caspa
Comparison and Analysis of Special Pupil Attainment

Analysis and bench-marking in CASPA

This document describes of the analysis and bench-marking features in CASPA and an explanation of the analysis model used by CASPA to derive expectations of progress for pupils.

CASPA also contains analysis against the quartiles published within National Strategies' Progression Materials documentation. This guidance note does not attempt to describe or explain the Progression Materials benchmarking methodology. For more information on Progression Materials quartiles data sets, please refer to the DfE's and Ofsted's websites.

Analysis and bench-marking by category of need

CASPA uses an analysis model that gives schools flexibility over how they bench-mark their pupils:

- CASPA enables bench-marking of a pupil's attainment against each of the pupil's recorded categories of need.
- CASPA allows schools to ignore categories of need entirely to support analysis of progress using the same principle adopted with National Strategies' Progression Materials.
- CASPA allows schools to select, for each pupil, the categories of need that they feel best describe the group of pupils that an individual child most naturally compares to, thereby ensuring the most appropriate basis against which to compare his or her attainment.
- CASPA differentiates between categories of need that are associated with a degree of learning difficulty, which in turn are associated with an expectation of attainment, and categories of need which are not.
- Where the categories of need recorded for a child do not include a degree of learning difficulty, schools will be prompted to enter one, or if the pupil has no degree of learning difficulty, to record 'None'.

Analysis and bench-marking of actual vs expected progress

CASPA uses a powerful analysis model for identifying expected progress based on prior attainment, thereby allowing robust and reliable comparisons of actual and expected progress:

- CASPA reflects the fact that, even for children with the same category of need, expectations of progress for each individual child will differ according to the severity of that child's needs.
- CASPA enhances the reliability and significance of expected progress data for individual pupils and cohorts by taking prior attainment into account, in accordance with the key principles of National Strategies' Progression Materials
- Expectations of progress taking account of prior attainment are based on percentile data derived from the analysis of data submitted by all users of CASPA, thereby, reflecting the range of outcomes reported for different categories of need.
- CASPA allows actual or target levels to be compared against expectations over any period for which there is data available in CASPA to allow the requisite actual or target progress to be determined.

Reporting of actual vs expected progress

Reporting in CASPA makes it easier for schools to draw conclusions from the assessment and target data they have collected, as well as quickly providing the information schools require in order to carry out self evaluation to support school improvement.

- CASPA significantly extends the top-level reporting of performance for cohorts of pupils through reports that clearly identify whether, for the progress of pupils, based on prior attainment, is meeting, exceeds or is below statistical expectations, for both actual progress and target progress.
- CASPA provides 'drill down' analysis for any cohort of pupils to illustrate the spread of differences between actual, or target, progress and expectations based on prior attainment.

- CASPA allows the actual, or target, progress of cohorts of pupils to be compared against Value Added Medians, highlighting the influence of prior attainment on actual, or target, progress or 'value added'.
- All the reporting in CASPA allows the immediate identification of the individual pupils on which any summary information is based and thus the contextual factors for pupils required to interpret their results.

Analysis and bench-marking by category of need in CASPA

The analysis model

For mainstream pupils, comparative data is provided via RaiseOnline, which makes use of a Value Added model. This fundamentally uses two factors as the prime determinants of expectations of future attainment for pupils:

the age of the pupil

the pupil's levels of prior attainment

In the context of children with Special Educational Needs, it seems intuitive that the types of needs that pupils have will have an impact on expectations of progress for these children. CASPA therefore uses an analysis model that, in addition to considering age and prior attainment, can also take account of the actual needs of pupils and reflects the fact that children with Special Educational Needs often have more than one category of need. CASPA differentiates between categories of need that imply a degree of learning difficulty, and other categories of need that do not and allows pupil attainment to be bench-marked separately against each of the categories of need recorded for a pupil.

Categories of need within CASPA

The categories of need that can be used to describe pupils in CASPA are listed in Appendix A and are based on the categories of need defined for School Census purposes. Whilst all of the categories of need cover a range of degrees of difficulty or need, reflecting the fact that every child with Special Educational Needs is unique, CASPA divides the categories of need into two groups: Degrees of Learning Difficulty, which are associated with a restricted range of likely attainment levels, and Other Categories of Need, which are not.

Degrees of Learning Difficulty in CASPA

The guidance given in a previous version of the SEN Code of Practice indicated that three of the categories of need within the Cognition and Learning Needs group are associated with particular ranges of likely attainment levels; each of these categories of need still covers a range of degrees of severity, but the range is narrower than for the other categories of need. These needs, and the likely range of outcome levels suggested for them in the SEN Code of Practice, are given below; please note that the suggested range of outcome levels is not proscriptive, and depending on their age and severity of need, there may be some children in each of the categories of need noted below that are working at levels outside the suggested range.

Category of need	Likely range of attainment
Profound and Multiple Learning Difficulties (PMLD)	P1(i) to P4
Severe Learning Difficulties (SLD)	P4 to P8
Moderate Learning Difficulties (MLD)	Significantly below non-SEN peer group

These categories of need are referred to in CASPA as 'Degrees of Learning Difficulty'; as the Degrees of Learning Difficulty are mutually exclusive, pupils can only have one Degree of Learning Difficulty; for pupils who have no cognitive difficulty, and whose attainment is therefore similar to non-SEN pupils, CASPA allows a Degree of Learning Difficulty of 'None' to be recorded.

