

# Kjartan Poskitt



---

## Contents

---

- 2 Kjartan Poskitt Biography
- 2 Introduction to this resource
- 3 *The Murderous Maths of Everything*
- 8 *The Key to the Universe*
- 12 Additional Resources

---

## Kjartan Poskiit biography

---

Kjartan is a freelance everything. Since getting his engineering degree he has worked on Saturday morning TV (including BBC's Swap Shop!), presented science and maths programmes, warmed up thousands of studio audiences, toured his one man show, played a lot of pub pianos very loudly and has been 'Widow Twankey'. In recent years he has been touring the country demonstrating mathematical tricks and oddities from his books to school audiences.

His books have been translated in up to 20 languages and include the Murderous Maths series, *The Gobsmacking Galaxy*, *Isaac Newton and his Apple*, *The Warp Maze* with cartoonist Stephen Appleby, four books in his notorious Killer Puzzles series, handbooks on *Practical Jokes* and *Secret Codes*, six support books for the BBC Schools series Megamaths and a GCSE maths guide.

He has also written songs and scripts and worked as a games consultant for a wide range of children's TV shows and his music for TV includes the original theme for the BBC's BRUM and the long running SMART series.

---

## Introduction to this resource

---

The activities provided in this resource focus on two titles in the Murderous Maths Series of books: *The Murderous Maths of Everything* and *The Key to the Universe*.

*The Murderous Maths of Everything* features a general look at the application of maths in a large range of real life contexts. In the book, Kjartan uses a wealth of amusing scenarios involving shady gangsters, angry axemen and other lively characters to tell us more about amazing maths problems. Topics covered include prime numbers, Pythagoras' theorem, angles and ratios.

*The Key to the Universe* is another wide-ranging book which reveals some

remarkable facts about sequences, symmetry, square numbers and much more! The book also demonstrates a variety of engaging number tricks for pupils to try out.

The activities in this resource are designed to be fun, engaging, cross-curricular activities which should enhance the pupils' enjoyment and understanding of the author's work. Please see the websites below for further information about Murderous Maths Series and other teaching resources and activities.

 [www.murderousmaths.co.uk](http://www.murderousmaths.co.uk) – Official Murderous Maths website. You will find lots of videos, tricks, further resources and games all about the series here.

 [www.kjartan.co.uk](http://www.kjartan.co.uk) – Kjartan Poskitt's website, with information about his books and plays and some great video resources.

---

## *The Murderous Maths of Everything*

---

The activities in this section were inspired by the book *The Murderous Maths of Everything*. You will not need a copy of the book to do all activities, but it is helpful for some.

### INTRODUCTORY ACTIVITIES

---

#### **Discussion**

Get your pupils to study the front cover of *The Murderous Maths of Everything*. They can discuss what they can work out about the book by looking at the cover. Ask them who it is aimed at, what the cover illustration is supposed to tell them about the book, and what they think the main character is like.

Ask your pupils to discuss where Maths might be practically applied in the world around us, what kind of jobs might involve Maths skills, etc.

#### **Writing/Reading**

Ask your pupils to research Kjartan Poskitt's life, his work and projects. They can then create a Facebook-style profile for him based on the information they have found.

Ask the class to imagine that Maths has been removed from the world. In groups, Pupils can mindmap their ideas of what the world would be like without Maths, and then produce a script about a scenario which would occur in a world without it.

Use the poem *Mathematics* (see Additional resources) as a starter activity.

Lit 3-01a, Lit 3-02a, Lit 3-07a

Lit 3-14a, Lit 3-15a, Lit 3-16a, Lit 3-25a, Lit 3-26

The pupils' task is to try and work out what is going on in the poem. This poem was written by a teenager, and is based on listening to his maths teacher trying to deliver a lesson. You can get your pupils to write a poem based on the mathematical concepts they have found easy and difficult.

### MEASURING THE CIRCUMFERENCE OF THE EARTH

---

The activities below are based on the section Eratosthenes' Earth on p37.

