

## TECHNOLOGY WORKSHEETS: TERM 2

### Shells, frames and solids

If you look around the classroom, you will see many other structures. For example, the classroom and the school buildings are structures.

In this chapter, you will learn about natural and man-made structures. You will also learn about shell structures, solid structures and frame structures.

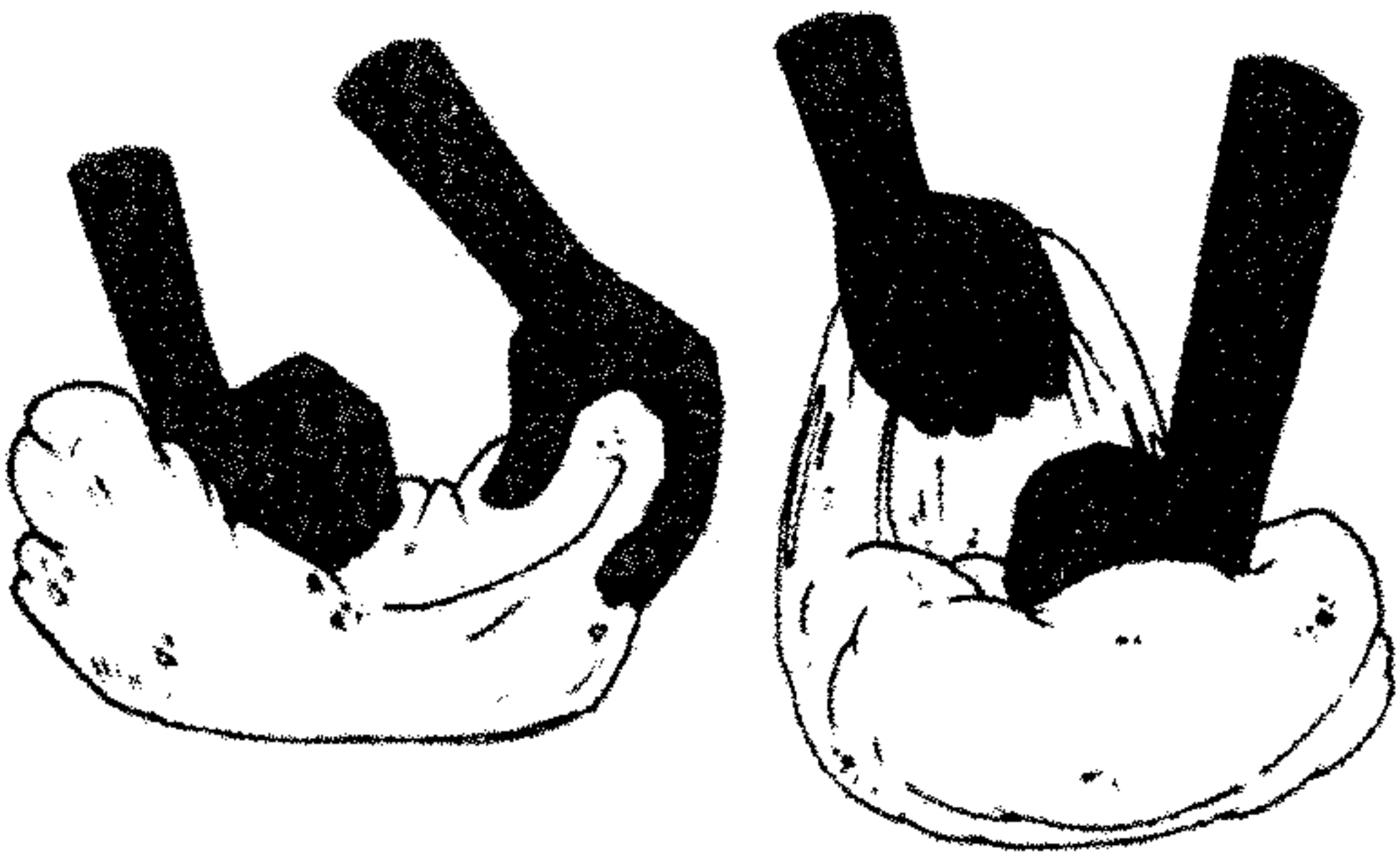


Figure 1: Is a piece of dough or wet clay a structure?



