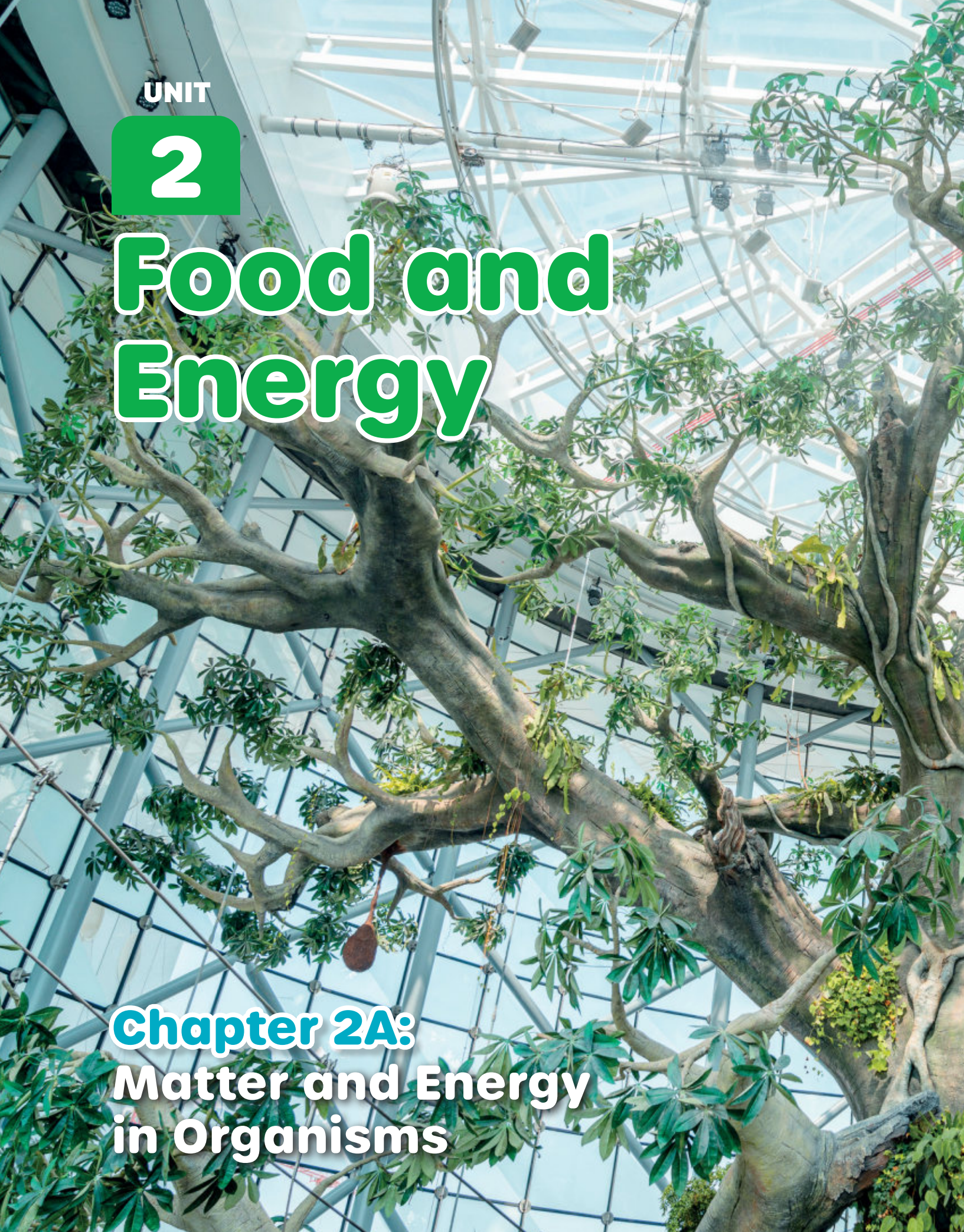
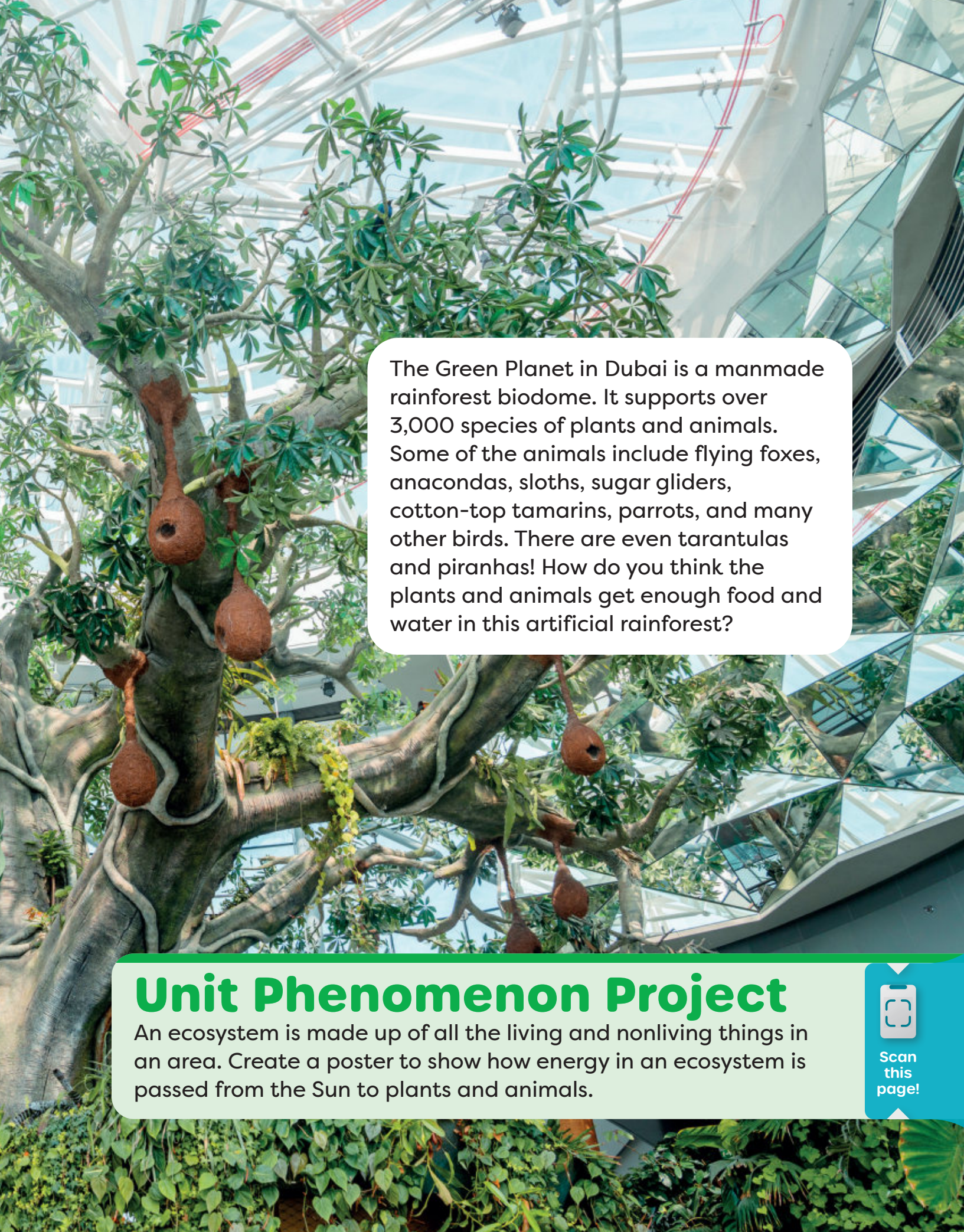


