P Levels and and The National Numeracy Strategy

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Recognising attainment

The framework below is described in QCA Guidance 2001. It can help teachers recognise attainment below level 1 of the National Curriculum. Ofsted training refers inspectors to it.

It describes possible changes in individual pupils' responses and behaviour as their early perceptions of experiences and their increasing involvement in the learning process develop into areas of knowledge, skills and understanding. The development of internal learning processes, *for example, thinking skills*, is shown by degrees of attention, discrimination and participation in experiences and activities.

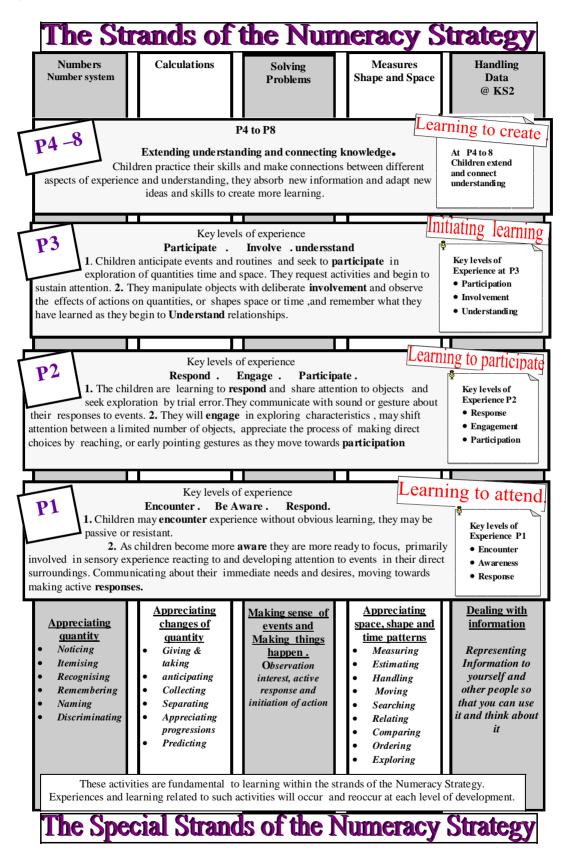
A framework for recognising attainment

	To recognising attenuation		
Encounter	Pupils are present during an experience or activity without any		
	obvious learning outcome, although for some pupils, for		
	example, those who withhold their attention or their presence		
	from many situations, their willingness to tolerate a shared		
	activity may, in itself, be significant.		
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Awareness	Pupils appear to show awareness that something has		
	happened and notice, fleetingly focus on or attend to an		
	object, event or person, for example, by briefly interrupting a		
	pattern of self-absorbed movement or vocalisation		
Attention and	Pupils attend and begin to respond, often not consistently, to		
response	what is happening, for example, by showing signs of surprise,		
response	enjoyment, frustration or dissatisfaction, demonstrating the		
	1 , , , ,		
	beginning of an ability to distinguish between different		
Tona a series d	people, objects, events and places		
Engagement	Pupils show more consistent attention to, and can tell the		
	difference between, specific events in their surroundings, for		
	example, by focused looking or listening; turning to locate		
	objects, events or people; following moving objects and		
	events through movements of their eyes, head or other body		
	parts.		
Participation	Pupils engage in sharing, taking turns and the anticipation of		
_	familiar sequences of events, for example, by smiling,		
	vocalising or showing other signs of excitement, although		
	these responses may be supported by staff or other pupils.		
	and the property of the proper		
Involvement	Pupils actively strive to reach out, join in or comment in some		
	way on the activity itself or on the actions or responses of the		
	other pupils, for example, by making exploratory hand and		
	arm movements, seeking eye contact with staff or other		
	pupils, or by speaking, signing or gesturing.		
	printing or systeming or gentling.		
Gaining skills	Pupils gain, strengthen or make general use of their skills,		
and	and understanding knowledge, concepts or understanding that relate to their		
understanding	experience of the curriculum, for example, they can recognise		
anderstanding	the features of an object and understand its relevance,		
	significance and use.		
	significance and use.		

The above framework has informed the development of P Levels but QCA recognises the limitations of measuring hierarchical and linear progress mechanistically from encounter to attainment. For example they acknowledge that it is possible that pupils' responses may change from day to day and from experience to experience. The pupil who used to be an active participant may, for a range of complex and (hopefully) temporary reasons, show little response in a new setting. Later, the same pupil may give responses showing that new skills, understanding, or areas of knowledge have been strengthened. The framework may give staff a greater understanding of how pupils move through a learning process and it offers a commonsense perspective that illustrates a hierarchy of learning at fundamental levels. The QCA guidelines suggest that schools should

also recognise that pupils also progress by consolidating knowledge and skills in wider contexts at the same level.