Figure 2: What does it mean to construct something?

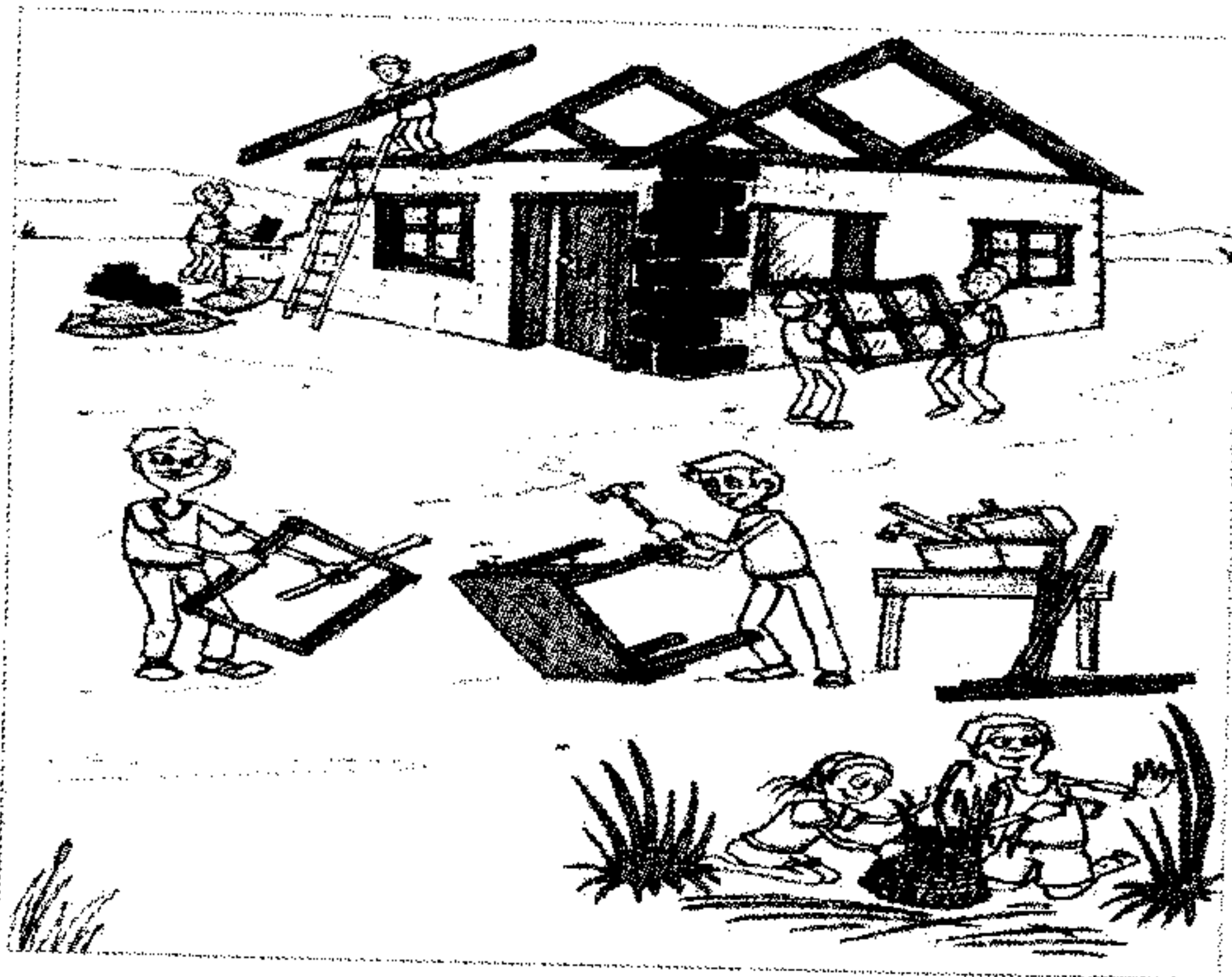


Figure 3: What does it mean to construct something?

### Things called structures

Look around you. Choose any object, for example a cupboard, a table, a chair, a basket, a bottle, a shoe, a pencil case or a brick. Then answer the following questions about this object.

1. What is this object called?

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2. What is it used for?

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3. Can it be used to keep certain things in one place, so that they do not lie around all over the classroom?

