

Activity 1.6



In this activity the students reconstruct a passage on early number systems. They will then complete a squaresaw using these systems.

Resources

- Text cards (resource 11).
- Squaresaw (resource 12).

Description

- Group students in pairs and explain the activity.
- Students work cooperatively to reconstruct text (resource 11).
- Students complete squaresaw (resource 12), using information from the reconstructed passage.

History of number

The history of number begins with early humans, who did not have a complex number system. Complex number systems developed as the need for large numbers grew. One of the earliest systems was invented by the Egyptians, who used a tally system based on ten. Ten of one symbol could be changed for another symbol. In this number system the order of symbols did not matter. Here are some of the symbols the Egyptians used.

1	I	a vertical staff
10	∩	a heel bone
100	⊙	a coiled rope
1000	⊗	a lotus flower
10 000	∟	a bent reed or pointed finger
100 000	⊕	a burbot fish or tadpole
1 000 000	⊗	an amazed man or god of infinity
10 000 000	⊗	a religious symbol

Another system was the Roman number system.

It is still used today on some watches and clocks.

Roman numbers are also used at the end of movies to tell you when the movie was made.

In the Roman system, if a smaller unit appears before a larger one, it is subtracted from the larger one, for example V = 5, I = 1 so IV = 4.

Here are some of the symbols the Romans used.

1	I	one finger
5	V	one hand
10	X	two Vs
50	L	half a C
100	C	centum = hundred
500	D	half an M
1 000	M	

A third system is the Hindu-Arabic system.

It was invented by the Hindus around 300BC.

In this number system the position of a symbol (number) is very important and a zero is used instead of using an empty space.

Hindu-Arabic symbols are the symbols we use in Australia today.

- The passage must be reconstructed so that it makes sense grammatically.

- Use students' text books as a resource for passages.

- When writing passages for reconstruction make sure that sentences link. The order of the sentence should be obvious to someone with good knowledge of the subject.

- Students must draw on their knowledge of a topic and use clues provided by the grammatical structure of the text.

- A method of checking could be that students be asked to read aloud a sentence each, and the class could decide whether or not it follows logically from the previous sentence.

- Text reconstructions and squaresaws are best done in pairs.

- Reconstructed text should be followed with an activity which makes use of information from the passage.

- Students enjoy doing squaresaws and they are an easy resource to prepare.

- Squaresaws can be used in many topics, such as measurement, algebra.

- Make sure that you use different orientations.

- Note that the squaresaw covers earlier work as well (numbers in words...).

- Students need to work cooperatively in order to complete the task.

"Squaresaw": The history of number

494	DCLIV six hundred and forty-four	XLIX forty-nine	CCXIII two hundred and thirteen	307 three hundred and seven
1000	CCCXX three hundred and twenty	XXV twenty-five	CCXIII two hundred and thirteen	DCXXXVII six hundred and thirty-seven
502	LVII fifty-seven	CCXC two hundred and ninety	240 two hundred and forty	52 fifty-two
730	LXXIII seventy-three	DCLXX six hundred and seventy	111 one hundred and eleven	5 tens and 2 units 52
7 hundreds and 3 tens 730	IIIIIIUUU seven hundred and thirty	XXXVII thirty-seven	LVII fifty-seven	0012 one hundred and two
XXVIII 28	1452 one thousand four hundred and fifty-two	MCDLII one thousand four hundred and fifty-two	EL 51	thirty-four 34

Instructions for use:

1. The "squaresaw" is cut so that each set consists of 16 cards. Get students to cut them up before they are used the first time.
2. Students work in pairs to put the "squaresaw" back together so that symbols and words match.

History of number

The history of number begins with early humans, who did not have a complex number system.

Complex number systems developed as the need for large numbers grew.




One of the earliest systems was invented by the Egyptians, who used a tally system based on ten.

Ten of one symbol could be changed for another symbol.

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Here are some of the symbols the Egyptians used.

Table 1:

1		a vertical staff
10	∩	a heel bone
100	9	a coiled rope
1000		a lotus flower
10 000	└	a bent reed or pointed finger
100 000		a burbot fish or tadpole
1 000 000		an amazed man or god of infinity
10 000 000	o	a religious symbol

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



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In the Roman system, if a smaller unit appears before a larger one, it is subtracted from the larger one, for example V = 5, I = 1 so IV = 4.

Here are some of the symbols the Romans used.

Table 2:

1	I	one finger
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“Squaresaw”: The history of number

693 six hundred and forty-five	DCXLV	XLIX	forty-nine	307 three hundred and seven
37 5 hundreds and 2 units	thirty-seven	CCXC	290	52 eleven million
730 twenty	thirty-five	703	seven hundred and three	2100 5 tens and 2 units
73 7 hundreds and 3 tens	37	1452	seventy-three	520

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