Maths
Takeaway

This month's special

Starters

Main course

In the garden

Did you know …?

- The largest seed in the world is the double coconut. It can measure up to 50 cm (1.6 ft) around the middle! Coconuts have a fibrous coating and an air space inside them, so they can float to a new home. Some coconuts have floated 2,000 km over the sea before they find dry land!
- Some orchid seed-pods hold three million seeds.
- Some seeds – thought to be more than 10,000 years old! – found in frozen soil in Canada were grown and produced flowers.
- Wild clematis grows climbing, sprawling stems up to 30 m long (100 ft) – that's about 20 people from top to toe!

Visit www.bbc.co.uk/gardening for more gardening facts and stats. Visit www.gardenorganic.org.uk/schools_organic_network/nat_curr/index.htm for activities linked to the maths curriculum for schools.

move up

QIA Quality Improvement Agency

Can you …

- work out how much fertiliser you should buy for your lawn if you need to apply it at 25 g/m^2?
- measure planting distances in centimetres?
- correctly make up some pesticide to the right ratio of product to water?
- record the maximum and minimum temperature of your greenhouse so you know whether it is safe to plant out your tender plants?
- calculate and compare the costs of growing plants from seed to the cost of buying from a garden centre?

Check out your maths skills by doing the mini-test at:

www.move-on.org.uk/testyourskills.asp

You can join a free group to improve your maths and gain a national qualification. Ask at the library, your local college or learning centre, ring 0800 100 900, or look on the Move On web site to find a local test centre.

The rabbit problem

1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89 …

The row of numbers above forms a pattern called a sequence. Any number in the sequence is found by adding together the previous two:

$13 = 8 + 5$

What are the next two numbers in the sequence?

In 1202, an Italian mathematician called Leonardo of Pisa (or 'Fibonacci' to his friends) published a book containing a problem involving the reproduction of rabbits. If you are a gardener, you already know that rabbits are a problem!
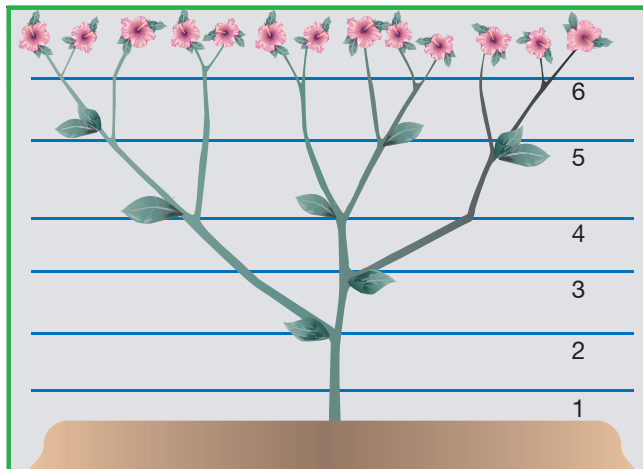
A man put a pair of rabbits in a cage. The number of new pairs of rabbits that were produced each month increased by one pair, then one pair, then two pairs, then three pairs, then five pairs – in a sequence that is now known as the Fibonacci sequence.

The sequence frequently appears in nature. It can be found in the:

- family tree of male honey bees
- segments in the spirals of seashells
- pattern of petals of flowers
- branching of trees and plants.

Specials

Fibonacci numbers and plants

One plant in particular shows the Fibonacci numbers in the number of 'growing points' that it has. Suppose that when a plant puts out a new shoot, that shoot has to grow two months before it is strong enough to support branching. If it branches every month after that at the growing point, we get the picture shown here.

A plant that grows very much like this is the 'sneezewort': *Achillea ptarmica*.
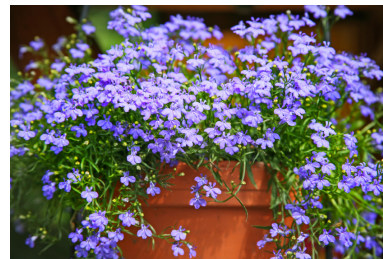
For more examples, pictures and interactive games exploring the Fibonacci sequence in nature, visit:

www.mcs.surrey.ac.uk/Personal/R.Knott/Fibonacci/fibnat.html#commonplants

Set menu

1 Lobelias are planted in trays of 24. You need 110 plants for a planting scheme. How many trays will you need?

A 4
B 5
C 24
D 6

2 You can prick out 20 seedlings in ten minutes. How many seedlings can you prick out in one hour?

A 180
B 150
C 30
D 120

3 A tree grows about 30 cm in one year. How much will it have grown in ten years?

A 3 m
B 300 m
C 4 m
D 300 mm

If you would like to try more questions at this level, go to Stop 4 of the Move Up Teacher Route on the Move On web site to try out the Move Up test.

If you enjoyed these questions and want to try some harder ones, log on to the Move On Learner Route at www.move-on.org.uk.

Extras

Grin or groan?

Q: If you dug a hole 20 cm wide, 40 cm long and 50 cm deep, how many earthworms would you find in the hole?

A: None – it's a hole!

Q: Why do potatoes make good detectives?

A: Because they keep their eyes peeled.

Knowledge is knowing that a tomato is a fruit; wisdom is not putting it in a fruit salad.

Resources for tutors

Resources are available to download from www.move-on.org.uk. Register on the site to access the Move Up Teacher Route at www.move-on.org.uk/mu_route.asp.

If you have any resources, jokes, quizzes, games, etc., about maths at work, please e-mail info@move-on.org.uk.

If the ideas on this page have encouraged you or someone you work with to try out some maths, please let us know.

Answers: Main course – 144, 233; Set menu – 1 b, 2 d, 3 a