http://fermatslasttheorem.blogspot.com/2005/07/eisenstein-integers.html

Elliptic (L) functions; Elliptic Elliptic curves

The proof
NOVA video 1997
Andrew Wiles became obsessed with Fermat's last theorem
Fermats rule:
X squared + y squared not equal to z squared for n greater than 2
He said he had a proof, but the proof was never found
For 150 years, mathematicians tried to prove it.
Many mathematicians assumed that the proof was unimportant;
Did not lead to anything. Wiles gave up on the proof and worked with his advisor on elliptic curves, the in thing to study. Elliptic curves are very important; they are not elliptic; they are a cubic curve whose solutions looks like a donut torus? Every point on the donut is a solution to an equation. (3 D)
In China, Fermat's theorem and elliptic curves were becoming inextricably linked. Then, two Chinese mathematicians Goro Shimura and Utaca Tuniama worked together. Tuniama made productive mistakes. Together they worked on the math of modular functions. There are five fundamental math operations: add, sub, mult, div, and modular forms. Modular functions are on complex plane that are inordinately symmetrical. They satisfy so many conditions of symmetry that there existence seem like accidents. They exist in hyperbolic space ? modular forms would seem to have noting to do with the world of elliptic curves.

In an international  symposium in 1955, Tuniama proposed a number of problems that led to the claim that every elliptic curve is really a modular form in disguise. This became known as the Tuniama Shimura conjecture. "every rational elliptic is modular". By 1969, people were coming to believe the conjecture. Other theories developed which were based on the original TS conjecture. Tuniama committed suicide in 1958. TS conjecture went on to become a great unproven conjecture. At first no one had any idea that TS had anything to do with Fermat's lat theorem, but that changed in the 80s. in 1985, the German mathematician Gearhard Fry   (Eve Eleguah) had an idea.
What if Fermat was wrong, and there were solutions for higher orders? Fry found that starting with a fictitious solution

(Is It a solution or not?)

to Fermat's equation led to an elliptic curve with some weird properties. That elliptic curve seems to not be modular, but TS says all elliptic curves are modular. So "if Fermat is wrong, then so is TS; but if TS is correct, then so is Fermat." But Fry did not prove his fictitious elliptical curve solution was not modular. Fry's theory became known as the epsilon conjecture. The epsilon conjecture was said to be proved; ie it was proved that this fictitious solution was not modular.

So the epsilon conjecture was proved, so now Wiles says he just has to show that TS is correct to show Fermat is correct.

But "if Fermat is wrong, then so is TS; but if TS is correct, then so is Fermat" Does not make any sense, because by coming up with the fictitious solution, Fry showed that Fermat was incorrect.

Wiles tries to show there are the same number of modular functions and elliphic equations; both are infinite, but can count "packets"; can count elliphic equations, but finds a Galois representation of the elliphic equations, whose packets can be counted.

Wiles hoped Iwasawa theory could help him complete his counting strategy by calculating a class number formula, but he got stuck.
Ended up using a class number formula developed by a student of Coates, Flach & Kolyragin. Wiles then proved Kolyragin's class number formula.

Error found in Flach Kolyragin class number formula step.
From Flach Kolyragin was able to rework his original Iwasawa theory.\

So now TS and Fermat's last theorem are considered proven.

Contributions from Dozens of mathematicians.