#### Writing/Numeracy

Get your pupils to write a postcard from Eratosthenes addressed to a friend in Alexandria, explaining exactly how he came up with his calculation for the Earth's circumference. They can use diagrams in their explanations.

MNU 3-03a

#### Religious and Moral Education

Ask your pupils to research Egyptian beliefs about the sun. They can investigate which god was identified with the sun, and why Egyptians thought it was important to honour him.

Rme 3-06a

#### Numeracy

Ask your pupils to imagine that Eratosthenes sets off around the world to test his theory. Assume that he can maintain an average speed of 25 miles per hour. Then, ask your pupils how Eratosthenes would find out if his calculation of the Earth's circumference was correct. They will need to use the relationship between speed, distance and time to work out a way of proving the calculation.

MNU 3-10a

#### Writing

Ask pupils to imagine that they are Eratosthenes on the journey described above. Get them to write a travel blog or diary based on what he sees in several countries which he visits.

Lit 3-20a, Eng  
3-31a, Lit 3-26a

Eratosthenes led a rich life, and you can get your pupils to research him and produce a factfile or even an obituary. Ensure the obituary is properly structured with basic information and facts first. They can then include details of achievements and discoveries, quotes from his contemporaries, and other areas in which he excelled.



### Homework: sciences

Get your pupils to produce a factfile about the sun. This can include its distance from the earth, its formation and how long its light takes to travel to Earth. Here are two great websites to help with this:



[www.nasa.gov/vision/universe/solarsystem/sun\\_for\\_kids\\_main.html](http://www.nasa.gov/vision/universe/solarsystem/sun_for_kids_main.html)  
[www.kidsastronomy.com/our\\_sun.htm](http://www.kidsastronomy.com/our_sun.htm)

If your pupils have a good vantage point of the horizon, they can use the activity detailed when clicking on the link below to calculate the Earth's circumference for themselves:



[www.astro.princeton.edu/~clark/MeasECAct.html](http://www.astro.princeton.edu/~clark/MeasECAct.html)

### PYTHAGORAS' THEOREM

#### Numeracy

Read the section A 2500-year-old Murder Mystery on p18-22. Get pupils to test Pythagoras' theorem using right angles they find around them in the school grounds. They should find right angles (corners of paving slabs etc), then use chalk and a ruler to draw the lines of the right-angled triangle. Finally, ask them to test the theorem by measuring the sides and calculating to see if  $a^2 = b^2 + c^2$ .

MNU 4-16a

#### Expressive Arts/Numeracy

Read the section A 2500-year-old Murder Mystery on p18-22. This section tells the legend of Hippasus' discovery of irrational numbers, and his murder by Pythagoras for this discovery! Ask your pupils to split into groups and act out the story, making sure they explain clearly to the audience how Hippasus' discovery angered Pythagoras.

Mnu 4-16a,  
Exa 3-12a, Exa  
3-14a

#### Reading and Writing/Social Studies

Read the section A 2500-year-old Murder Mystery on p18-22. History is full of examples of people who have been brutal in their quest to gain power or hold on to it. Ask your pupils to pick one of the following historical figures and produce an informative report on them:

- Dictators – Stalin, Pol Pot or more recent examples like Gaddafi
- Sporting cheats – Ben Johnson, Dwayne Chambers

Read the section A 2500-year-old Murder Mystery on p18-22. Give the class an example of someone who has been ruthless in their quest to succeed. This applies to TV personalities like Lord Sugar, for instance. Get one group of pupils to produce a written report on the person. Then, split the rest of the class into two groups, one group in support of the person and the other in disagreement.

Soc 3-06a

## Listening and Talking/Social Studies

Read the section A 2500-year-old Murder Mystery on p18-22. Pythagoras murdered Hippasus in order to preserve his reputation, and history is full of examples of people who have been ruthless in order to gain or hold on to power. Have a class discussion about where modern day examples of this might be found (e.g., business, sport, lottery winners, political figures) and discuss whether it is right to be ruthless to get ahead. You can also discuss the idea that 'power corrupts' and talk about whether it is possible to have power without becoming corrupted in some way.