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4. Can it be used to protect something, for example to protect it from sunlight or wind?

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5. Is it used to support something?

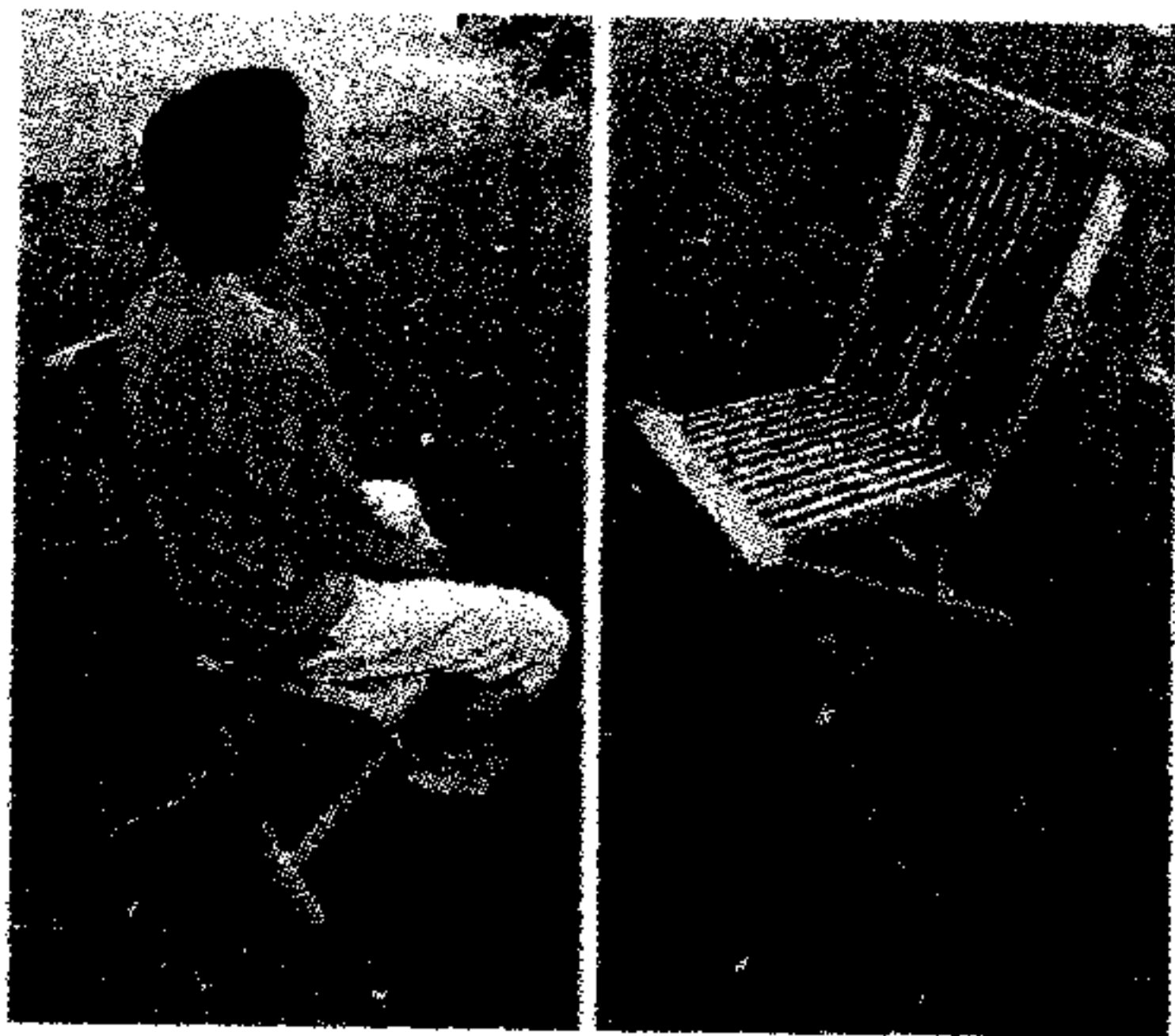


Figure 4: The chair supports the person sitting on it.

This man is sitting comfortably on the chair. You can say that the chair **supports** the man and keeps him from falling off.

6. Describe two other objects that are different from chairs, but are also used to support something or someone.

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Figure 5: The bridge spans the stream.