Other Categories of Need in CASPA

With the exception of the Degrees of Learning Difficulty noted above, all other categories of need defined in the SEN Code of Practice cover the whole range of pupil ability. The recording of a category of need of this type for a pupil simply indicates that the pupil receives educational provision that is additional to or different from the education provision made generally for children; it does not, of itself, imply a degree of learning difficulty, though a degree of learning difficulty may exist. The spectrum of pupils for whom these Other Categories of Need can be recorded therefore ranges from those with no learning difficulty at one end through to those with Profound and Multiple Learning Difficulties at the other, and thus covers the whole range of abilities, as noted above.

Other Categories of Need that can be recorded in CASPA are shown in Appendix A. CASPA allows two categories of need from the Other Categories of Need list to be recorded for each pupil.

Categories of need in CASPA vs categories of need recorded for School Census purposes

The categories of need recorded in your school MIS for the purposes of the School Census are required by law to reflect the categories of need recorded in Part 2 of a pupil's SEN statement. Whilst the SEN Code of Practice states that a child's statement should always be an up-to-date and accurate reflection of a child's actual needs, feedback from schools indicates that the areas of need recorded on a child's statement, and thus recorded in the school MIS, are not always the most appropriate basis on which to compare a child's performance against that of others.

CASPA gives schools the freedom to choose for themselves the categories of need that they feel are most appropriate as the basis for comparison and analysis of a child's attainment, subject to the restrictions noted above that each pupil must be assigned a Degree of Learning Difficulty and can have no more than two Other Categories of Need.

Where CASPA imports pupil data electronically from the school MIS, CASPA will display the areas of need recorded for School Census purposes in read-only form. When data is first imported from the school MIS, the categories of need recorded for the School Census are used as the default categories of need in CASPA; if the School Census needs include one of the categories PMLD, SLD or MLD, this is used as the default Degree of Learning Difficulty in CASPA, with any other needs being recorded as Other Categories of Need in CASPA.

Schools are then able to revise any of categories of need recorded in CASPA and, where the needs recorded for a pupil do not already include a Degree of Learning Difficulty, schools will be prompted to enter one. Changing the categories of need recorded in CASPA for use as the basis for analysis and comparison for a pupil will have no effect on the categories of need recorded in the school MIS for School Census purposes.

Due to the limitations of the mathematical processes used, where a pupil's attainment is too far towards the extremes of the range of outcomes found for their specified category of need, CASPA is unable to make a reliable prediction of future attainment. CASPA allows such pupils to easily be identified so that, where appropriate, a different category of need that better describes the group of children this pupil most naturally compares to can be selected.

Selecting the Degree of Learning Difficulty and Other Categories of Need to be recorded in CASPA

When deciding which Degree of Learning Difficulty best reflects a child's needs, and which Other Categories of Need are appropriate to be recorded for a child, reference should be made to the guidance given in the DfE's SEN Code of Practice. Please refer to the Government's website for the current document.

Categories of need as the basis for analysis and comparison

CASPA offers analysis by a single category of need at a time and, given their more focussed nature, CASPA uses the Degree of Learning Difficulty recorded for a pupil as the default basis for comparison, unless the Degree of Learning Difficulty is 'None', in which case the first Other Category of Need is used as the default.

However, users may select any of the Other Categories of Needs recorded for a pupil as the basis for comparison as they wish. This allows attainment and expectations of a pupil with a Degree of Learning Difficulty of Severe Learning Difficulty (SLD) and an Other Category of Need of Autistic Spectrum Disorder

(ASD) to be bench-marked by default against other pupils with a Degree of Learning Difficulty of SLD, and also to be bench-marked against all pupils for whom ASD is recorded as a category of need, regardless of their Degree of Learning Difficulty.

Analysis and bench-marking in CASPA ignoring category of need

Background

National Strategies' Progression Materials, published in 2010, included a number of key principles, one of which states "Age and prior attainment are the starting points for developing expectations of pupil progress". One impact of this principle is that the starting point for some analysis and discussions around pupil progress may be based on using age and prior attainment only, excluding, or ignoring, category of need.

Ignoring category of need in CASPA's analysis

CASPA will continue to support the additional use of category of need. However, since schools need to have the option to use their own CASPA analysis in these discussions, schools need to be able to apply this key Progression Guidance principle to CASPA's reports and graphs.

CASPA provides two approaches to removing category of need as a factor in it's benchmarking:
  • A user can select to ignore category of need for the duration of their time either logged on to CASPA or until they change the setting back to its default – taking account of category of need. This setting will result in all CASPA features ignoring category of need.
  • A user can, when using an individual report, or other relevant feature, select not only which category of need to use, but also to ignore category of need. This selection is then only used in that report, or group of reports and when selecting another feature, that feature will by default use category of need.

When ignoring category of need in CASPA, all features work in exactly the same way – the only difference is that the benchmark against which a pupil is compared does not take category of need into account and therefore compares a pupil against all pupils in CASPA's comparative data set.

In addition, CASPA's feature to generate expected outcome levels, which is used to inform target setting activities, includes an option for users to select whether to generate expected outcome levels based on a category of need or by ignoring category of need. Ignoring category of need when generating levels will therefore identify the expected level for a pupil for one and/or two years ahead, based on a benchmark that is not specific to any single need, using the data for all pupils in CASPA's comparative data set.

Analysis and bench-marking of progress versus expectations in CASPA

The analysis model

Experience confirms that the rates of progress for more able pupils are likely to exceed those for less able pupils. Therefore when analysing and bench-marking the actual progress achieved by a child, or when considering the amount of progress that a child might be expected to make for target setting, levels of prior attainment need to be considered in addition to any other factors already used in analysis and comparison.