Fig 13.2



Level	Early Development See additional tables for more detail about the Mathematical elements within Early Learning					
P1	(i) .Pupils show reflex responses to sensory stimulationencounter activities and experiences, may be passive or resistant.					
P2	 (ii). show emerging awareness in relation to encounters and growing alertness to a range of people objects and materials in everyday contexts. (i). Pupils show reactive responses that focus attention towards familiar people and objects, e.g. reaching, holding, turning to familiar voices (ii). Begin to be proactive, engage with others remember learned responses a short time, cooperate with shared exploration. 					
P3						
Level	Numbers & number system	Calculation Calculation	Solving Problems	Measure Shape space		
P4	• Show awareness of number activities and counting E.g copying some actions during number rhymes, songs and number games following a sequence of pictures or numbers as indicated by a known person	•Awareness of <u>changes</u> in quantity shape and position. •Shows interest when groups are combined or split, anticipate touching objects to count total.	Awareness of cause and effect in familiar activities e.g exchange coin for item. or selecting a shape on a concept keyboard to make it appear on the screen Aware of changes in quantity shape position. Group similar objects to match – e.g. pairing shoes.	Beginning object permanence search for objects out of sight. Matching or sort big / small objects. Demonstrate interest in position and relationship –e.g. stacking or joining.		
P5	Join in familiar number rhymes and songs stories and games. Indicate One or Two e.g using fingers or blinks Join in sequential pointing and sound making	• Aware of contrasting quantities. •Cooperates with combining /partitioning groups e.g responding to 'more' or 'take'. One or two	Matching by recognising similarities Group or sort sets of objects by characteristics such as size or shape. Solve simple problems practically e.g select appropriate sized containers Look for objects in their usual place	•Find big and small objects on request. •compare size of one object with that of another where there is a marked difference, •Explore the position of objects, e.g placing objects in and out of containers, or fit as many objects as possible into a box.		
P6	Practical understandings applying one to one correspondence e.g straws to drink cartons. say or sign counting to 5 (rote) Touch counts 3 objects reliably Recognise numerals to 3 Understand concept of more Indicate when more are required	Active in combining and partitioning to make groups, observing increasing and decreasing quantity. • Makes sets with 3 objects by adding another or more	Ocopy simple patterns of physical sequences. E.g. movements, sounds, objects Sort objects, by type difference E.g. sorting footballs into a net and table tennis balls into a box. Make comparisons to solve problems matches items 1 to 1 to organise them. Activities should include the use of money (exchange) as an important context for number development.	Search for things not in their usual place Understand words or signs that describe positions e.g. in, on under Make practical comparisons of objects according to size when difference is not great - aware of words like – larger, smaller biggest.etc understands 'More' Participate in making practical comparisons of more or less between large differences weight volume etc		
P7	•Join in rote counting say or sign numbers to 10 • Count 5 objects reliably. • Recognise numerals 1 to 5 and understand they represent constant quantities. E.g. Place correct quantity in marked container. •Make tally marks to record counting Understand concepts of 'more' and 'less'.	• In practical tasks respond to 'add one' to a number of objects •Find one more and one less up to 5. •Make sets with up to 5 objects – check by counting.	Sort objects for a given criterion, e.g. coins. By colour or size Identify when an object is different / does not belong e.g. remove odd items from a set. competent in practical tasks or playing games using 1-5 respond appropriately to key vocabulary and questions, for example, 'How many?'	 In practical situations use familiar words and combinations to compare position' size and quantity. E.g. Which is heavy/light. 'more' and 'less', 'enough' or 'not enough'-put at the back. Start to pick out described shapes from a collection. E.g. all the round ones Relate to directions forward and backwards. 		
P8	•Continue the rote count or sign on from a given small number. • Join rote counting beyond 10 •Use ordinal number names, first second etc. e.g describing positions of objects or turn taking, competitions events etc. •Recognise numerals 1 to 9 and relate them to collections of objects. •Make attempts to record numbers n.b extended at level 1c.	Recognise differences in quantity Compare given sets, say which is more /less/ bigger /smaller Estimate small numbers of objects and check by counting In practical situations they respond to 'add one' to or 'take one away' from a number of objects,	Recognise, describe and re create simple patterns and sequences. E.g necklaces, rhythm, art. Begin to use developing understanding of counting to solve problems encountered in practical circumstances and play. E.g. Using tokens to score or tally. Using counting in practical tasks, using ordinal words first second etc. Begin to make simple estimates in practical contexts .	•Make direct comparisons focusing on one dimension such as length or height - for example, comparing two plants, placed side by side and indicathe tall one. Or find out practically which of two containers holds more. •Show awareness of time through awareness of days of week and significant times of day. •Respond to mathematical vocabula such as straight, circle, larger etc. to describe shape and size of shapes and solids. E.g sizes of boxes or canswhen shopping •Use and describe shapes in simple models pictures and patterns.		

