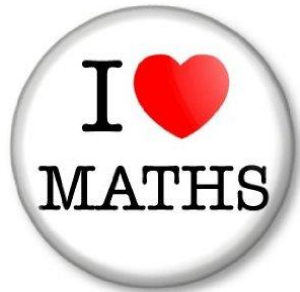




10 is the base of our decimal number system

Valentine's Day

Once again, it's the time of year when people send cards to each other with poems inside like



**Roses are #FF0000,
Violets are #0000FF,
Hexadecimal is awesome,
And so are you!**

And at this point you know you must be reading the maths newsletter, because where else would you find silly Valentine's Day poems¹ based on hexadecimal² colour codes? Obviously, we all love maths at Camp Hill but if you love a person as well and are thinking of sending them a Valentine's card, here are some of our favourite maths-related lines you could write in your card.

**If you were \sin^2x and I was \cos^2x ,
then together we'd make one.**

**My love is like an exponential curve -
it's unbounded.**

**You're good at algebra.
Will you replace my x without asking y ?**

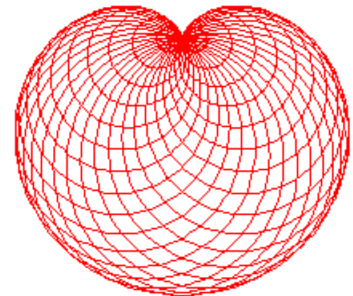
**Being without you is like being a
metric space in which exists a Cauchy
sequence that does not converge.**

**You fascinate me more than the
Fundamental Theorem of Calculus.**

1. The newsletter is red, the footnotes are blue, this seemed like a sensible thing to do.
2. Hexadecimal is base 16 and it's used quite a lot in computing.

Maths Word

A 'cardioid' is a heart-shaped curve traced out by a point on the circumference of a circle as it rolls around another circle. Make your own cardioid on the back of this sheet.



Maths Quote

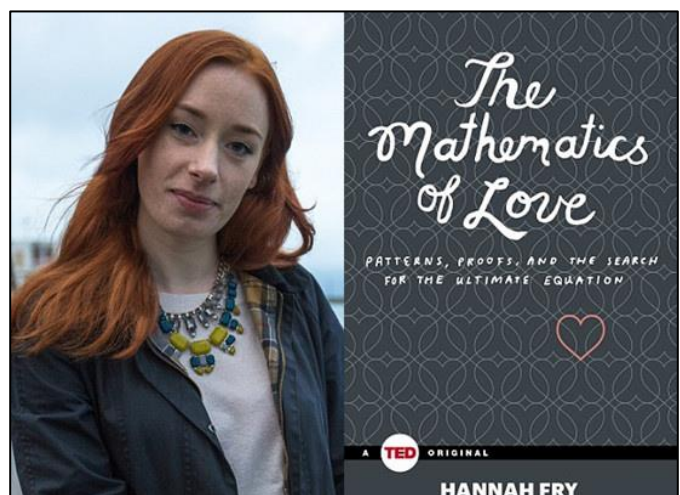
"Mathematics reveals its secrets only to those who approach it with pure love, for its own beauty."

Archimedes

If, however, you're not really feeling the love at the moment, why not come to maths workshop, Friday lunchtime in room 13.

The Mathematics of Love

If you want to know the mathematical formulas for finding love, why not watch Hannah Fry's TED talk on this subject?



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Competition

It's that time of year again when the University of Southampton announces its annual maths challenge. This is a competition that, in their words, consists of "interesting and challenging mathematical questions which the students attempt in their own time." Although it's a national competition, Camp Hill Girls have had a 1st place, a 2nd place and a 3rd place in the last 2 years, so it's definitely worth entering.

If you would like to enter, you can get the details from Mr. Bettison in the maths office. Alternatively, you can download them directly from the university website at

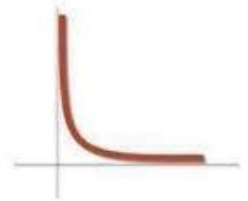
<http://www.southampton.ac.uk/maths/outreach/activities/challenge-16.page>

Make your own Cardioid

To make your own cardioid, follow these instructions: The circle has 60 dots around the edge. Number the dots from 1 to 60 (you don't need to label every dot). Go all the way around the circle, connecting each dot with a straight line to the dot with double its number. When you multiply a number by 2 and get a number bigger than 60, subtract 60 from your answer to work out which dot to connect it to. Continue like this all the way around the circle until your cardioid is complete.

ALL YOU NEED IS

$$y = \frac{1}{x}$$



$$x^2 + y^2 = 9$$



$$y = |-2x|$$



$$x = -3|\sin y|$$

