

Unit 1 What's in a Baseball?

Do you like baseball? Do you play it?

What do you need to play it?

You need a bat and a ball.

Baseball bats are made of metal or wood.

Baseballs are made of cork, rubber, and leather.

Let's see how to make a baseball.

Step 1. Use a cork for the center of the baseball.

Step 2. Cover the cork with black rubber and wrap it again with red rubber.

Step 3. Wrap the red rubber with different kinds of string.

Step 4. Wrap the outer part with two pieces of leather.

Step 5. Sew the leather with red thread.

Why is a baseball made of cork, rubber, and leather?

Each material has a different use.

Unit 2 Bo's House

Three brothers build houses.

Billy builds a paper house. "Paper is light.

It folds easily."

The wind blows the paper house away!

Bobby builds a metal house. "This house is
safe. It's like armor."

The sun comes out. The metal house gets too hot!

Bo builds a brick house. "Bricks are strong. They are safe in any weather."

"Knock, knock."

It's Billy and Bobby.

"Can we stay with you?"

Unit 3 Solid Shapes

Let's look at solid things.

Take a long wooden stick and some bowls.

Put the wooden stick in the bowls.

Step 1. Put it in a long, round bowl.

Step 2. Put it in a square bowl.

Step 3. Put it in a flat bowl.

The wooden stick stays the same.

It does not change to match the shape and volume of the bowl.

Metal, plastic, and wood are solid things.

Solid things have their own shape.

They can be many different shapes.

But they don't change their shape.

They don't change their volume.

Unit 4 Solid or Liquid?

“Is sand a liquid?” asks Jason.

“When I put it in a round bowl, sand changes shape.

It’s round like the bowl.

This box is a rectangle. When I put sand in this box, it is a rectangle, too.

Sand changes shape like a liquid.”

“It looks like it changes shape,” says the teacher.

“But the shape of the grains of sand doesn’t change.

So, sand is a solid.

Solid things don’t change shape or volume.”

Unit 5 Dancing Sounds

You can hear sounds with your ears.

But can you see sounds, too?

Yes, you can!

Try this, so you can really see sounds!

Step 1. Turn on a speaker and place it in a bowl!

Step 2. Put plastic wrap across the top of the bowl. Wrap it tight.

Step 3. Pour some sprinkles into a zipper bag. Seal the bag.

Step 4. Place the bag on top of the bowl.

Step 5. Turn on the music and watch the sprinkles dance. Change songs and turn up the volume. How do they move now?

Wow! The sprinkles move with the music!

Vibrations make sounds.

We call them sound waves.

Unit 6 Buzzing Bees

Sarah sees a bee at the park.

It flies away. It buzzes.

“Mom, how does it make that sound?”

“The bee moves its wings. This makes a sound.”

“Moving makes a sound?”

“Yes. A bee moves its wings very fast.

The air shakes your eardrum.

You hear the buzzing sound.”

“Can I make a sound by moving my arms?”

“It’s not easy! You have to move your arms very fast!”

Unit 7 Juicy Cups

Take a bottle of orange juice.

Let's pour this orange juice into different cups.

Step 1. Pour orange juice into a see-through cup. Mark where the juice is with a pen.

Step 2. Pour the juice into different cups. Look at the shape of the juice.

Step 3. Pour the juice back into the first cup.

Do you see any changes?

The shape of the juice changes with each cup.

When you put it in the first cup again, what do you see?

The height is the same.

The shape changes with each cup, but the volume doesn't change.

This is liquid.

Unit 8 Shopping for Milk

Jane and Mom went shopping.

They needed milk.

“Mom, that paper carton is square. But this plastic bottle is round.

What is the difference?”

“Only the shape is different. They are both milk.

Liquids like milk change their shape.”

“Which one has more milk in it?”

“They both say 1,000 ml. They are the same.

Different bottles, same amount.”

“Let’s buy this paper one.

It has a cute cow on it!”

Unit 9 Having Fun with Magnets

Which materials stick to a magnet?

Let's take a look.

Take things made from plastic, wood, rubber, metal, and glass.

Take a magnet.

Step 1. Put the magnet next to a plastic button.

Step 2. Put the magnet next to a paper clip.

Step 3. Put the magnet next to a pin.

Step 4. Put the magnet next to a wooden chopstick.

Step 5. Put the magnet next to an eraser.

Which things stick to the magnet?

Which things don't stick?

Plastic, wood, rubber, and glass don't stick to the magnet.

Metal things stick to the magnet.

The paper clip and the pin are made of metal.

Unit 10 My Favorite Hairpin

Sarah was at the beach.

She wasn't having fun, though.

"What's wrong?" asked Jack.

"I dropped my favorite hairpin! I can't find it."

"I can find it. I have a magnet."

"How can you find it with that?"

"Your hairpin is metal. It will stick to a magnet."

Look! Here it is."

"Wow!" said Sarah.

"I want a magnet, too!"

Unit 11 Making Scales

Do you need to weigh something?

Do you have a scale? You don't?

How can you weigh it?

You can make a scale at home.

Step 1. Get a pants hanger and two zipper bags.

Step 2. Choose something to weigh.

Step 3. Put it in one zipper bag. Put some paper clips in the other zipper bag.

Are both sides of the pants hanger at the same level?

Then they weigh the same.

You can weigh things like this.

You can see how heavy they are.

What else can you weigh with your new scale?

Unit 12 Different Kinds of Scales

Susie's mom puts flour on a scale.

"Why are you doing that?" Susie asks.

"I'm making a cake. I must weigh the things

I use to make it," Mom says.

Susie used a scale last week. She checked her weight on the bathroom scale.

A scale tells us how heavy something is.

In different places, there are different kinds of scales.

There are scales in the kitchen.

There are scales in a hospital.

What scales do you know?

Unit 13 Fruits Boats

Mary and Fraser are going to make boats.

They are using an apple, lemon, cherry, and kiwi.

Which fruit can you make into a boat?

Let's make fruit boats!

Step 1. Cut the fruit in half.

Step 2. Make a small sail.

Step 3. Put the sail on the fruit.

Step 4. Put the boat in a large bowl of water.

Which fruits sink?

Which fruits float?

Apples and lemons float.

They have lower density than water.

These fruits can be good sailboats.

What about cherries and kiwis?

Do they float?

Unit 14 The Farmer's Secret

Mary and Brian are farmers.

Brian grows a lot of rice.

But Mary doesn't grow a lot.

Mary asks Brian, "How do you grow so much?"

"I am going to tell you," Brian says.

"But don't tell anyone else."

"The secret is density. Put rice seeds in salt water.

Good seeds sink. Bad seeds float.

Bad seeds are empty.

I only use good seeds.

So I get a lot of rice."

Unit 15 Cars of the Future

Look at the sign. What does it mean?

Electric cars use a battery.

They don't burn gasoline.

They aren't dirty. They are clean.

Because of this, they are good for Earth.

They don't have noisy engines. They are quiet.

Who makes electric cars?

Electric car engineers make electric cars.

Electric car engineers make electric cars cleaner.

Electric car engineers make electric cars quieter.

You can be an electric car engineer, too.

Unit 16 Recording Sounds

Put on your headphones.

Play some music.

Does it sound good?

The singer's voice is high.

The drums sound loud.

The guitars sound clear.

Who records these sounds?

Sound engineers do.

They use a microphone to record sound.

They use a machine to change the sound and make it really good.

They work on music. They work on movies and TV.

They make them sound great!

Do you want to be a sound engineer?