

True Place Value Languages

Many languages in the world are true place value languages. The number for 11 is literally the word for *ten* followed by the word for *one*. The number for 12 is literally the word for *ten* followed by the word for *two*, etc. In English the word for *eleven and twelve* did derive from words that literally meant “*ten and one*” or “*ten and two*.” But that is no longer evident in the English words. To see how some languages have preserved place value, see the attached Chinese, Hmong and Oramu numeration systems.

Naming Numbers in Various Ways:

Nicknames and Real Math Names – a solution for problems with reading and writing 11, 12, and teen numbers?

Liping Ma, a Chinese educator and author of the supplementary mathematics curriculum, *Knowing Mathematics*, suggests that young students and students who are English Language Learners in the United States might benefit from talking about the common names for teen numbers (*eleven, twelve, thirteen, fourteen*, etc.) in English as the “nicknames” of the numbers. She recommends teachers talk about the “real names” of the teen numbers as “*one ten and one*,” “*one ten and two*,” etc. (or “*one ten one*,” “*one ten two*,” etc.). She suggests teachers frequently use both the “nicknames” AND the “real names” of the teen numbers to help students see the place value in English names for numbers. Whether you use this categorization or not, the important thing is numbers can be known by many names and talking about the teen numbers as a ten and some ones may bring place value and groups of ten to the forefront.

Seeing Tens and Ones in Two-Place Numbers

Run two copies of the real name number cards, 1-9. Run each digit on a single sheet of heavy paper. Also run nine zero cards. Tape one of each digit, 1-9, with a zero card to form the tens numbers. Use the other 1-9 cards to be the ones digits.

Use the number cards 1-9 and the decade tens cards (10, 20, 30, etc.) to form 2 place numbers that show ten is contained in two-place numbers. Talk about two-place numbers, decomposed into tens and ones and also about them as numbers where the place a digit occupies affects its value.

Have students make two-place numbers with manipulatives that allow them to show groups of tens (e.g. multiple, stacked rekenreks; sticks of 10 unifix cubes and loose cubes for ones; base ten blocks; bundles of sticks; etc.). Use the number cards to show how to write the number using place value and how it can be decomposed into its tens and ones parts.

Another activity is to line up 10 students, each holding one of the 1-10 cards. Count to 10. As each single digit card holder is counted they move (with teacher guidance ☺) back around to the left side of ten. After you reach 10, have the person holding 1 hold it on top of the zero in 10 and talk about the various names (ten-one) and the common name (eleven). Continue with the other teen numbers. Practice counting from 1 to 19 with common names and then count again with the ten-one, ten-two, ten-three, etc., names. Repeat several times a week, sometimes counting by the common names (nicknames) and other times by real math names, showing the tens and ones involved.

Activity can be adapted to any multi-digit number by created cards for hundreds, thousands, etc.

Number Names in Two Languages		
Verbal Counting Sequences		
Numeral	English	Chinese
1	one	yi
2	two	er
3	three	san
4	four	si
5	five	wu
6	six	liu
7	seven	qi
8	eight	ba
9	nine	jiu
10	ten	shi
11	eleven	shi-yi
12	twelve	shi-er
13	thirteen	shi-san
14	fourteen	shi-si
15	fifteen	shi-wu
16	sixteen	shi-liu
17	seventeen	shi-qi
18	eighteen	shi-ba
19	nineteen	shi-jiu
20	twenty	er-shi
21	twenty-one	er-shi-yi
22	twenty-two	er-shi-er
30	thirty	san-shi
40	forty	si-shi
50	fifty	wu-shi
60	sixty	liu-shi
70	seventy	qi-shi
80	eighty	ba-shi
90	ninety	jiu-shi

Hmong Numeration System

		<i>pronunciation m j b s g are tonal indicators</i>
1	ib	<i>ee</i>
2	ob	<i>ah</i>
3	peb	<i>pay</i>
4	plaub	<i>plow</i>
5	tsib	<i>chee</i>
6	rau	<i>chow</i>
7	xya	<i>shah</i>
8	yim	<i>yee</i>
9	cuaj	<i>'q-ah</i>
10	kaum	<i>cow</i>
11	kaum ib	<i>cow ee</i>
12	kaum ob	<i>cow ah</i>
13	kaum peb	<i>cow pay</i>
14	kaum plaub	<i>cow plow</i>
15	kaum tsib	<i>cow chee</i>
16	kaum rau	<i>cow chow</i>
17	kaum xya	<i>cow shah</i>
18	kaum yim	<i>cow yee</i>
19	kaum cuaj	<i>cow 'q-ah</i>
20	nees nkaum	<i>nang gow</i>
21	nees nkaum ib	<i>nang gow ee</i>
22	nees nkaum ob	<i>nang gow ah</i>
23	nees nkaum peb	<i>nang gow pay</i>
24	nees nkaum plaub	<i>nang gow plow</i>
25	nees nkaum tsib	<i>nang gow chee</i>
26	nees nkaum rau	<i>nang gow chow</i>
27	nees nkaum xya	<i>nang gow shah</i>

28	nees nkaum yim	<i>nang gow yee</i>
29	nees nkaum cuaj	<i>nang gow 'q-ah</i>
30	peb caug	<i>pay chow</i>
31	peb caug ib	<i>pay chow ee</i>
40	plaub caug	<i>plow chow</i>
41	plaub caug ib	<i>plow chow ee</i>
50	tsib caug	<i>chee chow</i>
51	tsib caug ib	<i>chee chow ee</i>
60	rau caug	<i>chow chow</i>
61	rau caug ib	<i>chow chow ee</i>
70	xya caug	<i>shah chow</i>
71	xya caug ib	<i>shah chow ee</i>
80	yim caug	<i>yee chow</i>
81	yim caug ib	<i>yee chow ee</i>
90	cuaj caug	<i>'q-ah chow</i>
91	cuaj caug ib	<i>'q-ah chow ee</i>
100	ib pua	
600	rau pua	
1000	ib txhiab, ib phav	
10,000	ib vam, ib meem	
1,000,000	ib lab	

Information supplied by Chang Vang, EXPO School, St. Paul Public Schools

Oromo (Ethiopian) Numerals

(word for numerals is Lakkowsa)

0	duwwaa, zeeroo		10	kudhan
1	takka, tokko		11	kudha takka
2	lama		12	kudha lama
3	sadii		13	kudha sadii
4	afur		14	kudha afur
5	shan		15	kudha shan
6	jaha, ja'a		16	kudha jaha
7	torba		17	kudha torba
8	saddeel		18	kudha saddeel
9	sagal		19	kudha sagal

The following are the best spellings from a faxed copy – some L's and T's were hard to distinguish

20	diig(y)dama		50	shantama
21	diiydamiitokko		60	jahaatama
22	diiydamiilama		70	torbaatama
			80	saddeettama
30	soddoma		90	sagaltama
31	soddomiitakka			
32	soddomiilama		100	dhibba tokko
			101	dhibba tokkoo li tokko
40	afurtama		102	dhibba tokkoo li lama
41	afurtamiitokko		200	dhibba lama