A bridge that crosses a stream or a river from one end to the other helps people to cross it without getting wet. You can say that the bridge **spans** the stream.

### A small business situation

Suppose you want to set up a stall at a market to sell food such as sugar, flour, maize, rice, eggs, beans and cooking oil. So you buy one large bag each of sugar, flour, maize and rice, and a 20-litre drum of cooking oil.



Figure 6

1. Make a list of the things you can see in this picture.

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2. What else do you need to set up your stall before you can sell the goods?

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3. What type of container will the eggs you sell come in?

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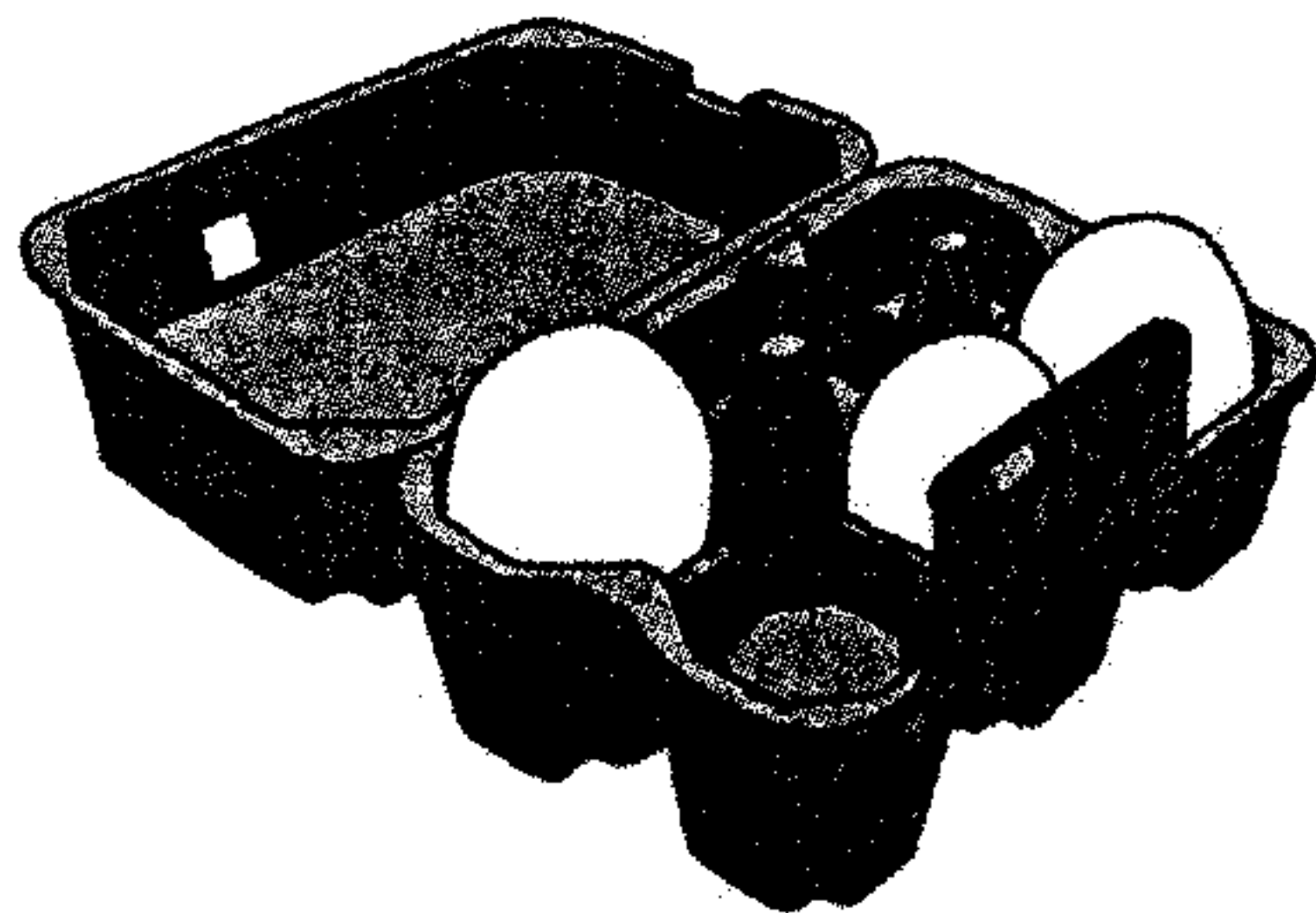


Figure 7

4. Why are eggs packed in special containers such as the one you see in this picture?

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5. If you wanted to make a table from the two empty crates, what else would you need?