UNIT

2

Food and Energy

Chapter 2A: Matter and Energy in Organisms



The Green Planet in Dubai is a manmade rainforest biodome. It supports over 3,000 species of plants and animals. Some of the animals include flying foxes, anacondas, sloths, sugar gliders, cotton-top tamarins, parrots, and many other birds. There are even tarantulas and piranhas! How do you think the plants and animals get enough food and water in this artificial rainforest?

Unit Phenomenon Project

An ecosystem is made up of all the living and nonliving things in an area. Create a poster to show how energy in an ecosystem is passed from the Sun to plants and animals.

Scan this page!

Chapter

2A Matter and Energy in Organisms

Essential Question

How is matter transported into, out of, and within a system?

Chapter Project

A terrarium is a mini garden in a transparent container made of clear glass or transparent plastic. You can place small plants and certain small animals in a terrarium.

Build a terrarium using a large plastic bottle.

Follow the steps to build your terrarium.

1. Let your teacher help you cut around the bottle. Cut out a part of the plastic to make a shorter bottle.
2. Place some pebbles at the bottom. Place some soil over the pebbles.
3. Make a small hole in the soil with your finger. Carefully place your plant(s) in the hole and fill up with soil. Spray some water on the soil to moisten it.
4. Cover with the top part of the bottle. Use some tape to ensure a tight fit.
5. Place it in a warm and lighted area, but not in direct sunlight.

Lesson 1 Food and Energy for Animals

Key Terms

photosynthesis producer carnivore
herbivore omnivore

Recall

1. What do humans and animals need to survive?

2. How does a leopard get its food?

3. How does an antelope get its food?

Engage

How a Camel Gets Its Energy

Scan this page!