Activities that relate to appropriate interpretations of the strands of the Numeracy Strategy for PLD pupils.					
Strand description • Reception • Y1 onwards	Counting &recognising numbers. The number system	Adding & subtracting Calculations	Solving problems	Measures, shape and space	
Interpretation that lescribes the strand appropriately for PLD pupils	Appreciating quantity. Noticing, itemising and remembering	Appreciating and anticipating changes that increase and decrease . Collecting Separating Precursors to recording and calculating	Active responses – making things happen	Appreciating and manipulatin space shape and time patterns	
Sensory Development Including Attention And perception	Begin to tolerate and enjoy stimulation. Using sight, touch, hearing or smell to encounter one or a number of objects or events. Extend glances and combine or co ordinate with reflexive movements to improve co ordination of attention. Feel touching and rhythmic clapping of hands.	Encounter and respond to increasing and decreasing stimuli:- Light – brightness. flash frequency /rhythm Sound –volume, timbre, rhythm. Quantity- number of objects, Weight and Volume. Touch, Pressure motion Time duration	Encounter and respond to stimuli, begin to show awareness of different aspects of a stimulating event . Be encouraged to focus on main or particular features of a stimulus. Experience objects being hidden and revealed. By modelling be encouraged to show anticipation, pleasure or disappointment.	Encounter and develop awareness and response to spaces, objects, shapes, and time patterns. Hear associated language including intonation that emphasises description of size, frequency etc. Encounter long and short periods of stimulus	
Attention And perception Active Physical Development Sharing and Communicating	Experience sequential touches, and modelled finger counting. Be supported touching objects, repeating and combine reflexive movements to encourage grasping and examination of objects with eyes and mouth. Have large and small movements, rhythmic movement of limbs and manipulation of fingers modelled physically.	Be helped to reach and touch and grasp objects, with single, both or alternate hands, experience assisted hand to hand transfer. Have objects taken from them and given to them. Experience finger manipulation associated with vocalisations about increasing and decreasing sequences.	Experience physical responses to their actions or signs of awareness e.g. experience clear and well timed adult responses in response to their own responses. Activities that encourage increasing control, extension and combining of reflex actions e.g model combined sweeping and grasping, or reaching and picking up. Be assisted to pick up different objects and be aware of their different properties	Encourage touching and grasping by modelling stroking holding and feeling objects and surfaces. Move or be moved in and through spac of different kind's e.g open, narrow, lovetc. Feel stretching and curling of body limband digits.	
Sharing and Communicating	Be encouraged to make sensory contact and eye contact with adult. Be encouraged to maintain focus on single objects. Hear language, with emphasised intonation and sequences. See or feel gestures associated with quantities, including rhythm and counting sounds.	Experience language intonation and gestures associated with changes involving increasing and decreasing, or gaining and losing, something or nothing. Be aware of comings and goings.	Hear intonations that illustrate questions and answers. Encounter, be aware or respond to communications in response to their actions. Hear comments that Draw attention to objects and events Encourage or indicate sharing Describe and question Do you like? Do you want?	Encounter, develop awareness of people's responses to objects, places, locations and events, changes in pattern or positions. Have their own vocal and physical responses to objects and events responded to by adults.	

