

# SHAKE UP

## SCIENCE 2



STUDENT BOOK



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# Unit 1

## The Design Process

**THE BIG ?** How do you solve problems?

**I will learn**

- how technology helps people solve problems.
- what materials different objects are made of.
- to explain the design process.

**1** Look and circle the tools they are using.



**2** Think of something you want to make. Name the tools you will need.

**Think!**  
 What are the father and son in this picture making?

### Lesson 1 • What is technology?

**1** Read, look, and mark (✓) the tool the boy is using.

**Key Words**

- technology
- science
- scientist
- discovery

#### Technology

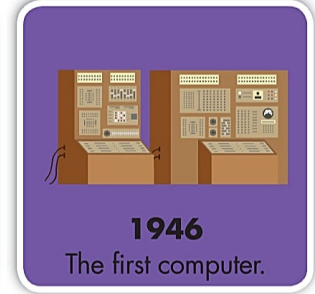
**Technology** is using **science** to help solve problems. Computers are a kind of technology. **Scientists** use technology to make **discoveries**. Sometimes scientists discover new technologies.



Technology helps scientists to do their work.

computer     tablet     cell phone

**2** Do we use all these inventions now? Say as a class.



- ▶ 3 Read and underline a problem that technology solves.

### Solve Problems

Technology helps people solve problems. One problem is that people need to communicate with each other. They might not be in the same place. They can use a telephone. A telephone is technology.



*The boy uses a pencil to communicate.  
A pencil is technology.*

- 4 Look and circle other examples of technology.



- 5 Look at the timeline on page 5. Number the inventions 1, 2, or 3 in the order they were invented.

telephone

bicycle

computer



- ▶ 6 Read. What are three kinds of technology a car can have? Say with a partner.

### Staying Safe

Technology helps people stay safe. People use cars to get from place to place. Seat belts and airbags help make cars safe. Safety seats help children keep safe in a car.

*Technology helps people  
stay safe in cars.*



- 7 Draw another kind of technology that helps people solve problems.



**Go Green**

### Helping Earth

Think of a technology that helps keep the air or water clean. Tell how it helps.





## Lesson 2 • What are objects made of?

- ▶ 1 Read. Look and point to three objects in the park that people made.

### Key Words

- materials
- cotton
- natural
- rock
- wood
- plastic

### Different Materials

People use **materials** to make objects. Some materials are natural. **Natural** means not made by people. Materials that come directly from Earth are natural. **Wood** and **cotton** are natural. **Rocks** and minerals are natural, too. Sometimes people use natural materials to make new materials.

**Plastic** is a material people make.



- ▶ 2 Look at the photo. Circle one material that is natural and cross out (x) one material that is made by people.



- ▶ 3 Read. Look and color the frame around the materials you might use to build a house.

### Natural Materials

Natural materials are different from each other. People use them in different ways. Wood and rocks are hard. People use them to make buildings. Cotton is soft. People use cotton to make clothes.

- ▶ 4 Write one kind of material you might use to make a pillow.



- ▶ 5 What material is soft? What materials are hard? Say with a partner.





- ▶ 6 Read and write two things people can make out of plastic.

### Man-Made Materials

People make new materials, and they use them in different ways. Plastic is a new material. Some plastic is hard, and some plastic is soft. People use more than one material to make some objects. They can use plastic and wood to make a chair.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



*Packing foam is a soft type of plastic.*



*A plastic cup can hold food or a drink.*

### Flash Lab

#### Materials

Find two objects. Tell what materials people used to make them. Tell if the materials are natural or people made them.

## Lesson 3 · What is the design process?

- ▶ 1 Read. Circle the problem and underline the goal.

### Key Words

- goal
- plan
- solution
- label
- problem

### A Problem and a Goal

Wood ducks are animals that need shelter. First, you set a goal, to design a house for wood ducks. A **goal** is something you want to do. Your house for wood ducks will be a solution. A **solution** solves a **problem**.



*Wood ducks do not make their own shelters. They use shelters that people or other animals make.*

- ▶ 2 Draw a house for a wood duck.

### Plan and Draw

Next, you make a **plan** to build your house for wood ducks. You write about how to make your house for wood ducks. You draw what your house for wood ducks will look like.