

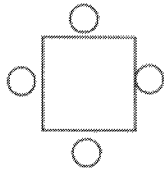
Answer each of these questions for each of the patterns given

What are the next three numbers in the pattern? How do you know?

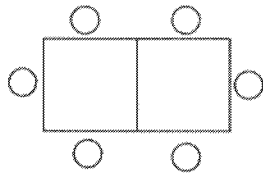
Would 43 ever be in the pattern? How do you know?

If I give you a random number, how can you tell if that number will be in the pattern?

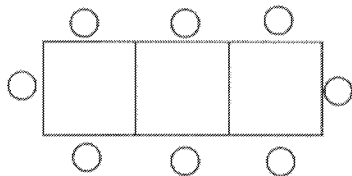
For a special dinner, St. Patrick's is using square tables that can be put together to make rectangles.



One table can seat 4 people



Two tables can seat 6 people



Three tables can seat 8 people

How many people can be seated at 4 tables?

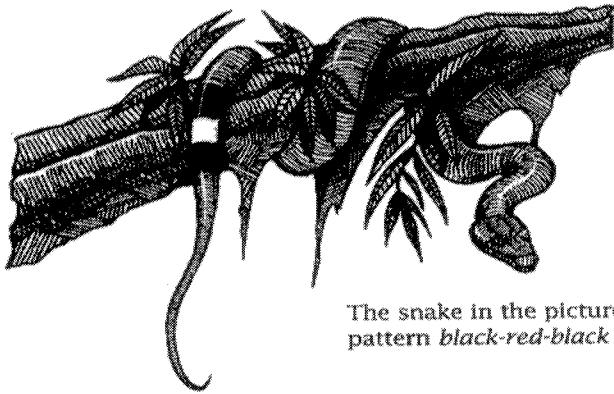
How many tables would be needed to seat 16 people? How do you know?

The workshop presentations and materials from the U.S. Department of Education Teacher-to-Teacher Summer Workshops were developed by various individuals and are being provided as illustrative examples of what might be useful to teachers. The Department is not requiring or encouraging the use of any particular methods or materials in the classroom, and the use of the methods and materials in these sessions does not constitute an endorsement by the U.S. Department of Education.

What are some possible numbers of people where there would be seats left over? How do you know?

Mr. Barrett says that he will tell you how many tables he needs, and then he will ask you how many people are coming. How would you figure out how many people are coming?

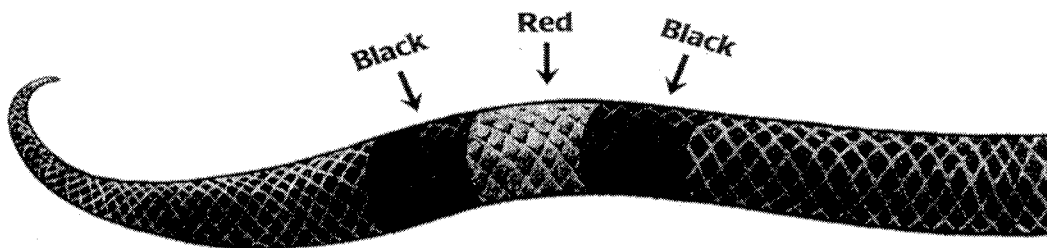
Patterns and Symbols



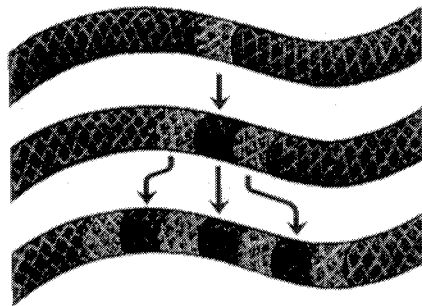
Look more closely at one of the snakes in *Snakewood*.

Note the colored rings around the tail. There are other species of snakes with tail rings, but the pattern of rings may be different.

The snake in the picture has a very simple pattern. The pattern *black-red-black* is abbreviated *BRB*.



Some snakes in *Snakewood* have a changing pattern. As a snake grows older, the pattern extends. There is a system to the way the pattern grows.



