

Maths Mansion Part 3 is a unit of ten 10-minute programmes designed to support key objectives in the mathematics curriculum, particularly aspects of the National Numeracy Framework. The Maths Mansion Part 3 package consists of a video, a Teachers' Guide, an Activity Book and a website: www.channel4.com/mathsmansion

A feature of the programmes is the opportunity for pupils to collect special maths cards. These can be collected by answering the maths challenge in each programme and visiting the above website.

It is recommended that teachers preview the programmes to note the places they might wish to stop the tape to encourage discussion. The programmes could be used as part of the introductory class or main teaching activity. After viewing, there could be a whole-class discussion of the maths challenge presented at the end of each programme. Pupils could then do follow-up work on related activities.

The programmes would be very useful as part of the bank of resources available to support mathematics in school and can be used to introduce, consolidate or extend work on a particular topic.

Programme 21: The Return of the Great Big Hen
Multiplying and dividing decimals mentally by 10, 100 or 1000

Sad Man sings a song to demonstrate the effect of multiplying a decimal number by ten. The Maths Monster Machines appear and sing two catchy songs that contain useful rules for multiplying and dividing numbers by 10 or 100. In the street, Bad Man bewilders a passer-by, telling him that he has won a special prize. In the Great Hall, the contestants complete the tasks and win their first maths card.

Viewers' challenge: Which is bigger, $1\text{mm} \times 10 \times 100$ or $1\text{km} \div 1000$?

Programme 22: Hundredths and Thousandths
Ordering numbers with up to three decimal places

Sad Man reintroduces the Deciworms. They sing a song about decimal numbers with tenths, hundredths and thousandths while dancing around some digital scales. In the street, Bad Man makes himself very unpopular with some traders by describing 50 pence as 'five-tenths of a pound' and 'fifty-hundredths of a pound'. In the Great Hall, the contestants correctly order some decimal numbers and gain a second maths card.

Viewers' challenge: Using only four digits for each number, how many numbers can you find that are more than 1.23 and less than 1.24?

Programme 23: Make and Break – Part 1
Recognising multiples and using them to explore grid patterns

Sad Man and his friends make some multiples and display them on a number grid. In the warm-up session the contestants have to make multiples of one, two, three and four. Sad Man and his friends interrupt to sing a song about making multiples. In the street, Bad Man gives a bewildered resident some cash, just for living at number six. Back in the Great Hall the contestants have to find multiples of seven and eight. They have to work against the clock and unfortunately run out of time.

Viewers' challenge: One, two, three, four, six and eight are multiples of 24. What are the other two multiples of 24? Extend the chart to 36. Find multiples of the higher numbers.

Programme 24: Make and Break – Part 2
Factors, square numbers and prime numbers

Sad Man and his friends use blocks to indicate the different factors of 12. In the warm-up session the contestants have to highlight numbers on a grid according to the number of factors they have. Sad Man interrupts to describe prime numbers. Decimole sings 'Five is the Number'. In the street, Bad Man gives residents various information about their house numbers. Sad Man reveals that square numbers have an odd number of factors. The contestants win a maths card in the final challenge.

Viewers' challenge: Using a 6×6 grid, can you see the pattern of prime numbers after the first row? If you went beyond 36, would the pattern of prime numbers stay the same?

Programme 25: Do the Same to the Bottom as to the Top
Equivalent fractions and simplifying fractions

Sad Man demonstrates some equivalent fractions using pizzas. He talks about 'toppings' and 'bottomings'. The contestants complete the warm-up questions. Sad Man gives some useful advice in the song 'If You Divide the Top of a Fraction'. In the street, Bad Man tries to buy rail and bus tickets at half price. He asks for 'five-tenths', 'fifty-hundredths' and 'five million ten-millionths' of a fare. The contestants complete the final test and win another maths card.

Viewers' challenge: Find the common factors and simplify these fractions: $\frac{16}{24}$ and $\frac{600}{800}$.

Programme 26: More Fraction Action
Finding fractions of numbers and quantities

Sad Man and his friends are finding fractions. They sing a catchy song called 'Divide Then Multiply'. Bad Man challenges the contestants in the warm-up session to find different fractions of numbers up to 1000. The contestants share the task and answer the questions correctly. In the street, Bad Man gives away chocolate money to people who can work out some fractions. In the Great Hall, the two contestants work well together and win a maths card.

Viewers' challenge: Which is the higher number, $\frac{3}{4}$ of 2 metres in centimetres or $\frac{7}{10}$ of £2 in pence?

Programme 27: Percentigimole
Understanding the equivalence of fractions, decimals and percentages

Sad Man has a lovely cake to share with his friends and they all sing the 'Interchangeability' song. In the warm-up session the contestants have to shade fractions, decimals and percentages on a grid. They perform very well. At the station, the ticket clerk is not amused when Bad Man asks for two 'fifty per cents' for the two children with him. In the Great Hall, the contestants work well but are beaten by the clock.

Viewers' challenge: What fraction is 0.2 of 50%?

Programme 28: Proportionimole

Solving simple problems involving fractions, ratio and proportion

Sad Man has found another way to describe the sharing of some buns. Snorter is to get buns in the proportion of one in every four, or in a ratio of 1:3. The hen has a tenth. That is a ratio of 1:9. A song stresses the links between fractions, ratio and proportion. The contestants perform well in the warm-up session. In the street, Bad Man causes confusion again when he asks for half tickets for the children. Back in the Great Hall the two contestants successfully match fractions with ratio and proportion and win one of the coveted maths cards.

Viewers' challenge: In a class, one in every two pupils is a girl. The ratio of long-haired girls to short-haired girls is 1:2. What fraction of the class, as a whole, consists of long-haired girls?

Programme 29: Sad Hair Day

Column addition and subtraction of decimal numbers, and estimating answers

Sad Man has nits again. His song describes his predicament. The second verse repeats the action using digits. In the warm-up session, Bad Man insists that the contestants estimate first then work out the actual answers to additions involving decimal numbers. They do well in the tasks. In the street, Bad Man confuses a passer-by. He talks about money in the 'hundredths' hand or in the 'tenths' hand. After some advice from Sad Man on subtracting decimal numbers, the contestants answer all the questions in the final test and gain another maths card.

Viewers' challenge:

$$\begin{array}{r} 76.54 \\ + 45.67 \\ \hline \end{array} \qquad \begin{array}{r} 76.54 \\ - 45.67 \\ \hline \end{array}$$

Estimate first, then find the answer.

Programme 30: Another Sad Hair Day

Multiplication of decimal numbers

Sad Man replies to a letter from a viewer who asks if he is worried by all the strange creatures multiplying in his hair. Bad Man reminds the contestants in the warm-up session that they need only one more maths card to escape from Maths Mansion. They have to show they can multiply decimal numbers. Sad Man introduces the 'If You Spot A Decimal' song, which gives the contestants some useful advice. In the street, Bad Man organises some helpers to order a set of decimal number cards. The contestants make a mistake in their final challenge and fail to win a maths card, much to their disappointment.

Viewers' challenge: 1.23×4 5.67×8

Estimate first then multiply, to show your maths skills.

Mathematics for 10–11 year olds

Maths Mansion Part 3



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Support material for Maths Mansion Part 3

Teachers' Guide: 400029 £3.95 • Activity Book: 400028 £6.95
Maths Mansion website: www.channel4.com/mathsmansion

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