

The Language of Number

Chapter 1 Lesson

By: Jordan Stevens

Counting

- Animals have an intuitive awareness of number
- They know the difference immediately between a larger group and a smaller group Ex. Bird's nest and eggs
- This is as far as animals can reason with numbers
- They can tell between six eggs or nest of eggs
- Just an instinctive characteristic

Counting Cont'd

- For humans counting is learned at an early age
- Most find it particularly easy
- According to Piaget and Vygotsky adults forget how hard it actually is to learn how to think in the abstract
- Ex. The relationship between Ship Shoes Sealing Wax Cabbages and Kings are miscellaneous objects
- Very young children learn from other people how to group things.
- Now we can use a set of words to describe the miscellaneous objects
- One ship, two shoes, three sealing wax, four cabbages, five kings
- In creating these sets we have created a one-to-one correspondence
- To make a correspondence between a collection of (related or unrelated) objects or groups of objects and increasing numbers is to count

Ways of Counting

- Tallying
- Everyone counts on their fingers at some point of their life
- Natural to count things in groups of 5 because each hand has 5 fingers
- Next largest group is 10 (two hands)
- Then groups of 20 (Must take shoes off to complete task)
- In many languages, the origin of number words have come from the body
- Ex. Digitus-Finger; Indonesian lima-hand-5; Aztec matlactli-both hands-10; The word for whole person in many languages stands for 'twenty' (meaning both hands and feet)
- Idea of dual numbers “pair” and “twain” from ears, eyes, nostrils, legs, arms

Recursive Idea

- Numbers are represented as combinations of other words that represent other numbers
- Ex. 235 is two one hundreds, a twenty, a ten and a five
- Eleven, twelve and thirteen are Anglo-Saxon for One more, two more, and three ten
- Twenty means two tens and after twenty the base number is changed to make 21 22 23 24... so on

















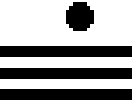













Number Sequence

- Goes from one to infinity
- Since 1500 ad people started counting negative numbers
- Now it goes to infinity both ways negative and positive
- Names of numbers less than ten are among the oldest and most stable words in all languages

english	french	german	greek	russian
one	un	eins	heis	odin
two	deux	zwei	dyo	dva
three	trois	drei	treis	tri
four	quatre	vier	tettare	chetyre
five	cing	funf	pente	pyat
six	six	sechs	hex	shest
seven	sept	sieben	heptra	syem
eight	huit	acht	okto	vosyem
nine	neuf	neus	ennea	devyat
ten	dix	zehs	deka	desyat

Written Number

- Numbers were spoken hundreds of thousands of years before they were actually written
- Sophisticated set of written numbers came from: Babylonia, Egypt, Chinese, Greeks and Romans
- Tally sticks were first stark of written numbers They would just take a log or stick and carve numbers out of it

0 	1 	2 	3 	4 
5 	6 	7 	8 	9 
10 	11 	12 	13 	14 
15 	16 	17 	18 	19 
20 	21 	22 	23 	24 
25 	26 	27 	28 	29 
Mayan positional number system				

Egyptian Hieratic Numerals

1		10	∧	100	—	1000	⌒
2		20	∧	200	—	2000	⌒
3		30	∧	300	—	3000	⌒
4		40	∧	400	—	4000	⌒
5	7	50	∧	500	—	5000	⌒
6	2	60	∧	600	—	6000	⌒
7	↗	70	∧	700	—	7000	⌒
8	≡	80	∧	800	—	8000	⌒
9	2	90	∧	900	—	9000	⌒