It starts with a red ring.

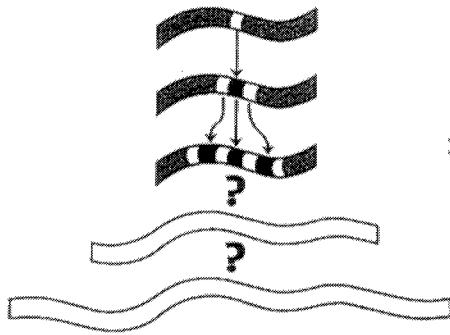
Then a black ring develops in the middle of the red ring.

In the next stage, the same thing happens with each red ring, but the black rings stay the same.

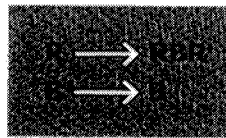
The process continues in the same way as the snake grows older.

From *Mathematics in Context*, "Patterns and Symbols." Copyright © 2003 Encyclopedia Britannica, Inc. All rights reserved. Licensed to Holt, Rinehart and Winston. Reprinted by permission of Holt, Rinehart and Winston.

The workshop presentations and materials from the U.S. Department of Education Teacher-to-Teacher Summer Workshops were developed by various individuals and are being provided as illustrative examples of what might be useful to teachers. The Department is not requiring or encouraging the use of any particular methods or materials in the classroom, and the use of the methods and materials in these sessions does not constitute an endorsement by the U.S. Department of Education.

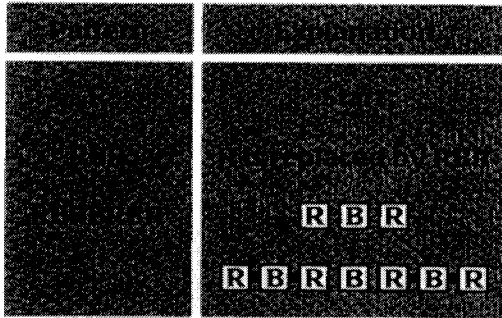


1. On a separate piece of paper, copy the first three stages of the snake's growing pattern and fill in the next two stages.



This **growth pattern** is described by the rules on the left.

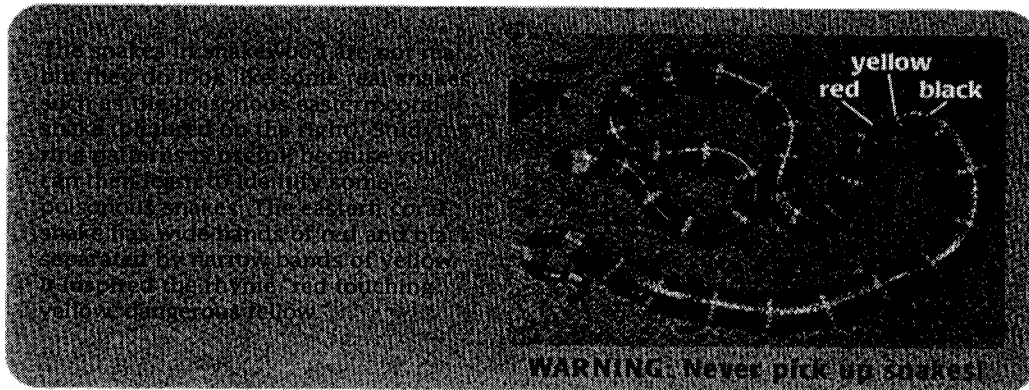
2. What do these rules mean?



Use strings with these rules, as shown in the table on the left.

3. Make the next two strings in this pattern, using these rules.

Check your answers with the drawings from problem 1.



