get a new frame; 3 frames make a game. At the end of each game you have the chance to change to problems on a new difficulty level.

A few dos and don'ts

Do run through the program with your child.

Do make sure your child knows how to play and understands what happens when he or she makes a mistake.

Do make sure that you let your child use the options that he or she is familiar with. For example, division is covered much later in schools than the other basic maths skills.

Don't let your child get discouraged by making too many mistakes.

Don't worry if your child tries to guess the answers to the more difficult problems. This will help in number estimation.

Do practise number games with your child whenever you can.

Other number games and activities

- Number rhymes and stories help children to become familiar with number names and the meaning of numbers.
- 'Countabout', 'Hot Dot Spotter' and 'Robot Runner' (also in the Early Learning range of Longman Software) help with number recognition and practice.
- Number dominoes: play with cards divided in half. One half shows a group of objects, the other half a numeral. You have to match each numeral with the right number of objects.

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- Counting games: 'How many cakes on the plate? And if I add 2 more? How many then?'. Or 'Here are 2 pears and 3 apples. Are there the same number of apples as there are pears?'
- Many other children's games such as ludo, fives, hopscotch, marbles and card games help with number recognition and simple maths problems.
- Try to develop the child's command of the words we use when talking about numbers: the same as; less than; add; take away; plus; minus; makes; leaves; left; all together; equals; times; into; multiplied by; divided by. There's no need to *teach* the words. Just use them naturally and help your child to understand them if he or she seems in doubt.
- Finally, remember that you can play number games anywhere, anytime: watching television, in the car, at the launderette, in the garden.

Program specification

This program will run on the Sinclair ZX Spectrum 16K or 48K. It was programmed by Tony Poulter of Micromega for the Longman Group. All queries should be referred to Graham Harding at the following address:

Longman House Burnt Mill Harlow Essex CM20 2IE.

ZX Spectrum 16K/48K

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Notes for parents

Introduction

Sum Scruncher is a number game for children aged 6 years and upwards which practises the skills of addition, subtraction, multiplication and division. It has been designed for use by young children on their own though parental involvement and support may be helpful in the early stages. These notes are to help you and your child get the most out of this program.

Longman Software

Sum Scruncher is part of the Early Learning range from Longman Software — home computer programs from one of the world's most successful educational publishers. Longman have drawn together experts in the field of early learning and professional computer programmers to make the most of the advantages of micro computer learning.

- computers provide endless and patient individual attention
- computers present early learning materials in an immediate and compelling format, full of colour and movement
- children can work at their own pace and in their own home
- learning with computers is fun
- computer familiarity and confidence are vital skills for the modern world particularly now that there is a micro computer in most schools

Sum Scruncher — what's it all about?

Sum Scruncher is a maths game, in which your child controls the tireless Microbug. Microbug's mission is to explore the corridors of an underground maze in search of the answers to a series of computer-generated problems. Although this may sound easy, Microbug is continually chased round the corridors by a stupid but speedy serpent whose appetite for Microbugs knows no bounds.

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You can use Sum Scruncher to practise all sorts of sums. Choose from adding, taking away, multiplying or dividing. The game has 6 difficulty levels so your child can choose which level to work at.

Throughout infant and junior school, adding, taking away, multiplying and dividing are tremendously important. Sum Scruncher gives children endless practice in these essential skills.

How to load and run the program

- I Assemble the ZX Spectrum as described in your ZX Spectrum handbook.
- 2 Insert the cassette in your cassette player. Check that the tape is at the start. Rewind if necessary.
- 3 Load the program by typing LOAD" " and ENTER . (On the Spectrum this demands pressing the following keys:
 J for LOAD then, while holding down SYMBOL SHIFT , press P twice. Finally, press ENTER .)
- 4 Start the cassette player. The computer will now load the program. An introductory program featuring the Microchimp will run while the main program is loading. Do not stop the tape.
- 5 When the program has loaded the screen will show the game is ready to run This message will appear on screen: "Hello, what's your name?" Type your name (up to 16 letters or spaces) then press **ENTER**. From now on the computer will give you all the instructions you need. Have fun!
- 6 If the program fails to load, run the tape to the end, turn it over and start at instruction 3 again.
- 7 Helpful hint: if at any time you want to return to the beginning of the game press the **CAPS SHIFT** and **BREAK** keys.

Sum Scruncher — playing the game

- A When the program has loaded you will be asked which skill you want to practise, and how difficult you want the game to be. Press the number key for the choice you make. Your choice of level starts the game.
- B You will now see Microbug trapped in the corridors of the maze, with one of the 20 speedy serpents already on the move. There are 35 number gates in the thick walls of the corridors; some of these are the answers to the problems, and some are just there to confuse you and the Microbug even more. Both Microbug and the chasing serpent have the power to pass through the gaps in the corridors.
- C Microbug is now under your control. Use the four cursor keys to position Microbug directly beneath the answer to the problem shown at the bottom of the screen. Once Microbug is in position, press to 'scrunch' the answer. Don't forget to watch out for the serpent — you've only got 5 lives!
- D If Microbug goes to an incorrect answer, it will be stunned for a while, but will soon recover enough strength to continue on its mission. If Microbug finds the right answer, the number is 'scrunched' and a new gap appears in the wall. At the same time, the serpent disappears for ever. Unfortunately, a new serpent emerges from the nest of eggs to continue the chase. If the serpent gets Microbug before the correct answer is 'scrunched', then Microbug changes colour and loses one of its 5 precious lives.
- E The frame finishes when Microbug has outwitted all the serpents or when Microbug's 5 lives are lost. Your score will be shown in the Score Box. No points are lost for incorrect answers. When all 20 serpents have hatched from the nest, or when Microbug has no lives left, you