### Homework: numeracy

Challenge your pupils to find out what a Pythagorean Triple is and how to come up with a Pythagorean Triple.

Tell your pupils to show off by asking their parents to draw any right angled triangle and calculating the length of the sides of it for them!

MNU 4-16a

## ANGLES

### Numeracy

Read the section The Three Oldest Problems in the World on p29-35. Ask your pupils to create a poster showing how to bisect and/or trisect an angle, labelling the poster to show each step of the process.

MNU 3-11a

### Religious and Moral Education

Read the section The Three Oldest Problems in the World on p29-35. Ask your pupils to research the gods of ancient Greece, including how they were worshipped and how people interpreted their actions. This website should help: <http://ancienthistory.mrdonn.org/AncientGreece.html>

Rme 3-06a



### Numeracy

Challenge your pupils to calculate the volume of a household object (for example, a storage box or a cabinet). Then, get them to work out how to create one twice as big.

MNU 2-11c,  
MTH 3-11b



### Homework Tasks: Writing/Expressive Arts

Ask your pupils to imagine that Kjartan Poskitt has asked them to produce an advertisement for *The Murderous Maths of Everything*. The advert can take the form of a poster, and should include the following things:

- Images
- Synopsis
- Persuasive techniques to encourage readers to buy the book (Teachit has a good sheet with examples of these)

Pupils must remember to take account of purpose and audience.

### Numeracy/Writing

Ask your pupils what they think Kjartan Poskitt's main aims were in writing *The Murderous Maths of Everything*. Ask them to discuss how the book makes a difficult topic less threatening. Then, get them to think about another Maths topic they have learned which is not in the book. Ask them to produce a text making this topic more accessible. They can choose to do it in various formats – comic strip, film, story, letter, etc.

The activities in this section were inspired by the book *The Key to the Universe*. You will not need a copy of the book to do all activities, but it is helpful for some.

## SEQUENCES

### Numeracy

Read the section Fibonacci and the Fogsworth Manor Miracle on p17-41. Ask your pupils to come up with a rule for their own sequence and write down the rule used to generate it. After this, get them to calculate the first ten numbers generated by the rule.

When they have done this, ask them to design a poster showing the rule and featuring a diagram which shows the rule in action. Alternatively, you can get them to create 'problem posters' without the rule displayed: other pupils can be asked to look at these and try to figure out the rule.

 Watch the following video with your pupils: [www.tes.co.uk/teaching-resource/Painting-With-Numbers-Patterns-in-Nature-6020087/](http://www.tes.co.uk/teaching-resource/Painting-With-Numbers-Patterns-in-Nature-6020087/) (14 min 02 sec)

The first section of the video from 0:00 to 2:00 min looks at the Fibonacci numbers and where they are found. Get your pupils to check this for themselves by investigating the number of petals on different flowers around the school or at home.

Watch the section from 5:07 to 6:40 min. Get your pupils to investigate Pythagoras' theory by using a stringed instrument like a cello or guitar. Ask them to measure the full distance of one of the strings. Then, get them to mark out different points of the string – where it is  $\frac{1}{2}$  length, where it is  $\frac{1}{4}$  length, and so on. The pupils can then play the instruments and see whether the notes are in harmony.



### Homework: Numeracy/Expressive Arts

Ask your pupils to take photographs of any examples of Fibonacci numbers in nature which they are able to find at home. Ask them to bring them in and arrange the photographs in a class display. The following website gives some photos and animations to help pupils understand what they are looking for:



<http://britton.disted.camosun.bc.ca/fibslide/jbfibslide.htm>

MNU 3-13a

EXA 3-02a

**Discussion**

Read the section Fortunes and Phobias on p71-89. First, get the pupils to figure out their personality number and their lucky number. Secondly, get them to stand up in front of the class and tell the class what they got – and how accurate they think the numbers are.

**Writing**

Read the section Fortunes and Phobias on p71-89. Ask the pupils to create a personality chart like the one on page 72. Then, ask them to come up with a name for a character, and to give their character a birth date.