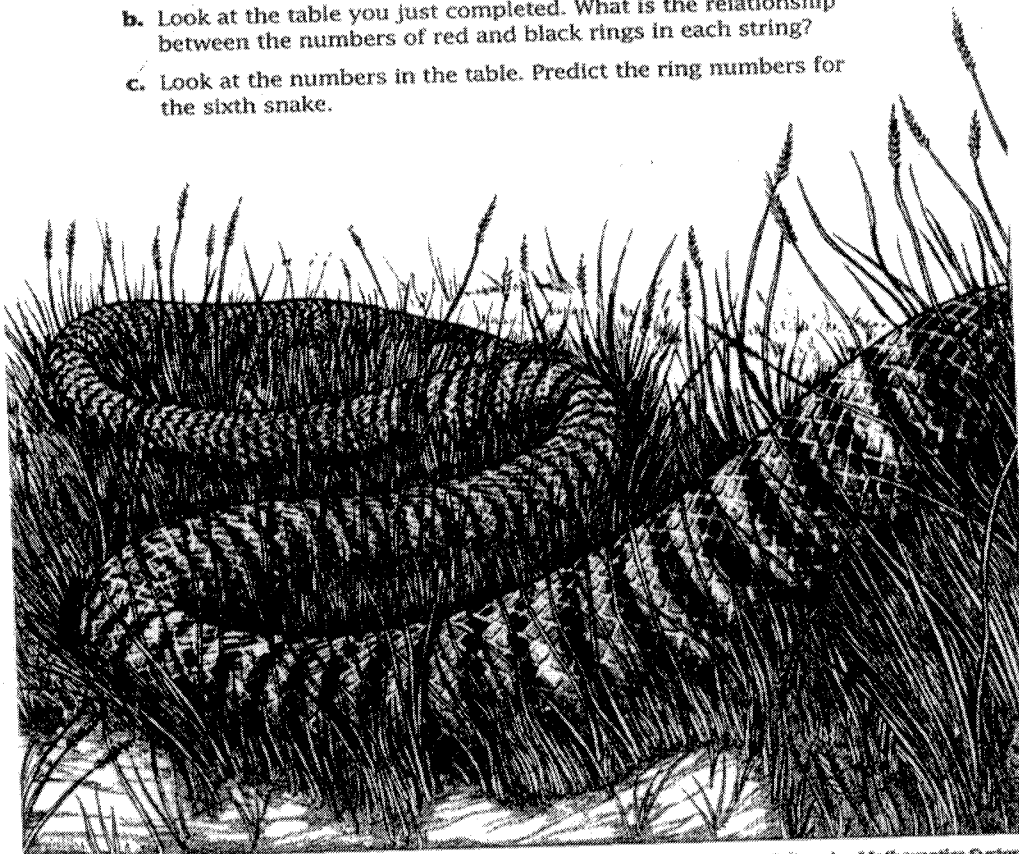
From Mathematics in Context, "Patterns and Symbols." Copyright © 2003 Encyclopedia Britannica, Inc. All rights reserved. Licensed to Holt, Rinehart and Winston. Reprinted by permission of Holt, Rinehart and Winston.

The workshop presentations and materials from the U.S. Department of Education Teacher-to-Teacher Summer Workshops were developed by various individuals and are being provided as illustrative examples of what might be useful to teachers. The Department is not requiring or encouraging the use of any particular methods or materials in the classroom, and the use of the methods and materials in these sessions does not constitute an endorsement by the U.S. Department of Education.

Numbers of Rings

4. a. Study the table below. Copy it into your notebook and complete it.

- b. Look at the table you just completed. What is the relationship between the numbers of red and black rings in each string?
- c. Look at the numbers in the table. Predict the ring numbers for the sixth snake.