OCA P2 (i). Pupils show reactive responses that focus attention towards familiar people and objects, accept coactive exploration. (ii). Begin to be proactive, engage with others remember learned responses a short time, cooperate with shared exploration. • Respond • Engage					
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Interpretation that describes the strand appropriately for PLD pupils	Appreciating quantity Noticing, itemising and remembering	Appreciating and anticipating changes that increase and decrease. Collecting Separating Precursors to recording and calculating	Active responses – making things happen	Appreciating and manipulating space shape and time patterns	
Teaching focus Sensory Development Including Attention And perception	Be encouraged to look, listen, touch etc. and attend to sensory input relating to quantities and sequences . Look from one object to another or one sound source to another. Show interest in difference between one and two items. Use visually directed reaching for object or sound of an object. Seek for another item.	Be encouraged to engage in attention to changes of increase and decrease. Maintain attention and respond showing awareness that change is occurring Experience activities that illustrate object permanence and encourage visual memory E.g. Feel objects that have been hidden as they watch- Subitising – Experience perceptual examples of more and less, being offered alternatives between 1 and 2 or 3 items.	Be encouraged to respond to stimuli and show an interest and desire to participate in changing, continuing or stopping events. Discern between different stimuli and signal like / dislike Focus on perceptual features of visual and tactile experiences related to collecting, discarding, retrieving exchanging.	Develop multi sensory examination of objects of different shape and size and length. React to spaces or shapes, make choices about them. Show engagement in response to visual, auditory, or tactile phenomena or sequences e.g interest in changing sizes weights, volume, tone and pressure.	
Attention And perception Active Physical Development	Be encouraged to develop sensory exploration schema e,g combining reflexive responses and developing process of exploring objects <i>e.g.</i> extending touch to stroking Be assisted to experience hand transference or. Touching more than one object. Be encouraged to make sounds to accompany sequential and rhythmic limb or finger manipulations.	Gain and discard objects. Be encouraged to uncover objects that they have seen being hidden Gathering and holding Collect items together. Experience sequential progressions e,g uncurl or touch fingers or body parts in turn. Touch objects in turn. Feel sequential movements, track light and sound sequences	Be assisted to actively participate in controlling and changing quantities or events. Single switch control cause and effect and sequences Use a two handed scoop to pick up. Picking up and putting down. Experience physical aspects of holding, giving, moving, collecting, discarding, exchanging	Move in and out of spaces. Reach and hold and engage in multi sensory experiences of shape, length and weight. Combining use of physical /sensory skills – developing schema. Experience things not in their usual place. Participate in response to instructions about stretching, curling, or reaching with digits limbs or body	
Sharing and Communicating	Experience models of turn taking whilst sharing attention to objects and quantities. Be helped to show or give objects to adults, be encouraged to alternate focus between more than one object. Hear language, intonation and see or feel gestures associated with quantities, including rhythm and counting soundshave their own responses responded to.	Share attention to comings / goings and events, express an interest in increases / decreases. Express a desire for more or less. E.g. be encouraged by modelling to show satisfaction and dissatisfaction, via facial expression, gesture, sound or pre -verbal vocalisation. Hear language, intonation and see or feel gestures associated with increase and decrease.	Begin to respond to adults comments, or calls to look and then maintain attention to events. Initiate communication about changes using expression, gesture, sound or pre- verbal vocalisation. Make a response to immediate instructions. Seek recurrences of events. Hear and attend to language intonation, see or feel gestures associated with making things change.	Respond to adults comments about spaces, shapes, length, weight, time etc. and extend attention to events. Initiate communication with expression, gesture, sound or pre- verbal vocalisation, expressing responses to Spaces, shapes etc. Hear language intonation and see or feel gestures associated with spaces, shapes, length, weight, time etc.	

QCA P3. (i) They Participate in exploring, showing anticipation, seeking attention, communicating intentionally. Observe results and remember learning longer (ii). They become involved. Actively explore and manipulate objects, remember and apply potential solutions. They communicate choices etc, using sounds, tones and or gestures remember learning over extended periods time patterns, size differences

Activities that relate to appropriate interpretations of the strands of the Numeracy Strategy for PLD pupils.