After this, ask the pupils to calculate the character's Birthpath Number, and use the chart to establish what the character's personality is like.

Extend the exercise by asking them to establish their character's Destiny Number, using the chart on page 73. After this, they should have a look at the difference between what their character is currently like and what they are destined to be like.

Ask the pupils to write a character biography, describing the character's appearance, personality and a short description of what happened to make them change.

Differentiate the above activity for higher ability pupils by asking them to write a full story in which their character changes from start to finish.

**Expressive Arts**

Read p82-89 within the section Fortunes and Phobias. Ask your pupils to produce a short dramatic sketch illustrating the puzzle of the missing cent!

Eng 3-31a, Lit  
3-20aEXA 3-01a,  
EXA 3-12a,  
EXA 3-14a**Homework: Numeracy**

Ask your pupils to go home and find out their own birthpath and destiny number, as well as those of their family and friends.

MNU 3-03a

**Writing/Numeracy/Expressive Arts**

Read the section Perfectly Useless Numbers on p136-145. Ask your pupils to draw a picture of several mathematicians sitting trying to work out the next perfect number after 33,550,336. Ask them to use thought bubbles to illustrate the following points:

- What a perfect number is and why mathematicians like them so much;
- How hard it is to calculate a perfect number
- How long a time it will take (remember how long the last one took!)
- Perfect numbers are totally useless.

**Numeracy**

Read the section entitled Chapter NINE on p151 – 163. Based on ‘Three Tricks of the Nine Times Table’, ask pupils to use the number ‘Nine’ to make up different questions that have it as the answer. This is a useful exercise and can bring up very creative results.

MNU 3-03a

**Numeracy/Writing/Expressive Arts**

Read the section The Tale of Three Bank Managers on p180-181. Ask your pupils to investigate different interest rates and work out how much they would have in the bank after 100 days. You could get them to create some advertising materials for a financial product – a poster advertising interest rates on savings accounts would work well.

(MNU 3-09b,  
MNU 4-09c, Lit  
3-28a EXA 3-  
02a, Eng  
3-27a)

Read the section The Tale of Three Bank Managers on p180-181. Ask your pupils to design a cartoon strip showing someone going in to all three banks and trying to work out which offer is best.



## Homework: Numeracy

Challenge pupils to present the three bank managers' propositions to a relative or friend. Ask them to record which choice the person makes. Then, compile the whole class's results to see how many people chose the best savings plan. Pupils can then use these statistics as the basis for informative posters about taking care when choosing an account. These can be displayed around the school or presented to other classes.

Ask pupils to research the financial products their local banks are offering. Then, in class, they can do a comparative study to find out which products give the best value.

FourFours Puzzle: using only 'Four '4's' and all the different mathematical operations try and get all the numbers from 1 to 100!

e.g.

$$1 = 4 - 4 + (4/4)$$

$$2 = (4/4) + (4/4)$$

$$44 = 44 + 4 - 4$$

This can be done on a scientific calculator and may help introduce square roots and even factorials ( $4! = 4 \times 3 \times 2 \times 1$ )

## Writing

*The Key to the Universe* does not give a detailed synopsis on the back. Ask your pupils to imagine they have been asked to write a synopsis for a new edition of the book, and ask them to write one as homework.

"Maths is like love – a simple idea, but it can get complicated." (R. Drabek)

Ask your pupils to come up with similes for other school subjects, or to compose a poem made entirely of similes about school subjects.

## CfE

MNU 3-03a,  
MNU 3-09b,  
MNU 4-09c

Eng 3-27a, Eng  
3-31a

---

## Additional resources

---

*Mathematics* by pupil aged 14

The square on you're late  
hurry up equals the square  
on the homework on that  
pile and therefore where's  
yours equals that but only  
when that's no excuse you're in  
half multiplied by the sum  
of this form is stupid I'll  
keep you all divided by ten  
of you will be in trouble  
if you don't by the area of  
a triangle equals the last  
straw I'll take you to the  
ten to four you can go