1. What is happening in the picture?
2. How does a camel get energy?
3. What will happen if there are no grasses or other plants for the camel to eat?

Explore

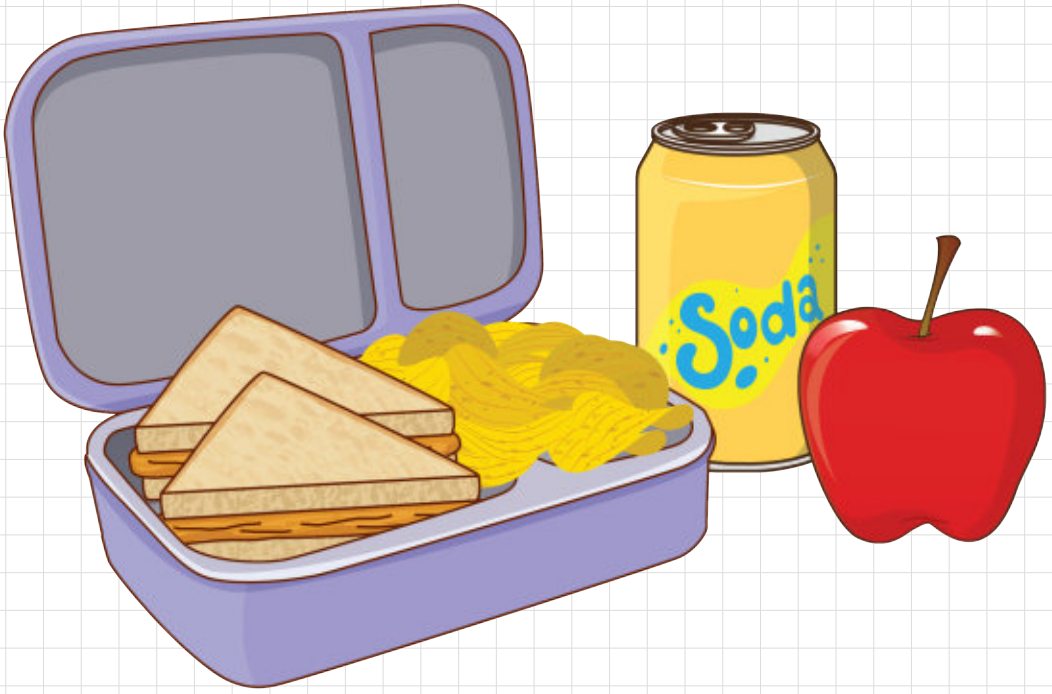
Energy From Food

In **Engage** on page 6, you learned that a camel gets energy from food and from the fat in its hump. Food provides the camel with materials to grow and repair its body. Food also provides it with energy to keep its body temperature constant and do things. Now, you will **Explore** where we get energy from.

We get energy from carbohydrates and fats. We need energy to move and keep our body temperature constant. We need proteins for growth, to build and repair muscles and bones. Fibers keep our digestive system healthy.

Look at the picture below. Which of the foods are high in carbohydrates, proteins, and fats?

Ten-year-old Peter recorded in a table what he had for lunch yesterday. He also wrote down the nutritional information of what he ate.



Food item	Amount of energy	Protein	Carbohydrate (including sugar)	Fat	Fiber	Salt
Peanut butter sandwich	342 calories	12 g	38 g	17 g	3 g	568 mg
Apple (medium)	95 calories	1 g	25 g carbohydrate (19 g sugar)	0 g	3 g	0 mg
Chips (30 g)	161 calories	2 g	15 g	11 g	1 g	140 mg
Can of soda (330 ml)	240 calories	0 g	65 g sugar	0 g	0 g	75 mg
Total	**838 calories**	**15 g**	**143 g**	**28 g**	**7 g**	**783 mg**

The amount of energy in a food item is measured in Calories. It is useful to note that 1 kilocalorie (kcal) = 1 Calorie (Cal).

The table shows the recommended daily amounts of sugar, salt, and water for children within certain age ranges.

Age	Sugar (g)	Salt (g)	Water (cups)
4–8 years	19	4	7–8
9–13 years	24	6	9–10
14–18 years	25	6	10–11

1. Look at what Peter had for lunch and the recommended daily amounts. Answer the following questions.

(a) Which food item contained the most proteins and fats?

_____

(b) Explain why the apple is a better food than the chips.

_____

_____

(c) Compare the amount of sugar in a can of soda with the recommended daily amount. What do you notice?

_____

_____

(d) What would be a healthier choice of drink for Peter?

_____

(e) Chips and soda are known as "empty calories." Why do you think they are called this?

_____

_____