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Interpretation that describes the strand appropriately for PLD oupils	Appreciating quantity. Noticing, itemising and remembering	Appreciating and anticipating changes that increase and decrease. Collecting Separating Precursors to recording and calculating	Active responses – making things happen	Appreciating and manipulating space shape and time patterns
Sensory Development Including Attention And perception	Scan, anticipate and make choices about stimulus and objects. Interest in making sense of incomplete or partially hidden object, or image developing memory representations Develop numeric pattern recognition (Subitising) observing differences in small groups 1-4. Selectively maintain attention or switch attention as appropriate. Connect between different representations of same item e.g. real object / image /name	Develop and combine observation skills. Engage in close attention to changing quantities. Develop anticipation of changes develop Discrimination (between small groups (1 to 4) – recognising more/less. – choose group with most. Participate in object permanence activities Involving both constant and changing groups	Exercise choice and control, making selections about changing stimuli Discriminate differences and make connections between / objects. Relate use of objects to appropriate events. Identify functional side of object	Explore and begin to associate objects of similar shapes together- equate to representation. Anticipate and respond appropriately to space shapes, patterns of time and to changes in position size etc. Explore differences - odd one out etc. Make choices about them and show preferences.
And perception Active Physical Development Sharing and Communicating	Show deliberate intent. Choose and obtain objects. Gather small collections. Place items in receptacles. Discard items sequentially Use rhythmic sequences, touching, pointing, picking and sound making., move objects in turn. Make sounds and gestures to symbolise none, one, and more, here and gone.	Gather collections & Separate groups of items. Experience incremental itemisation of objects, or on a physical number line \ string. Participate with adult itemising objects. Experience models of counting up and down — (include nothing left) Tally objects / events using fingers and sounds (up and down) — accompany adult number names. Make marks — point to marks — Practice sound making to pointing.	Instigate changes to objects, collections, events etc. Create effect by throwing/knocking/moving/positioning objects. Experience various schema e.g. vertical/horizontal, circular, trajectory: enclosure, rotation, etc. Anticipate effects – change of place, Increase or depletion, etc. Integrate picking and placing schema to place items next to each other. Combine objects appropriately. Use single switch – cause and effect, Dual switch – alternatives and choices	Participate and experiment with changing positions of objects. Anticipate effects of changes. Explore bringing shapes together and creatin sequences of shapes objects or sounds- vocal instrumental. Choose spaces to move or "be "in Experiment with changing body position, posture, movement direction speed, rhythm time, sound volume brightness etc.
Sharing and Communicating	Initiate communications about quantities, imitating gestures and sounds. Take turns. Respond to object or event names appropriately. Be helped to interpret "objects of reference." Participate in activities that illustrate object permanence, experience comments about change reflect their own observations - by any means of communication. Co ordinate sound making with rhythmic gestures / pointing. Experience adult use of number names during the itemising process, and in the description of quantity.	Offer and accept items Showing items to gain attention or giving items to prompt actions. Use own personal sounds, symbols or gestures to name objects events or numbers. Itemise using sequences of sounds. Use intonation to mark beginning /end Participate in games / activities where groups / sets are changed Be encouraged to use imitation – copying the actions of a person. And deferred imitation copying the actions of a person on to present. experience comments about change reflect their observation - by any means of communication	Express desire to change stimuli. /event/objects. Anticipate and respond to instructions. e.g. wait – 1,2,3- now. Use own personal sounds, intonations, and gestures to indicate objects, actions and to instigate and direct events. Or comment on changes Anticipate and express consequences of change. Direct a sequence of events.	Share attention about shape etc. Take turn in communications Use gesture vocalisation and tones that relate size, frequency, duration etc. Adopt consiste name sounds or signs for places, shapes, dimensions actions etc. Participate in activities that refer to objects and that are not present, or changes that oc

Develop understanding through Encounter, Participation, Exploration and Practice

Number and algebra

- •Develop an appreciation of quantities and how they change
- Recognise sequences in familiar activities and contexts;
- •Appreciate that one thing can represent another from pictures to symbols
- Develop a consistent responses to number-related vocabulary; for example to add two spoonfuls of sugar, take one biscuit, take three steps, have two people join an activity
- Monitor their own and others' counting to identify and communicate mistakes that have been made
- Understand that counting can be used to make sets
- Compare amounts and count on or count back to calculate how much more or less
- Count on to calculate change
- Response to and use mathematical symbols
- Select a strategy or tool to make calculations; for example, use tally marks, fingers or a calculator to add or subtract items

Shape, space ad measures

- Manipulate objects,
- •Explore and use different approaches to overcome difficulties when solving problems of space and measure; for example, collect items in containers, turn items to fit into a space, compress or press air out of the item to reduce its size, or change shape of malleable materials to fit container.
- Use mathematical cues to identify an item; for example, select an object from a set when given information about its shape and size
- •Appreciate the use of measures
- Use standard measures in everyday activities for example, to weigh ingredients, to make out a given gardening plot
- Use and understand directional symbols; for example, to be able to follow arrows and to place them appropriately
- Recognise the time at which familiar, regular events take place, tell the time on the hour and half hour and use this information, for example, to plan when they should start get ready for lunch, tidy up

Handling data

- · Organise or represent things so that they can be named or compared in numerical terms, e.g. collect items together or line them up to count , tally events etc.
- Use numerical information to solve problems; for example, use number names to describe quantity or represent quantity with numerals, or use a clock face to work out who ran fastest
- Understand how to read and interpret a simple scale; for example, the television display showing volume of sound,
- Represent data in a variety of formats ad compare information about important features in their lives; for example, individual graphs about swimming performance, group graphs on youth club activities