

## Teaching Basic Concepts

### The Sequence For Teaching The Concepts

In Ann Locke's *Living Language* programme (Locke, 1985) the author lists a vocabulary of properties and relationships which consists of just over 200 basic words – adjectives, adverbs, prepositions, etc. These words are grouped in four levels of increasing difficulty and unfamiliarity. She suggests that each level represents the minimum of one year's teaching. This vocabulary is intended to be taught to pupils who already have a basic vocabulary of about 100 words.

Much of this vocabulary list contains words that are likely to be introduced in the earliest stages of mathematics teaching or in basic science activities. The original categories for the vocabulary items used in *Living Language* and the words grouped by levels are shown in the following table.

Locke states that the different levels should not be adhered to rigidly, although the intent is that most items should be learned at one level before proceeding to the next. Locke acknowledges that the assignment of items to particular levels is tentative and teachers are urged to vary the order in which items are to be taught, if that seems appropriate for the individual pupil. The value of Locke's work is that it suggests a teaching sequence and a reasonable guide about what to teach next.

	LEVEL ONE	LEVEL TWO	LEVEL THREE	LEVEL FOUR
QUALITY	like	same/as, too	different, new, very	almost, old
COLOUR	blue, green, red	black, white, yellow	colour, orange, pink, purple	dark/er, light/er, plain, striped
TEXTURE	hard, soft	cold, dry	furry, rough, smooth, warm	(none at this level)
SOUND	noisy, quiet/ly	loud/ly, soft/l	(none at this level)	high, low
SHAPE	dot/spot, line, round	circle, flat, square	cross, triangle	corner, curved, diamond, oval, rectangle, shape, slant/slope, straight
SIZE	heavy, little	empty, fat, full, long, small, biggest	large, light, short, tall, thin, bigger, fattest, heaviest, longest, smallest	deep, narrow, shallow, thick, wide, fatter, heavier, longer, smaller, largest, lightest, shortest, tallest, thinnest
MOVEMENT	fast, slow/ly	moving, quick/ly, still	(none at this level)	jerky, smooth

<b>QUANTITY</b>	a bit, all, a lot, some	another, any, many, no more, as much as	about, both, every, few, half, most, nearly, only, other	each, enough, equal, fewest, less, much, none, part, plenty, several, unequal, whole
<b>SPACE</b>	by, inside, off, out, over, to, through, under	around/round, away, behind, bottom, forwards, in front of, near, next to, outside, straight, top	back, backwards, beside, between/in-between, far, front, high, low, middle, side, together, towards	above, across, against, apart, below, facing, row, sideways, upright
<b>TIME</b>	again, now	after, soon, today	always, before, later, yesterday	early, late, never, once, sometimes, tomorrow, twice
<b>NUMBER</b>	one, two	three, four, five, first, next	number, second, third, last	(none at this level)
<b>PERSONAL QUALITIES</b>	good, happy, naughty, sad	bad, hungry, nice, pretty, silly	cross, frightened, kind, thirsty	clever, excited, pleased, unkind

Note that a few basic vocabulary items which do not feature are introduced even earlier in Locke's *Starter Programme* for teaching the first hundred words, e.g. more, down, in, on, up, big.

## Assessment

Determining the pupil's understanding of much of this vocabulary is not easy. The problem is that adults use some quite familiar (to us) words in a variety of ways. Most adults do not realize this until they have to consider how to teach this vocabulary.

Take the apparently simple words 'top' and 'bottom' for example. Most objects have an identifiable top and a bottom and many have a middle too. The pupil has to learn that the top and bottom of most objects remain the same no matter how they are positioned. The words 'top' and 'bottom' can be used in a straightforward way with many objects but what about the request that a pupil put a mark at the top of a page lying on the table in front of him. This instruction requires the pupil to think in terms of a near-far direction rather than up-down direction. This is a markedly different use of the word that when talking about the top of a ladder or a bottle. 'Top' and 'bottom' can also be used as adjectives rather than nouns, for instance, when referring to the 'top shelf' of a bookcase or the 'bottom book' in a pile of books. There are other possible sources of confusion such as the fact that 'top' may be used to refer to a cap or lid or even a type of toy and your 'bottom' is what you sit on.