CASPA takes account of prior attainment by using the percentile graphs for each subject and, be default, category of need to establish the expected rates of progress appropriate to a child's prior attainment, thereby reflecting the impact their severity of need has on their attainment. As described above, users have options to ignore category of need in their selections. The percentile lines in CASPA are based on the analysis of data submitted to us by users of CASPA.

The following graph shows a typical set of percentiles for a combination of subject and category of need, in this case a Degree of Learning Difficulty; for clarity, the percentiles have been displayed as trend lines. In this case, the trend lines can be clearly seen to be curves rather than straight lines, representing the differing rates of progress pupils are found to make at different stages of their academic career.
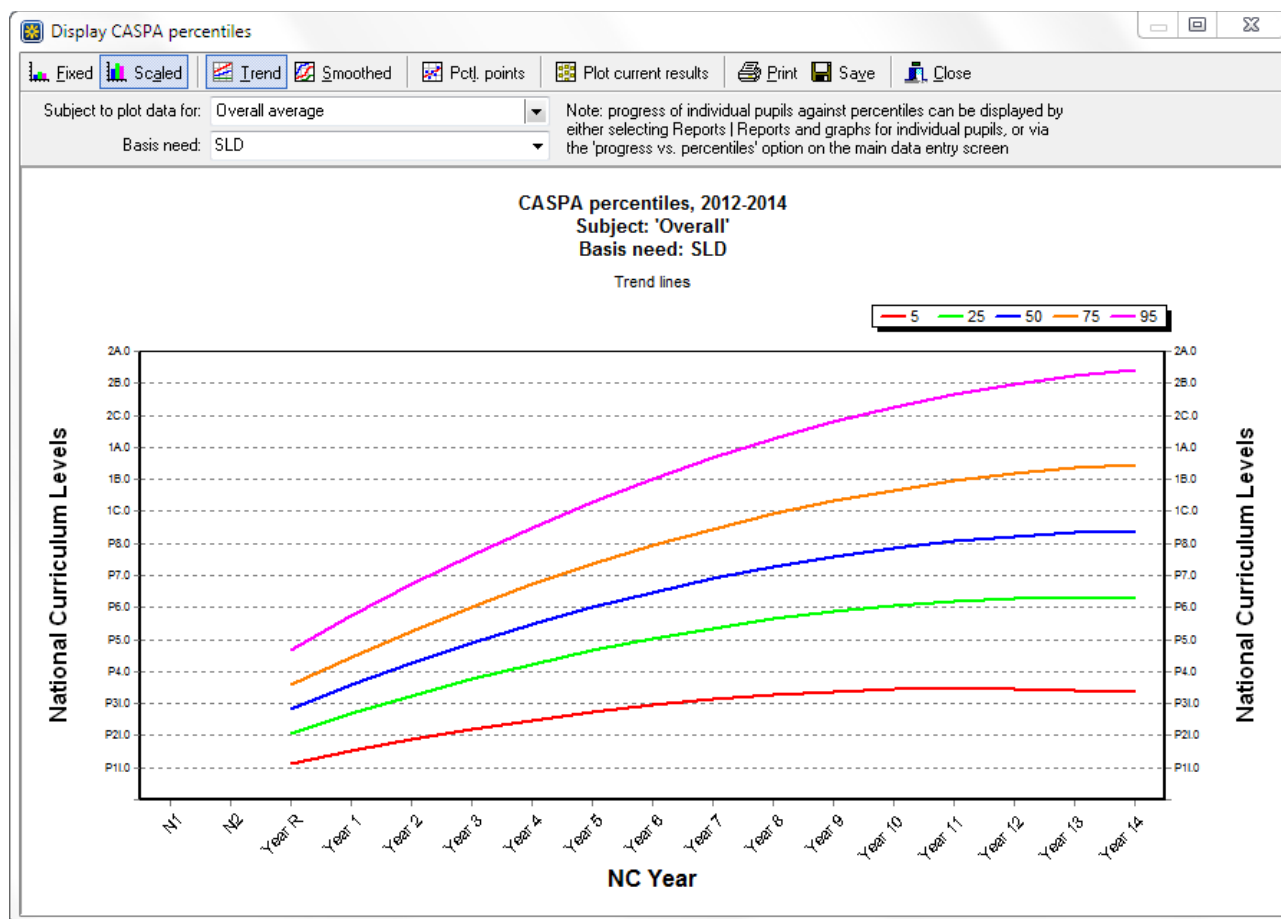

When considering the progress that might reasonably by expected for a pupil, the underlying assumption in CASPA is that the expectation for a pupil working at a given percentile ranking in one year is that he or she will maintain that percentile ranking in later years; the expected amount of progress is therefore the amount of progress from the initial attainment value that maintains his or her initial percentile ranking in later years.

To illustrate this point above, if an SLD pupil attained a result of P6.0 in Reading in Year 5, he/she would fall on the 50th percentile line in the example graph above (the blue line). If this pupil progresses broadly as expected, his or her track of progress would be expected to follow the track of the 50th percentile line; by following the track of the 50th percentile line we can therefore determine, in the absence of any factors that would cause this pupil to progress at a rate different to that which might reasonably be expected, the level of

attainment we might predict for this pupil in any subsequent year. In the example given above, a level of attainment of P6 in Year 5 would lead us to expect a result of P8 in Year 11.

