

Bonus: If you enjoyed this game, check out the others! Scroll to the end to see six more games you can play.

Air Conditioning

WHAT DO YOU THINK?

Air conditioning is a technology that changes the temperature. What other technologies change the temperature?
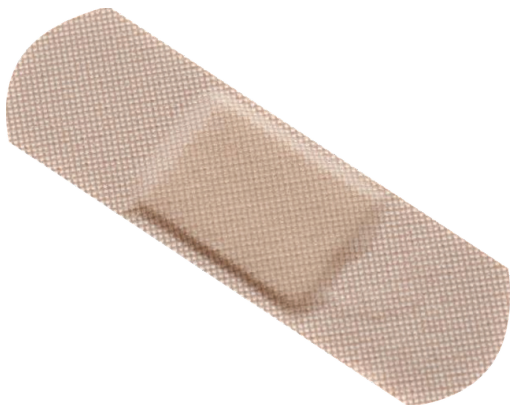
Airplane

Alphabet

WHAT DO YOU THINK?

The alphabet is not a physical object, but it is a technology. What problem did people design the alphabet to solve?

Bandage

CAREER CONNECTION

A **biomedical engineer** figures out how to make technologies related to health and medicine, like bandages and crutches.

Bicycle

WHAT DO YOU THINK?

What technologies help keep people safe when they are riding bicycles?

Book

WHAT DO YOU THINK?

How did people share and store information before they invented books? Name technologies they might have used.

Bottle

CAREER CONNECTION

A **packaging engineer** figures out how to create technologies like bottles and boxes to hold materials.

Bridge

CAREER CONNECTION

A **civil engineer** figures out how to make structures like bridges, dams, and highways.

Calendar

WHAT DO YOU THINK?

Many cultures around the world use calendars with twelve months. Why do you think they chose this number?

Camera

WHAT DO YOU THINK?

How did people record images before they invented cameras? Name some technologies they might have used.

Can Opener

WHAT DO YOU THINK?

What other technologies help people open things?

Car

WHAT DO YOU THINK?

How did people go from place to place before they invented cars? Name some technologies they might have used.

Cell Phone

⚙

WHAT DO YOU THINK?

A cell phone is a technology that can solve many different problems. What problems can a cell phone solve?

Clock

Computer

WHAT DO YOU THINK?

An **input** is a way that a computer gets information, like a keyboard. What are other ways a computer gets information?

Dam

WHAT DO YOU THINK?

Dams solve many problems, like storing water and making electricity. Do dams cause any problems?

Fan

WHAT DO YOU THINK?

The energy to move some fans comes from electricity. What are other forms of energy that technologies use?

Flashlight

WHAT DO YOU THINK?

How did people make light before they invented flashlights? Name some technologies they might have used.

Game

WHAT DO YOU THINK?

Are there games you can play without any pieces or equipment?

Glasses

WHAT DO YOU THINK?

Glasses are a technology that people wear. What other technologies do people wear?

Helpcopter

WHAT DO YOU THINK?

What is the same about helicopters and airplanes? What is different?

Internet

WHAT DO YOU THINK?

The Internet is a network that connects devices. What devices does it connect? How does it connect them?

Map

WHAT DO YOU THINK?

Some maps show countries. What other kinds of things do maps show?

Match

WHAT DO YOU THINK?

How did people start fires before they invented matches? Name some technologies they might have used.

Microphone

⚙

WHAT DO YOU THINK?

Some microphones make sounds louder. What are some technologies that make sounds quieter?

Microscope

WHAT DO YOU THINK?

A microscope is a technology used by scientists to see very small things. What other technologies do scientists use?
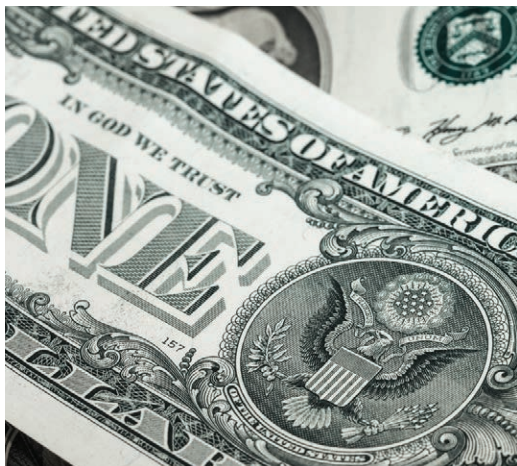
Mirror

