Name:..... Form:.....

See **pages 14 and 15** of *The Water Book*

Practical work: Big users!

Find out how much water fields of plants need.

A classroom is a kind of desert because it never rains. It is a good place to find out just how much water a growing plant uses. This will help us work out how much water is used by plants growing in fields.

You will need a good, large, leafy houseplant and a measuring cylinder. Choose a plant that has soft leaves, not leathery or shiny ones (these plants come from places where there is drought and so they do not use much water).

1. Put the plant on a windowsill in the classroom and water it until the soil is moist. Add the water with a measuring cylinder to find out how much water you added. As soon as the soil begins to dry out, record the amount of water you need to add. Keep doing this for a couple of weeks.

If you stand the pot in a saucer, you will see if any water seeps out from the bottom of the pot when you water the plant. Measure this water and take it away from the amount you added.

✎ .....

2. Once you have several measurements you can work out how much water the plant needs each day.

✎ .....

3. Let's imagine that if the plant were in a field it would be spaced a metre from its neighbours. On a piece of farmland which is one kilometre on each side there would be 1,000 plants in a row and a thousand rows – a million plants.

4. Use your measurements to find out how many litres of water such a field would need each day, assuming it did not rain. (The answer is 1 million times the amount you measured.)

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6 B Answers, Notes, Background

See **pages 14 and 15** of *The Water Book*

Answers

The answer will be different for each plant. Check each student's work to make sure they have multiplied correctly.

Notes

Here is a simple practical that brings home just how much water irrigation can use.

There are several important points. First, children may not have thought of their classroom as a climatic desert. You may need to explain what a desert is (we will need this information later in the book).

Second, we introduce the idea of scaling up from samples. There are lots of flaws with this experiment in terms of scaling it up to a field, but for our purposes we can ignore these.

LINK: *Children will not necessarily have imagined how many plants you can get into a field. This is a simple exercise in maths. The ideas of transpiration is a link to science.*

If you want to get more perspective, find out how much water fills a bath tub and get children to find out how many bath tubs of water will be needed to water our field. This way they can see how farms in dry countries may need very large amounts of water indeed.

It is also the case that some plants (paddy rice, for example, which feeds half of the world) are swamp plants, so when they are grown in fields they need even more water than most other plants. These kind of plants would have to be in flooded (paddy) fields; they cannot be spray irrigated.