Now consider the recorded progress over a number of years of an individual pupil with this category of need in this subject; yearly levels of attainment in this subject can be plotted on the percentiles graph to give a track of progress in the subject for an individual pupil, as shown below:
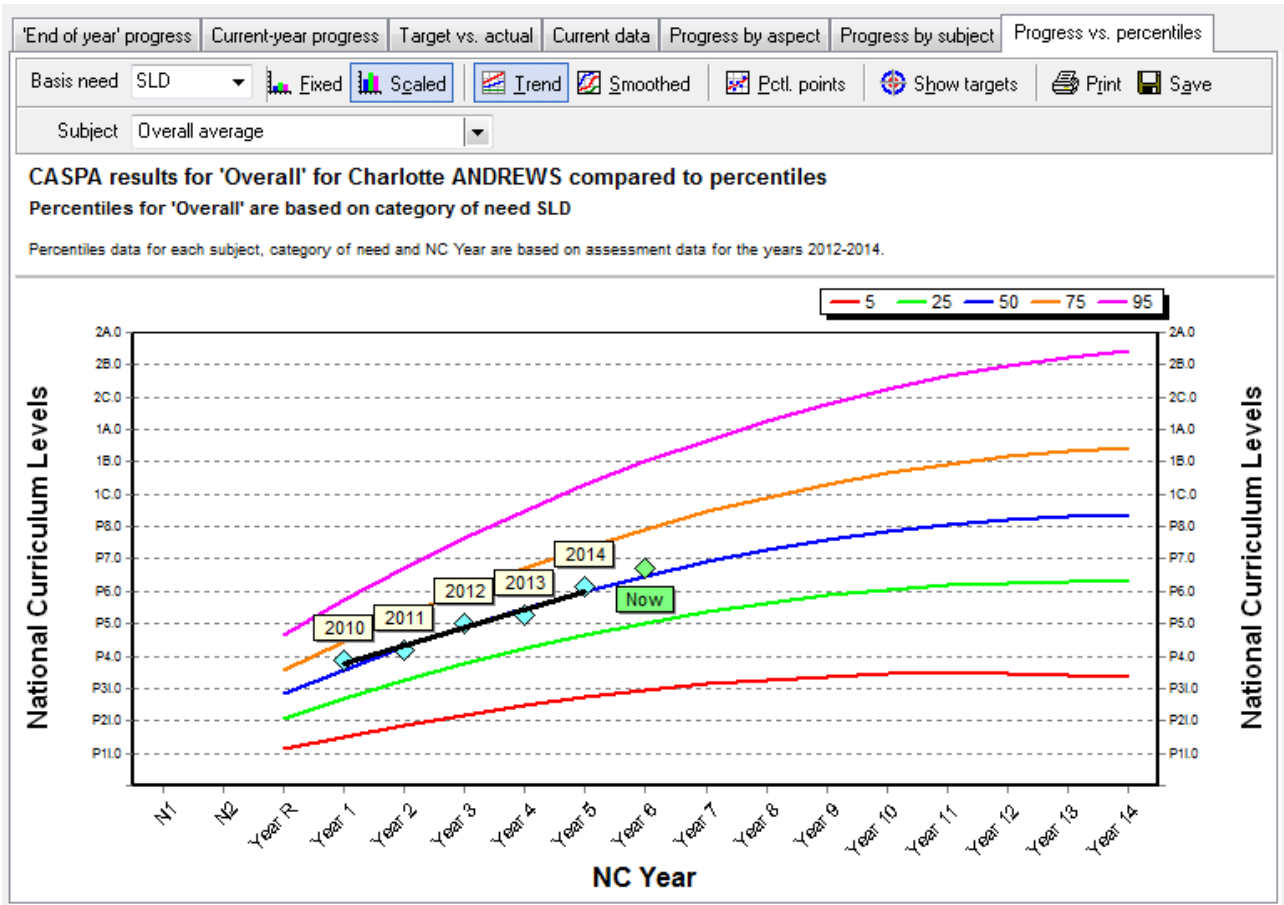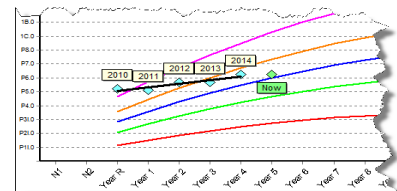

By comparing the track of pupil progress against the percentiles it is possible to determine whether the pupil is maintaining, increasing or decreasing their percentile ranking from one year to another, and therefore to determine whether the pupil is progressing at a rate that meets, exceeds or is below expectations, based on their prior attainment. It is also possible to determine the amount by which their progress exceeds or is below expectations, again based on prior attainment, by calculating the difference between the pupil's actual attainment in a given year, and the expected attainment level in that year based on the pupil maintaining their initial percentile rank.
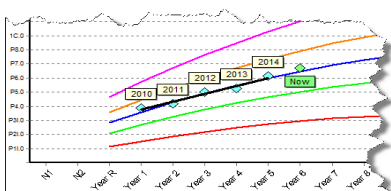
Expected progress - the track of pupil progress follows the starting percentile, so the ending percentile rank is the same as the starting percentile rank.
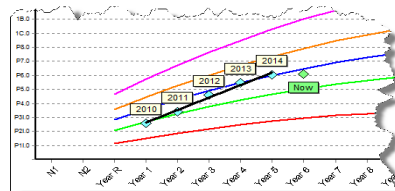
Above expected progress - the track of pupil progress moves up from the starting percentile, so the ending percentile rank is higher than the starting percentile rank.

Below expected progress - the track of pupil progress moves down from the starting percentile, so the ending percentile rank is lower than the starting percentile rank.