CAREER CONNECTION

An **optical engineer** figures out how to make technologies related to light and vision, like mirrors and lasers.
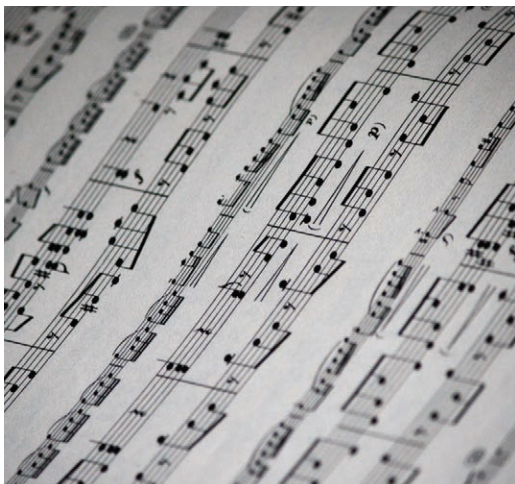
Money

WHAT DO YOU THINK?

Money is a technology because it was designed by people to solve a problem. What problem does money solve?

Music

WHAT DO YOU THINK?

What are some technologies people use to make music? What technologies do they use to record and share it?

Oven

WHAT DO YOU THINK?

Do ovens cause any pollution? What kind of pollution might they cause?

Pencil

WHAT DO YOU THINK?

A **material** is what something is made of. What are the materials in a pencil?

Printer

WHAT DO YOU THINK?

An **output** is a way that a computer gives information, like a printer. What are other ways a computer gives information?

Radio

Recipe

WHAT DO YOU THINK?

An **algorithm** is a set of step-by-step instructions to complete a task, like a recipe. What are some other algorithms?

Recycling

WHAT DO YOU THINK?

A **process** is a series of actions or steps leading to a result or goal, like recycling. What are some other processes?

Refrigerator

WHAT DO YOU THINK?

How did people keep food fresh before they invented refrigerators? Name some technologies they might have used.

Road

CAREER CONNECTION

A **transportation engineer** figures out how to make technologies for moving, like road and train systems.

Sailboat

⚙

School

WHAT DO YOU THINK?

School is a technology that uses many other technologies. What are some technologies you use at school?

Scissors

WHAT DO YOU THINK?

A **property** is a special quality of a material, like being soft or shiny. What properties should scissors have?

Solar Panel

CAREER CONNECTION

A **green engineer** figures out how to make technologies that don't harm the environment, like solar panels.
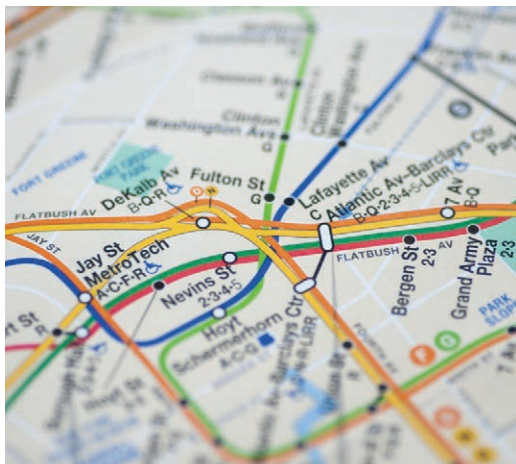
Stethoscope

WHAT DO YOU THINK?

Doctors use stethoscopes to check people's health. What other technologies do doctors use to check people's health?

Subway System

WHAT DO YOU THINK?

A **system** is a group of parts that work together, like the trains and tracks in a subway. What are some other systems?

Sundial

WHAT DO YOU THINK?

How does a sundial work? What might be challenges for using one?

Sunscreen

CAREER CONNECTION

A **chemical engineer** figures out how to make technologies using chemicals, like sunscreen and shampoo.

Television

WHAT DO YOU THINK?

How did people watch performances before they invented televisions? Name some technologies they might have used.