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6. Suppose a woman wants to buy 2 kg of flour from you. Will you ask her to hold out her hands so that you can put the flour in her hands, or will you make another plan?

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7. What will you use as **containers** when you sell maize, rice, sugar and flour to people?

A **container** is something that you use to keep things together in one place, like a paper bag for rice.

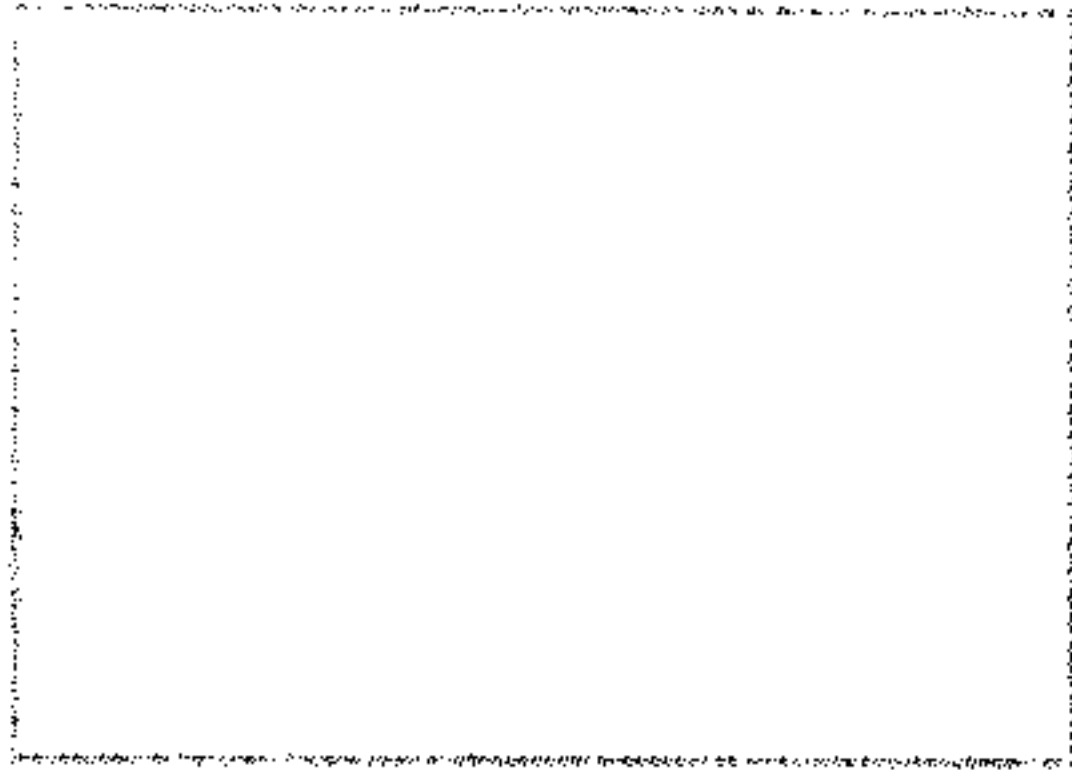
8. What will you use as a container to sell oil?

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9. What did you decide to use to span the two crates to form a table, when you answered question 5 above?

The table you will make, the crates that you use to make the table, the containers in which you get the eggs and the plastic bottles in which you sell the oil are all called **structures**.

There are many other things that are also called structures.

10. How will you protect yourself and the goods you sell when it rains? Draw the **structure** that you will use for protection.



People design and make structures for different reasons. Many structures can help you to do one or more of the things below.

To **contain** or hold something, so that it is not all over the place, and to keep it apart from other things.

To **protect** something, so that it is not damaged.

To **support** something and hold it up.

To **span** the space between two objects so that they are connected.