This model allows comparisons of progress against expectations to be made over a single year, or for comparison of progress against expectations to be made over any number of years, subject only to the pupil to have an attainment level in both the start and end year over which progress is being compared. These starting and ending attainment levels could be either an actual assessment outcome, or a target set for future years; therefore, CASPA allows historic progress to be compared against expectations, as well as allowing target progress to be compared against expectations.

To summarise, CASPA uses an analysis model taking account of the pupil's age, prior attainment plus category of need (with an option to ignore category of need) to determine whether pupils are progressing faster or slower than expected and the amount by which a pupil's progress exceeds or is below expectations. Expectations in CASPA are based on a statistical analysis of data and, when evaluating the information provided by CASPA, schools should identify whether there are contextual factors for individual pupils that might cause that pupil to progress at a rate significantly different to that which might statistically be expected, for example a degenerative condition, long absences from school or the death of a sibling.

CASPA's analysis model allows comparisons of actual and expected progress to be reported in a number of ways, as described in the following sections.

Comparison of actual vs expected progress in a specified subject for groups of pupils

For any specified combination of a cohort of pupils, a subject, and a period over which to analyse progress, whether historic progress or target progress, CASPA can identify:
- the number and proportion of pupils whose progress is below expectations
- the number and proportion of pupils whose progress meets expectations
- the number and proportion of pupils whose progress exceeds expectations

An example of such an analysis at whole-school level is illustrated below.
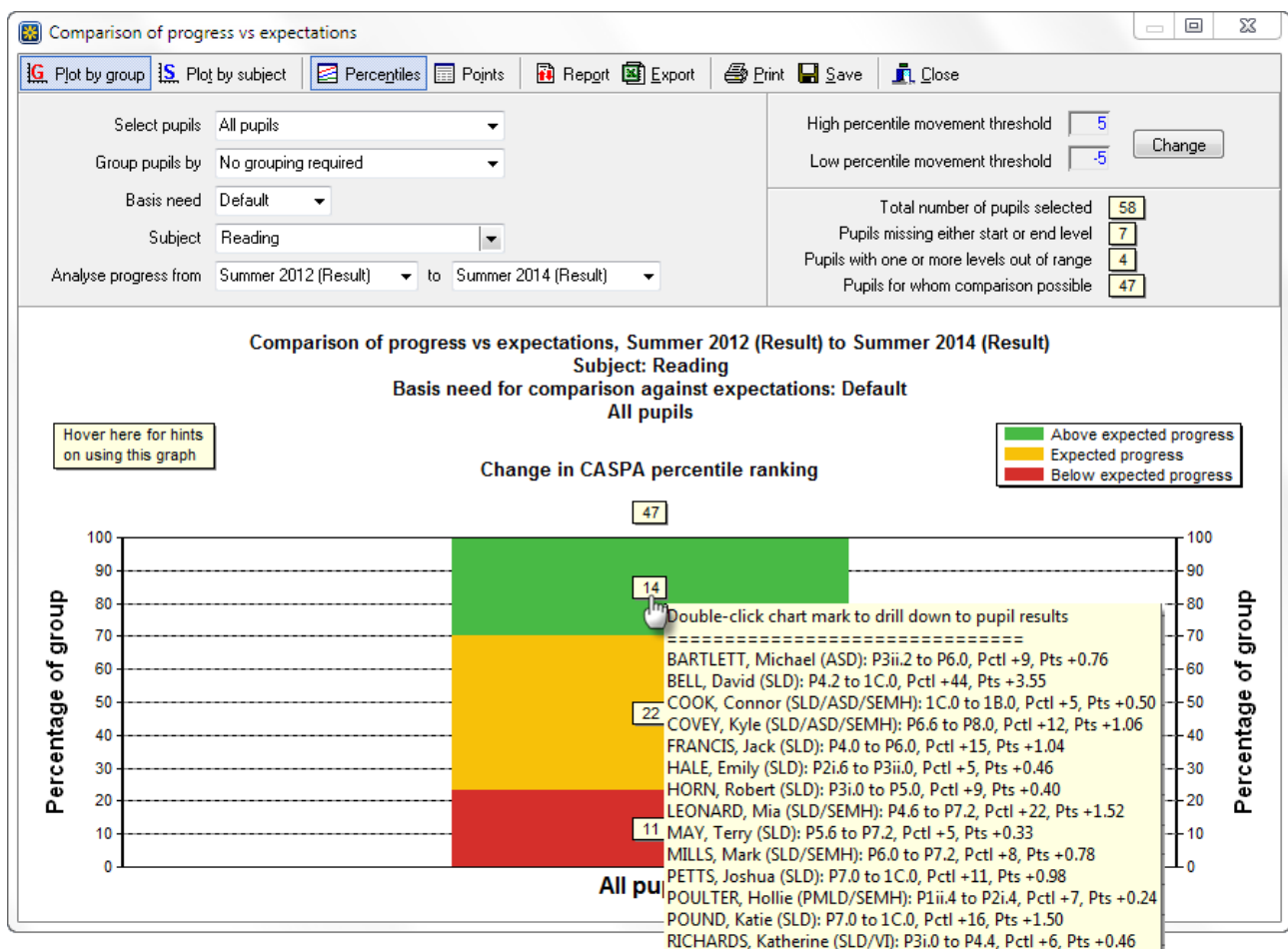
The live 'Comparison of progress vs expectations' tool allows users to specify filter conditions to restrict the analysis to a specific group of pupils and to separately specify a condition to group pupils by for the purpose of reporting data; an example showing, schools can compare against expectations the actual progress in any given subject. For example showing a whole-school analysis of progress vs expectations grouped by gender is shown below

The full range of filtering and grouping conditions is shown below; please note that the actual grouping conditions available depends on the choice of filtering condition, as some combinations are mutually exclusive.