So, e.g, 1328 = ≡∧⌒

Babylonian Numbers

1	𐎶	11	𐎠𐎶	21	𐎠𐎠𐎶	31	𐎠𐎠𐎠𐎶	41	𐎠𐎠𐎠𐎶	51	𐎠𐎠𐎠𐎶
2	𐎶𐎶	12	𐎠𐎶𐎶	22	𐎠𐎠𐎶𐎶	32	𐎠𐎠𐎠𐎶𐎶	42	𐎠𐎠𐎠𐎶𐎶	52	𐎠𐎠𐎠𐎶𐎶
3	𐎶𐎶𐎶	13	𐎠𐎶𐎶𐎶	23	𐎠𐎠𐎶𐎶𐎶	33	𐎠𐎠𐎠𐎶𐎶𐎶	43	𐎠𐎠𐎠𐎶𐎶𐎶	53	𐎠𐎠𐎠𐎶𐎶𐎶
4	𐎶𐎶𐎶𐎶	14	𐎠𐎶𐎶𐎶𐎶	24	𐎠𐎠𐎶𐎶𐎶𐎶	34	𐎠𐎠𐎠𐎶𐎶𐎶𐎶	44	𐎠𐎠𐎠𐎶𐎶𐎶𐎶	54	𐎠𐎠𐎠𐎶𐎶𐎶𐎶
5	𐎶𐎶𐎶𐎶𐎶	15	𐎠𐎶𐎶𐎶𐎶𐎶	25	𐎠𐎠𐎶𐎶𐎶𐎶𐎶	35	𐎠𐎠𐎠𐎶𐎶𐎶𐎶𐎶	45	𐎠𐎠𐎠𐎶𐎶𐎶𐎶𐎶	55	𐎠𐎠𐎠𐎶𐎶𐎶𐎶𐎶
6	𐎶𐎶𐎶𐎶𐎶𐎶	16	𐎠𐎶𐎶𐎶𐎶𐎶𐎶	26	𐎠𐎠𐎶𐎶𐎶𐎶𐎶𐎶	36	𐎠𐎠𐎠𐎶𐎶𐎶𐎶𐎶𐎶	46	𐎠𐎠𐎠𐎶𐎶𐎶𐎶𐎶𐎶	56	𐎠𐎠𐎠𐎶𐎶𐎶𐎶𐎶𐎶
7	𐎶𐎶𐎶𐎶𐎶𐎶𐎶	17	𐎠𐎶𐎶𐎶𐎶𐎶𐎶𐎶	27	𐎠𐎠𐎶𐎶𐎶𐎶𐎶𐎶𐎶	37	𐎠𐎠𐎠𐎶𐎶𐎶𐎶𐎶𐎶𐎶	47	𐎠𐎠𐎠𐎶𐎶𐎶𐎶𐎶𐎶𐎶	57	𐎠𐎠𐎠𐎶𐎶𐎶𐎶𐎶𐎶𐎶
8	𐎶𐎶𐎶𐎶𐎶𐎶𐎶𐎶	18	𐎠𐎶𐎶𐎶𐎶𐎶𐎶𐎶𐎶	28	𐎠𐎠𐎶𐎶𐎶𐎶𐎶𐎶𐎶𐎶	38	𐎠𐎠𐎠𐎶𐎶𐎶𐎶𐎶𐎶𐎶𐎶	48	𐎠𐎠𐎠𐎶𐎶𐎶𐎶𐎶𐎶𐎶𐎶	58	𐎠𐎠𐎠𐎶𐎶𐎶𐎶𐎶𐎶𐎶𐎶
9	𐎶𐎶𐎶𐎶𐎶𐎶𐎶𐎶𐎶	19	𐎠𐎶𐎶𐎶𐎶𐎶𐎶𐎶𐎶𐎶	29	𐎠𐎠𐎶𐎶𐎶𐎶𐎶𐎶𐎶𐎶𐎶	39	𐎠𐎠𐎠𐎶𐎶𐎶𐎶𐎶𐎶𐎶𐎶𐎶	49	𐎠𐎠𐎠𐎶𐎶𐎶𐎶𐎶𐎶𐎶𐎶𐎶	59	𐎠𐎠𐎠𐎶𐎶𐎶𐎶𐎶𐎶𐎶𐎶𐎶
10	𐎶	20	𐎠𐎶	30	𐎠𐎠𐎶	40	𐎠𐎠𐎠𐎶	50	𐎠𐎠𐎠𐎶		

I	1
II	2
III	3
IV	4
V	5
VI	6
VII	7
VIII	8
IX	9
X	10
XI	11
XII	12
XIII	13
XIV	14
XV	15
XVI	16
XVII	17
XVIII	18
XIX	19
XX	20

XXI	21
XXII	22
XXIII	23
XXIV	24
XXV	25
XXVI	26
XXVII	27
XXVIII	28
XXIX	29
XXX	30
XXXI	31
XXXII	32
XXXIII	33
XXXIV	34
XXXV	35
XXXVI	36
XXXVII	37
XXXVIII	38
XXXIX	39
XL	40

XLI	41
XLII	42
XLIII	43
XLIV	44
XLV	45
XLVI	46
XLVII	47
XLVIII	48
XLIX	49
L	50
LI	51
LII	52
LIII	53
LIV	54
LV	55
LVI	56
LVII	57
LVIII	58
LIX	59
LX	60

LXI	61
LXII	62
LXIII	63
LXIV	64
LXV	65
LXVI	66
LXVII	67
LXVIII	68
LXIX	69
LXX	70
LXXI	71
LXXII	72
LXXIII	73
LXXIV	74
LXXV	75
LXXVI	76
LXXVII	77
LXXVIII	78
LXXIX	79
LXXX	80

LXXXI	81
LXXXII	82
LXXXIII	83
LXXXIV	84
LXXXV	85
LXXXVI	86
LXXXVII	87
LXXXVIII	88
LXXXIX	89
XC	90
XCI	91
XCII	92
XCIII	93
XCIV	94
XCV	95
XCVI	96
XCVII	97
XCVIII	98
XCIX	99
C	100
D	500
M	1000