Star Maths Part 4 is a unit of ten 10-minute programmes designed to support key objectives in the mathematics curriculum and in particular, the National Numeracy Framework. It is the last of four units in the Star Maths series. The Star Maths 4 package consists of a video, a Teachers' Guide and an Activity Book.

It is useful for teachers to spend a short time watching each programme beforehand to note the places they may wish to stop the tape to encourage discussion. The programmes could be used as part of the introductory class or main teaching activity before the children pursue their differentiated tasks. At times it may be useful to use the whole programme as part of the plenary session, to allow children to review their own understanding of the work they have been doing.

Programme 31: Eggs in Space

Representing and interpreting data in a pictogram

Amber and Sam give 'superfeed' to the Geecees on Junketir in an effort to boost their egg production. There is a dramatic increase that the children want to show to Uncle Zak without using actual eggs. With the help of Numberella, they construct a pictogram.

- Have a whole-class session making a pictogram to display the contents of a box of coloured cubes. Agree that each symbol should represent four cubes.
- Ask the children to make a pictogram of visiting birds or ways of coming to school.

Programme 32: The Lonely Planetoid

Representing and interpreting data in a bar chart

Botler wants to attract more tourists to Junketir. He sets about making a video to publicise the delights of Junketir, much to the dismay of Uncle Zak who hates the idea. He hopes Botler's bar chart showing the amount of junk falling each season will deter tourists. Numberella explains the chart to Amber and Sam, while Uncle Zak receives a phone call telling him that some tourists are already on their way.

- Ask the children to prepare a bar chart to show how children travel to school. They should mark the vertical axis in multiples of five or ten.
- Encourage the children to use computer software to organise and display the information they have collected.

Programme 33: A Perfect Fit

Using known number facts and place value to add mentally

Sam and Amber are playing Pozzle – a game involving a 1–100 square. They abandon the game to help Uncle Zak load the spaceship. Uncle Zak wants them to arrange the loads in pairs that have a total weight of 100 kilograms. Sam works out how their previous game can help them and Numberella demonstrates the advantages of using a 100-square when adding two 2-digit numbers.

- Have a whole-class session 'throwing' 2-digit numbers that add to 100. You start by calling out a 2-digit number. The children have to 'throw' back, in unison, the number that makes it up to 100. Start with multiples of ten, then five before trying other numbers.
- Put up some 2-digit plus 2-digit additions on the board. Ask the children to work in pairs to make up some 'story' problems using the numbers.

Programme 34: What's the Difference?

Mental subtraction of 2-digit numbers by counting on from the lower number

Sam and Amber organise the Wattbots into teams for the Junk Throwing Olympics. Amber's team wins the first round and Sam's team wins the second round, but they can't decide who is the overall winner. Numberella explains they need to work out the difference between the two scores and shows them how to use a 100-square to help them. The competition resumes and one of Sam's Wattbots throws a piece of junk right into the path of Uncle Zak, who thinks it a very efficient way of loading junk.

- Have a target board (a collection of 2-digit numbers above 35) for the children to look at. Tell them you want them to subtract 19 from each of the numbers by counting on from the lower number.
- Ask the children to work in pairs. They choose four cards from a pack of 1–9 digit cards and explore making different subtractions of one 2-digit number from another. Agree not to consider negative answers.

Programme 35: It All Adds Up

Column addition of two 3-digit numbers

Uncle Zak is keen to market Junketir jam. He has discovered that successful production depends on each hive having between 850 and 900 Prebbies in it. While he discusses business with Lisa he asks Sam and Amber to fill some jars from the hives. Unfortunately, Amber knocks over the hives and Prebbies fly everywhere. Numberella helps them to return the Prebbies by demonstrating how to add two 3-digit numbers. Sam and Amber restore all the Prebbies to their hives before Uncle Zak returns.

- Use a target board of 3-digit numbers and ask the children to work in pairs to add 345 to each of the numbers using 'Numberella's method'.
- Explore making palindromic numbers, eg 343 or 777. Think of a 3-digit number, eg 345, reverse it and add the two numbers. Repeat reversing and adding until a palindrome is obtained.