Filtering conditions: (to restrict the pupils appearing on the report)	Grouping conditions: (generates a separate set of data for each group value found)
Key stage in the range…	Key Stage
Key Stage equals…	NC Year
NC Year in the range…	Class
NC Year equals…	Degree of Learning Difficulty
Class equals…	Other Categories of Need include
Degree of Learning Difficulty equals…	Eligible for Pupil Premium
Other Categories of Need include…	Gender
Pupils eligible for... (Pupil Premium type)	Pupil entitled to Free School Meals
	Pupil is a Looked After Child
	Pupil's first language is English
	Ethnicity
	Type of provision
	Prior attainment (whole levels only)

The analyses presented so far have allowed us to contrast progress versus expectations for different groups of pupils in a single specified subject. By clicking the 'Plot by subject' button on the live query tool, we are

able to compare actual versus expected progress across all aspects or subject groups at once for a given cohort of pupils.

Comparison of actual vs expected progress for a specific group of pupils by subject

By clicking the 'Plot by subject' button on the live query tool and specifying a group of pupils and a start and end year, CASPA allows progress versus expectations to be analysed by either subject (e.g. Language and Literacy, Mathematics, etc.) or by the individual aspects that make up those subjects (e.g. Reading, Writing, etc.). An example of an analysis at subject level is shown below.
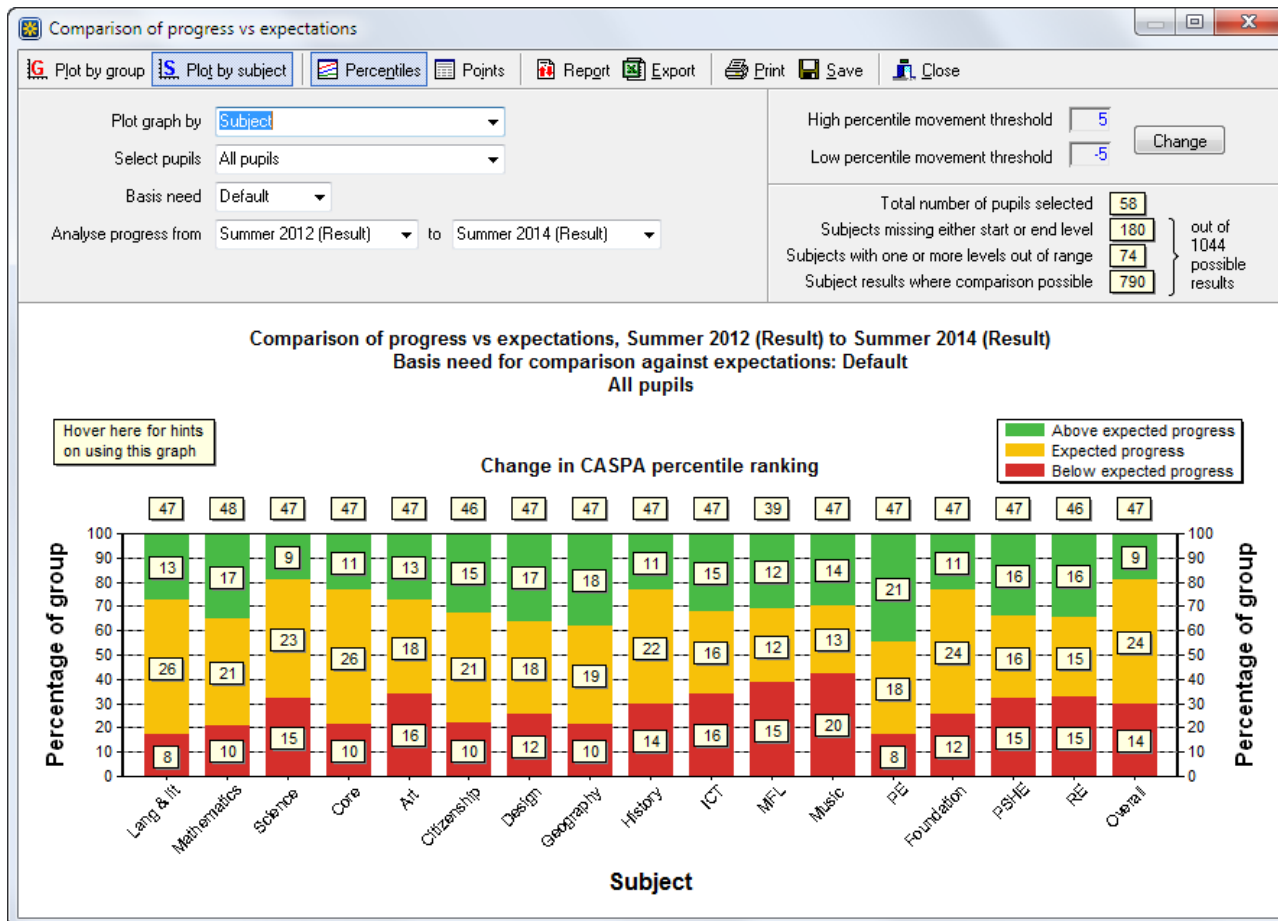

Note: The mark boxes above each column show the number of pupils in each grouping. The mark boxes in the centre of each block illustrate the number of pupils within each group falling into each category (above expected, expected, below expected). Hovering over any mark displays a list of those pupils along with their starting and ending results plus their change in percentile ranking over the period under review. Access to the full pupil level data summarised on any of these graphs is available by clicking the "Report" button.