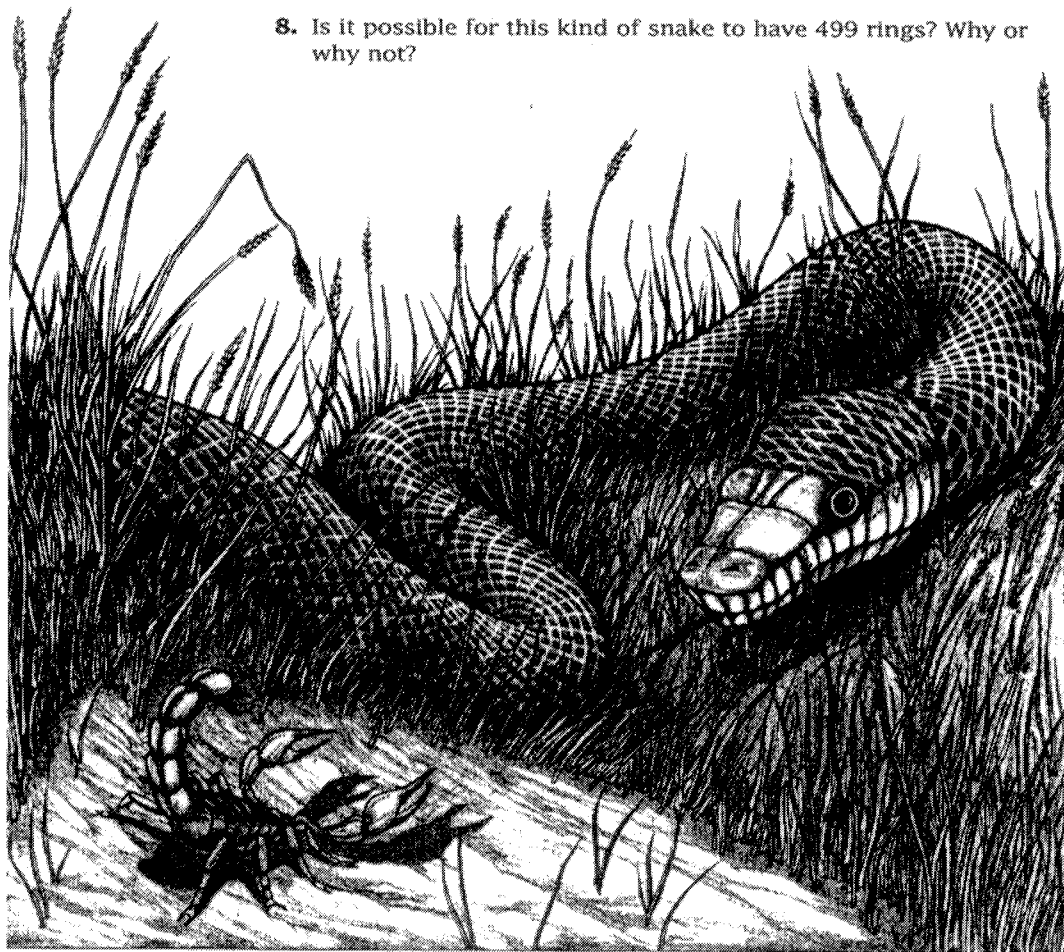
Britannica Mathematics System

32

From Mathematics in Context, "Patterns and Symbols." Copyright © 2003 Encyclopedia Britannica, Inc. All rights reserved. Licensed to Holt, Rinehart and Winston. Reprinted by permission of Holt, Rinehart and Winston.

The workshop presentations and materials from the U.S. Department of Education Teacher-to-Teacher Summer Workshops were developed by various individuals and are being provided as illustrative examples of what might be useful to teachers. The Department is not requiring or encouraging the use of any particular methods or materials in the classroom, and the use of the methods and materials in these sessions does not constitute an endorsement by the U.S. Department of Education.

5. Of course the number of rings for any snake is limited. But if there were no length restrictions, would it be possible to find a snake of this kind with an even number of rings?
6. A snake has 128 red rings. How many rings does the snake have in total?
7. Another snake has 255 black rings. How many total rings does this snake have?
8. Is it possible for this kind of snake to have 499 rings? Why or why not?



From Mathematics in Context, "Patterns and Symbols." Copyright © 2003 Encyclopedia Britannica, Inc. All rights reserved. Licensed to Holt, Rinehart and Winston. Reprinted by permission of Holt, Rinehart and Winston.

The workshop presentations and materials from the U.S. Department of Education Teacher-to-Teacher Summer Workshops were developed by various individuals and are being provided as illustrative examples of what might be useful to teachers. The Department is not requiring or encouraging the use of any particular methods or materials in the classroom, and the use of the methods and materials in these sessions does not constitute an endorsement by the U.S. Department of Education.