Even 'big' and 'little' can cause problems. Assessment is likely to focus upon getting the pupil to indicate or take the larger or smaller object in a display of two or more examples of an object similar except for size in response to a request like "Give me the big ball" or "Give me the little ball". However, an object can be described as 'big' only in relation to one which is smaller. Thus, a tennis ball is 'big' when compared to a pin-pong ball but it

is 'little' when compared to a football. Also, a 'big' man is much smaller than an elephant. There are potential sources of confusion here. Of course, strictly speaking, it is more correct to say "Give me the biggest ball" but, as the *Living Language* sequence shows, pupils learn some basic adjectives of size before any words of absolute size, sometimes called "superlatives", are introduced like 'biggest', 'smallest'.

If these simple words present teaching and assessment problems, think of the potential confusion that may be caused by some of the other words on the list. 'Before' and 'after' can be used to denote positions in time or space, e.g. "What happened after the boy ran away?" and, in relation to a number line, "Does six come after seven?" Therefore, sometimes 'before' and 'after' can have the same meaning of 'beforehand' and 'afterwards'; and sometimes, they can be used to denote positions in space as substitutes for 'in front of' and 'behind'.

So in teaching and assessment, teachers have to consider Ann Locke's developmental sequence and focus on the more common or more basic uses of the vocabulary. More abstract uses must be avoided in the day to day language of instruction and not taught until much later. So, in relation to the above examples, simple assessments must be carefully devised.

In relation to 'before' and 'after' the focus of assessment could be on daily events during a normal day, e.g. "What do you do after dinner ?" or "What do you do before playtime ?" A more convincing test would be whether the pupil can do two activities in the given sequence, e.g. the pupil is asked to " Clap your hands before you rub your tummy" or "Clap your hands after you have rubbed your tummy". Others might be: " Sit down after you have shut the door", "Opened the window before you ring the bell". Make sure that sequences are not obvious ones like opening a book before writing in it. Also, make sure that the sequence of doing things is not always indicated by the sequence in which the two related instructions are spoken.

As regards 'big', 'little' and 'small', assessment will focus on getting the pupil to indicate the larger or smaller object in a display of two or more examples of an object similar or identical except for size. So the teacher may put two examples of an object in front of the pupil . The request is "Show me the big ball" or "Show the small ball".

As regards the third example, which was 'top' and 'bottom', assessment will require a variety of common objects with identifiable tops and bottoms. The teacher may show the pupil an object and ask "Where is the top of the box?" or "Show me the bottom of cup". At a later stage when the words seem to be understood, it is worth rechecking with the same objects turned upside down or laid on their side. The teacher may ask the pupil to put an item on the different shelves of a bookcase, saying "Put the book on to shelf" and "Put the book on the bottom shelf".

It is easy to be mistaken about a pupil's ability. Therefore, it is important to use only a carefully designed test. It is important to consider again the concept of the *information carrying word*. For any word in a request to be considered as an information carrying word or ICW the pupil has to be forced to make a choice about what to do. Remember that the pupil has to be forced to make a choice about what to do.

## **Commercial tests**

The *Derbyshire Language Scheme* (DLS) (Masidlover and Knowles, 1982) provides comprehensive assessment procedures that target some of this vocabulary.

Some of the vocabulary identified by Ann Locke is targeted by other assessments. For instance, the *Bracken Basic Concept Scale – Third Edition: Receptive (BBCS-3:R)* and the *Bracken Basic Concept Scale: Expressive (BBCS:E)* authored by Brian Bracken (2006) are developmentally sensitive measures of children's basic concept knowledge. The *Boehm Test of Basic Concepts* (Boehm, 2000a) was designed for use with pupils in their first years of school and focuses on those concepts considered important for early learning. The vocabulary covered includes concepts of space, time and quantity in the main. Beware – some American English vocabulary and usage is not the same as in British English. There is also a preschool version of the test (Boehm, 2000b) which is described as being most appropriate for use with 3 to 5 year olds, or older students with identified language disorders. This test covers a number of concepts which are not sampled in the test for older pupils. For more details go to the psychology section of the following website [www.psychcorp.co.uk](http://www.psychcorp.co.uk). A great deal depends on the pupil's ability to interpret pictures and follow test instructions of varying complexity.

## **References**

- Boehm, A. (2000a) *Boehm Test of Basic Concepts* (3<sup>rd</sup> Edition) San Antonio, Texas: Pearson Education
- Boehm, A. (2000b) *Boehm Test of Basic Concepts* (Pre-School Version) San Antonio, Texas: Pearson Education
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- Locke, A. (1985) *Living Language* Windsor: NFER-Nelson
- Masidlover, M. and Knowles, W. (1982) *The Derbyshire Language Scheme*