Analysis of spread of differences from expected progress

Whilst grouping differences from expected progress into the three bands described above (below expectations, meeting expectations and above expectations) has much to commend it in terms of simplicity, it is however somewhat crude and can give an incomplete picture of the situation for both individual pupils and the whole school. For example, such a graph does not tell you whether the pupils 'below expectations' are making progress that is only just below expectations, or a long way below expectations, or if children 'meeting expectations' are on the borderline of 'below expectations' or the borderline of 'above expectations'. In order to make such judgements, it is necessary to look at the spread of actual differences from expected levels of progress.

By double-clicking one of the Red-Amber-Green columns, or traffic-lights, CASPA will display a graph showing the spread of differences from expectations for each of the pupils in the group whose data is summarised by that specific traffic-light. The graph plots the percentage of the cohort falling into each band

of difference above or below expected progress, and the marks above each column indicate the actual numbers of pupils represented. An example is shown below:
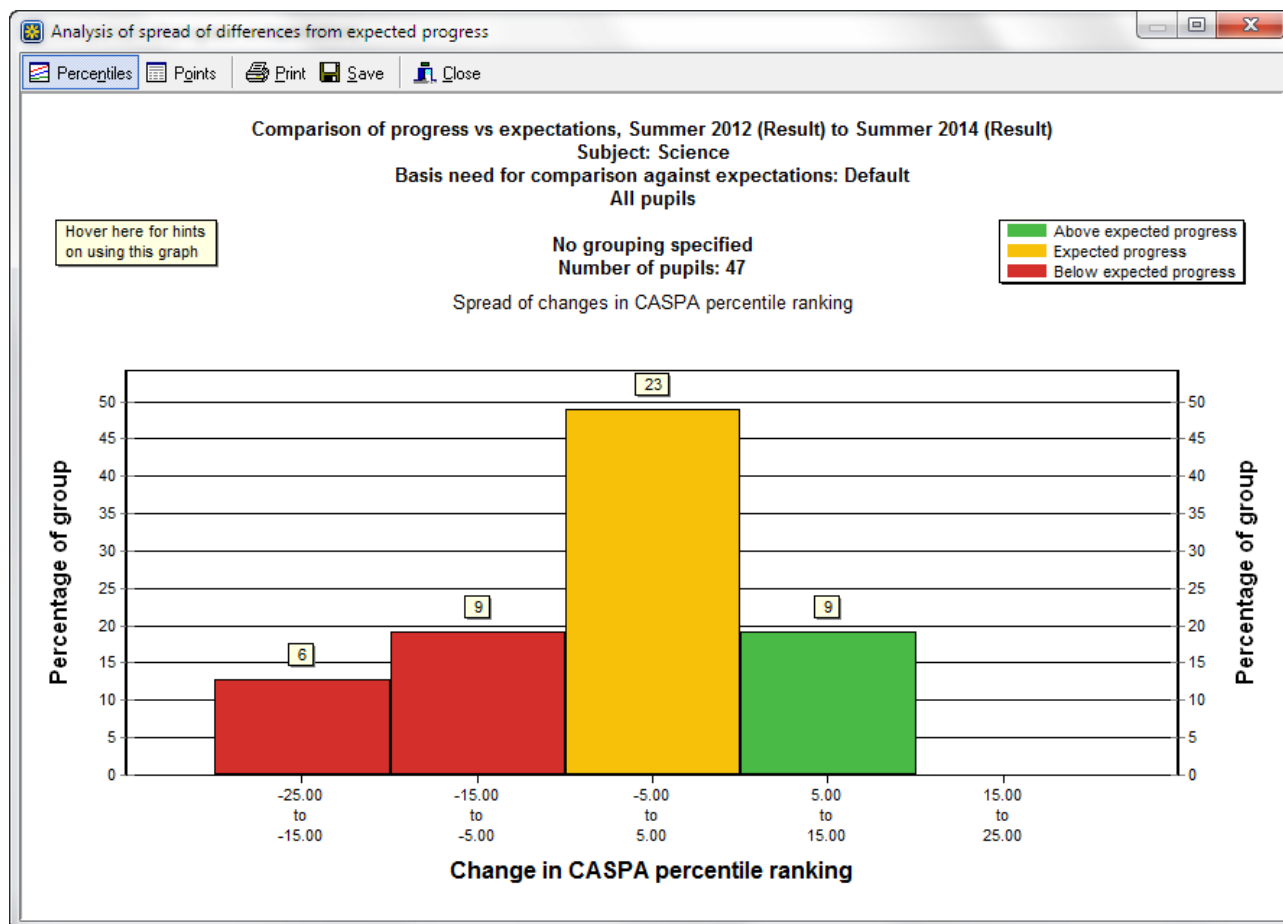
Comparison of progress vs expectations based on prior attainment ('Value Added' graphs)

Whist the 'Comparison of progress vs expectations' and 'Analysis of spread of differences from expected progress' described above present valuable information, they do not clearly identify the influence of prior attainment on progress. In order to explicitly allow the influence of prior attainment on the comparison of progress vs expectations to be illustrated, a 'value added' graph is required.