Programme 36: Power Cut

Column subtraction of two 3-digit numbers

One evening, Sam and Amber go into an underground passage to help Uncle Zak fix a power failure. Fortunately, there are metre markings on the wall and Sam and Amber estimate about 300m of power cable has been eaten away by Weebs. Uncle Zak needs to know exactly how much cable has been damaged, so the children call Numberella, who shows them how to work out the difference between two numbers. Power is restored, but mysteriously fails again later in the evening.

- Put up some subtractions using 3-digit numbers on the board. Put in the answers but make several errors. Ask the children to check the subtractions and find the errors.
- Give the children a fictional amount of money to spend on a meal (say £4.50). Write a 'Burger Bar' menu on the board or flipchart and ask the children to select a meal and work out their change.

Programme 37: Leftovers
Dealing with remainders after division problems

Sam and Amber are playing a computer simulation game, rescuing Wattbots from a danger zone. Amber causes them to lose the game because she left two Wattbots behind. Numberella explains how Amber, making the last rescue, should have rounded up the answer and sent in four ships to make sure all the Wattbots escaped. Numberella reminds the children that they should always look back at the original question and make sure the answer makes sense.

- Ask the children to work in pairs to write some division problems that involve remainders.
- Challenge the class to solve Kieran's problem:
  Keiran had between 30 and 50 marbles. When he counted them in fours there were two left over. When he counted them in fives there was one left over. How many marbles did he have? (Answer 46)

Programme 38: A Waste of Time
Reading the time from analogue and digital clocks, using am and pm

Sam and Amber, chasing the baby Pozzle, are trapped in a large chute in the recycling system. There is a notice about opening times, but they are not sure what it means. They sit and share some happy memories until Amber realises she is very hungry. She notices a control box on the wall and, with Sam's help, manages to fix the digital time control. This activates the release mechanism so they suddenly find themselves free – at the feet of a very surprised Uncle Zak and Botler.

- Use local bus and train timetables to construct a simple timetable on the board that can be used to pose questions to the class. Using local place names makes the activity more accessible.
- Talk about what happens during a 24-hour day. Ask the children to record their activities hour by hour for a whole day, from midnight until the following midnight.

Programme 39: The Farewell Party
Solving mathematical problems and puzzles

Botler and Uncle Zak have organised a farewell party for Sam and Amber. They play a game, collecting hidden numbers that they have to order and give the next number in the sequence. They call Numberella, who helps them to look at the differences between the numbers. The next number in the sequence is 20. Sam and Amber enter number 20 into the snakeliser and this activates a zimmerjet holding a beautiful model of the compound – a surprise leaving present from Uncle Zak.

- Ask the children to work in pairs to find the next three numbers in sequences such as:
  6, 12, 18, , , , 5, 4, 3, , , , 5, 8, 12,17, , , ,
- Ask the children to find the missing digits in statements such as:
  3? + ?8 = 130 5? – ?9 = 28

Programme 40: The Final Mission
Solving problems using coordinates

As Sam and Amber are leaving for home, Uncle Zak has to go to rescue the tiny Wattbot and the children see a large shadow of a Krizwok following him. They don't know how to give the correct coordinates to organise a rescue until Numberella has explained the convention of giving the horizontal coordinate first. Uncle Zak arrives at the very last minute. He has a Krizwok in his pocket as a present for Sam, and Amber is able to have the tiny Wattbot.

- Draw a simple treasure map on the board on a 6 x 6 grid. Ask the children to give you the coordinates of various landmarks.
- Make a large poster of the words connected with position and direction.

Support material for Star Maths Part 4
Teachers' Guide: 206884 £3.95 • Activity Book: 206894 £6.95

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LEARNING

Mathematics for 8–9 year olds

Star Maths Part 4

Star Maths was produced for Channel 4 by **Flying Pictures** (animation by **Redwing Animation** and **Delapse**) in association with **Zurich** and **SABC**.

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