Toothbrush

WHAT DO YOU THINK?

Some toothbrushes are electric and some are not. What other technologies can be electric or non-electric?

Tractor

⚙️

Traffic Light

WHAT DO YOU THINK?

Traffic lights tell drivers what to do. What other technologies tell drivers what to do?

Vaccine

⚙ ⚙ ⚙ ⚙

WHAT DO YOU THINK?

Vaccines are a technology that help people stay healthy. What other technologies help people stay healthy?

Wind Turbine

X-Ray

WHAT DO YOU THINK?
Why do doctors use x-rays?

★ Sorting ★

Goal: Figure out what category each technology belongs in.

Rules: As a group, choose a topic. For example: "Material," "Power Source," "Problem Solved," or "Type of Engineer."

Go through the cards and talk about what category each one belongs in. For example, if the topic is "Material," decide whether each technology is made mostly from

- glass (for example, a bottle)

- metal (for example, scissors)

- paper

- plastic

- stone or cement

- wood

Ending the Game: Keep playing until you have sorted as many cards as you can.

★ Mashups ★

Goal: Combine two technologies to design a new technology.

Rules: Scroll through the cards and choose two technologies. Imagine a technology you could create by combining those two technologies.

Some questions to think about:

- What problems do the technologies solve? What problem will the combined technology solve?

- Do the technologies share any parts? What parts will the new technology have?

- What materials are the technologies made from? What materials will the new technology be made from?

- What will you call the new technology?

Ending the Game: When you have designed your new technology, you can draw a picture or tell people about it.

⭐ Foreheads ⭐

Goal: Guess a technology without looking at it.

Setup: This game works best on a cell phone or other mobile device.

Rules: One player scrolls to a card at random and holds it on their forehead without looking at it. That player asks other players yes-or-no questions to figure out what the technology is. For example:

- Is it used to _____?

- Is it powered by _____?

- Is it made mostly of _____?

- Is it designed by a(n) _____ engineer?

Ending the Game: When the player guesses the technology, another person takes a turn as the guesser.

⭐ Descriptions ⭐

Goal: Get other players to guess a technology without saying what it is.

Rules: One player chooses a card. That player describes the technology on the card without naming it. For example:

- It is made of glass.
- It helps people see behind them.
- An optical engineer designed it.

The other players try to guess what it is.

Ending the Game: When someone guesses the technology, they take a turn as the describer.

Bonus: For added challenge, play on teams. See how many technologies each team can guess within a time limit.

⭐ Charades ⭐

Goal: Get other players to guess a technology by acting it out.

Rules: One player chooses a card. That player acts out the technology on the card without using words. For example, the actor can

- pretend to be the technology.
- pretend to be a person using it.

The other players try to guess the technology. This game works well if you play after a different game and use the same cards.

Ending the Game: When someone guesses the technology, they take a turn as the actor.

Bonus: For added challenge, play on teams. See how many technologies each team can guess within a time limit.

★ Dominoes ★

Goal: Make a chain by connecting technologies.

Rules: Choose one card to be the starting technology. Then, on their turn, each player chooses a new card to connect with it. The new technology must have something in common with the previous card chosen. For example:

- they solve a similar problem.

- they have a shared part.

- they use the same power source.

- they are made from the same material.

Ending the Game: The game ends when you can't make any more connections.

Bonus: See if you can make a chain that connects all the technologies in the deck!

⭐ **Difficulty** ⭐

Symbols show how difficult a technology will probably be to use in a game:

⚙️ Easy

⚙️⚙️ Medium

⚙️⚙️⚙️ Hard

⚙️⚙️⚙️⚙️ Very Hard

You can choose whether to play with just cards of one difficulty, cards of multiple difficulties, or the whole deck.

Suggestions are included to make the games more challenging.

⭐ Keep Playing ⭐

Once you have played with the deck for a while, you can try the following extensions:

- Choose new technologies to play with.

- Find new games to play with the deck. For example, you can adapt classic games like **20 Questions!**

- Use the prompts at the bottom of the cards to start conversations about technologies and engineering careers.

If you play for a few minutes each day, you can make thinking about technology and engineering part of your family routine!