11. Can you think of a structure that can do more than one of these things?
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#### Man-made and natural structures

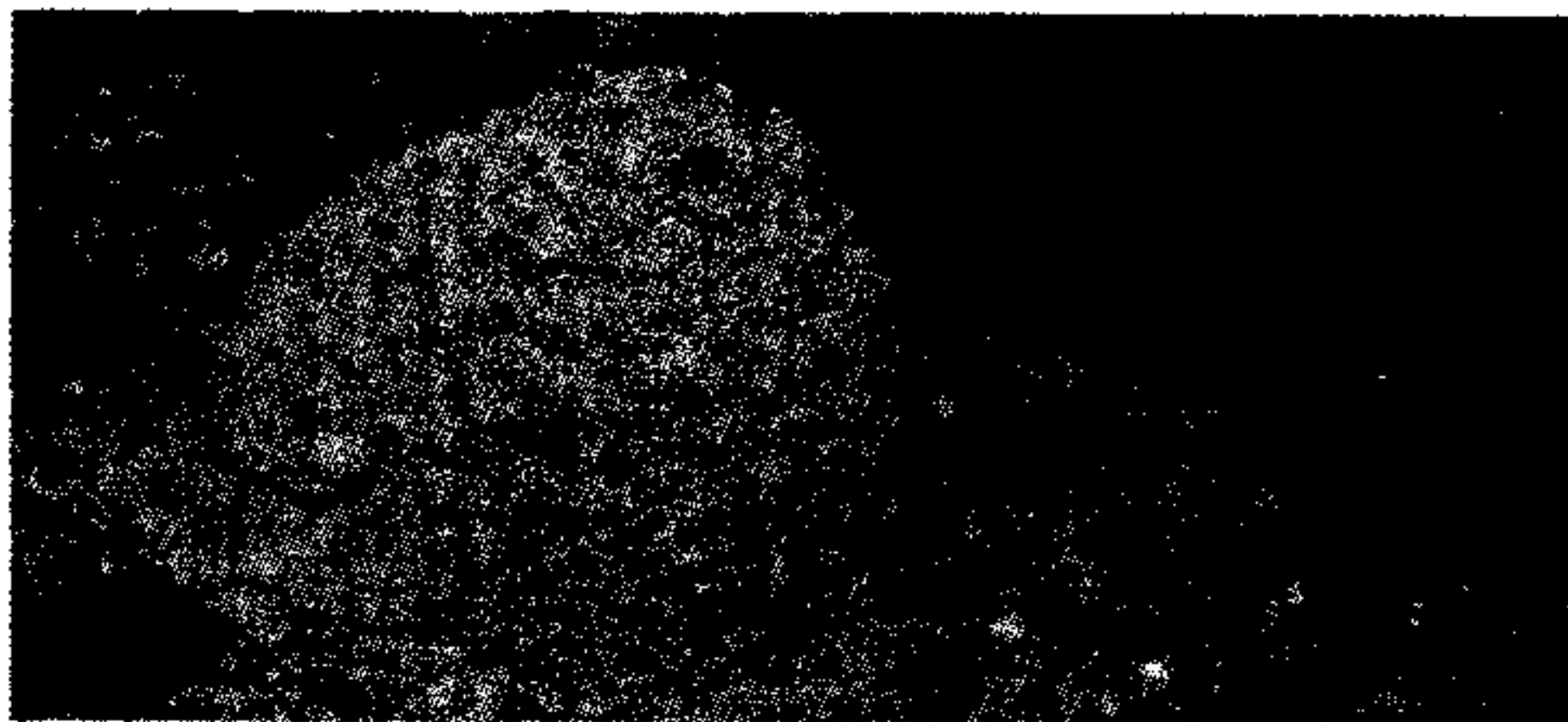


Figure 8: A termite mound

Have you ever looked closely at a termite mound? It really is wonderful how it contains and protects termites and their food against the weather and against their enemies. There is a whole city in there!

The material (soil) is reworked by them to make it harder so that it can withstand shocks, while its shape allows rain to flow off it easily. It is an example of a natural structure and it is not man-made.

Man-made shelters have the same functions - to protect people and their belongings. Before man-made shelters such as houses and tents existed, people used caves or trees for protection.

There are lots of different structures around us. Some are built by us and some are already there in nature. The termite mound is a structure, but it is not built by people. We call structures like that **natural structures**.

A cup that you use to drink tea or coffee is also a structure. It is a **man-made structure** because it was made by people.