Mathematical models: from sundials to number engines
Recording sales in clay tablets

Eleanor Robson, The Oriental Institute, Oxford

The earliest examples we have of modelling in Babylonian mathematics are the clay tokens, which date the earliest from the seventh millennium BC. And they were used as concrete representations of particular numbers of commodities.

Narrator

This token represents exactly 60 sheep.
A single imprint of the token, with the token itself sealed inside, is a delivery note for these 60 sheep.
This simple system lasted for nearly 4000 years.

Eleanor Robson

In the third millennium BC, the Babylonians moved from a very concrete modelling system, where they were using tokens to a much more abstract idea, where that they were actually not only were the token representing the goods but they were using signs to represent the tokens representing those numbers of goods.

Narrator

As a result, records could be kept on clay tablets. This tablet shows wages paid in units of grain.

Eleanor Robson

The round signs on the top here are numbers. The very little ones that look like little finger nail impressions are units and then the circles are tens and then these bigger circles within circles are sixty's, so they were counting in base 60. And on the back of the tablet, we have the total grain paid out to the people. The largest numbers are to the left. We've got one, two, three, four five lots of 600's. So that's 3000. And the sixes here, one, two, three. So that's three thousand one hundred and eighty. And one, two, three, four tens. So that's three thousand, two hundred and twenty, and one, two three. So that's three thousand two hundred and twenty three. About litres of grain paid out by this man here, whose name is written on the bottom of the tablet.

The earliest written signs were in fact numbers. That writing was invented specifically for the purposes of mathematics modelling.