CASPA displays value added graphs for any combination of aspect or subject group and category of need. By their nature, a value added graph can only show data for pupils in a single NC Year; regardless of the actual years between which schools are measuring value added, the cohort of pupils is always specified on the basis of their current NC Year. In addition to the factors listed above, schools will be able to specify:
- a start year (converted into the starting NC Year)
- an end year (converted into the ending NC Year)
- any additional filtering conditions to be applied to the single NC Year already selected, e.g. an individual Class, Gender, or Ethnicity, whether the child is entitled to Free School Meals or not, or whether the child is a looked after child or not.

The value added graph allows, for each selected pupil, the attainment level in the end year to be plotted against their attainment level in the start year; by plotting the 'value added median' for the combination of NC Year, subject and category of need, based on corresponding percentile data for the start and end NC Years, it is possible to identify pupils whose progress is above and below expectations, and to illustrate that information based on prior attainment. The flexibility of choice of start and end years will allow both historic value added and target value added to be reported.

Value added graphs are available via a live query tool. For each combination of starting level and ending level, the graph illustrates the number of pupils found at that specific combination; when the mouse pointer is moved over any of these points, a pop-up box will identify the pupil or pupils to whom the data relates.

An example 'Comparison of progress vs value added median' graph is shown below. Such a graph allows the influence of prior attainment on progress to be investigated; for example, it might be found that the majority of less able pupils are progressing less well than expected, whilst the majority of more able pupils are progressing better than expected. In such a case, provision for less able pupils might be made a priority.
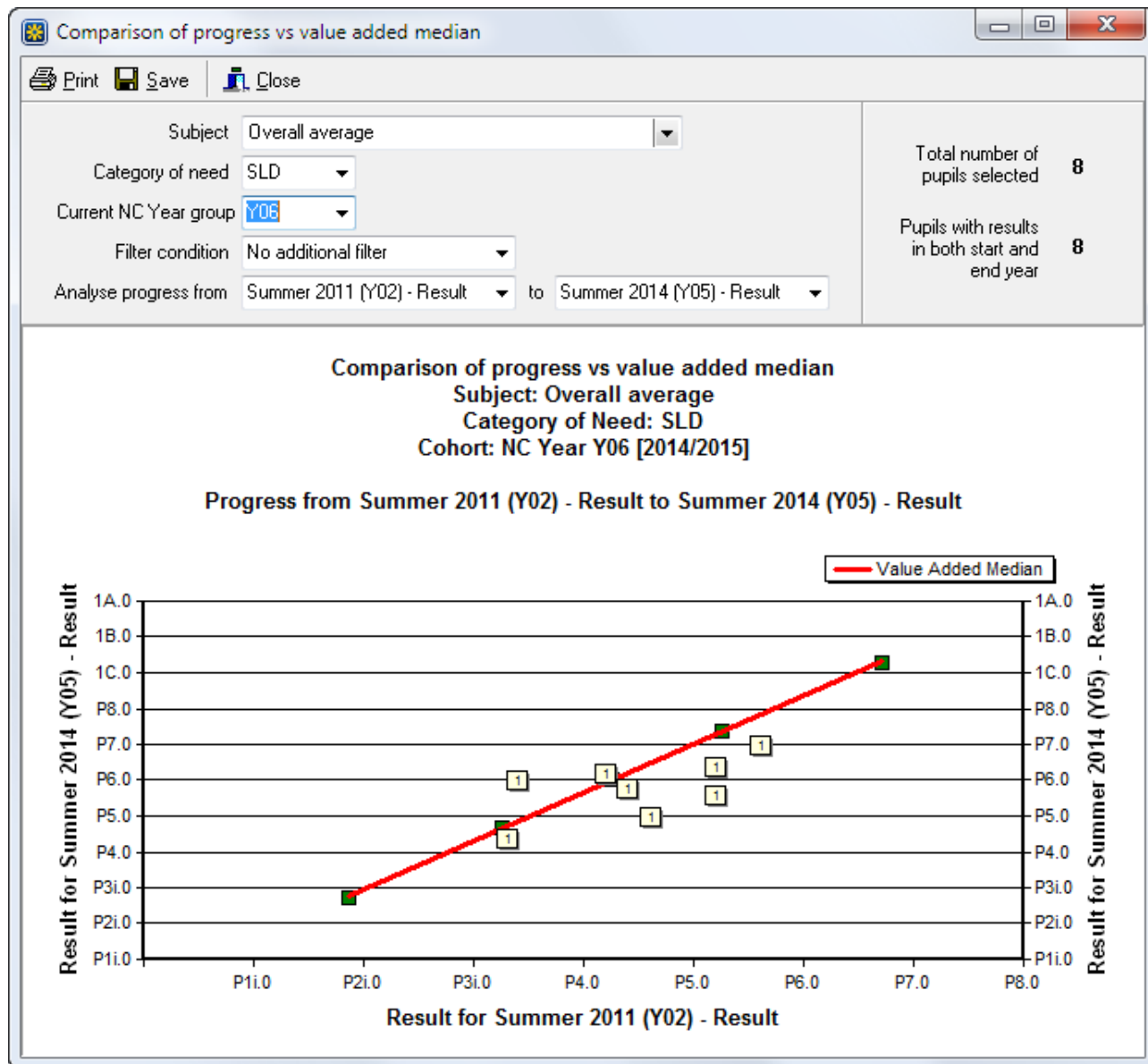
APPENDIX A

Categories of need within CASPA

The following categories of need can be recorded in CASPA as the basis for analysis and bench-marking. Categories of need that are associated with a restricted range of likely outcomes are described in CASPA as 'Degrees of Learning Difficulty'; all other categories of need cover pupils of all abilities.

Degrees of Learning Difficulty

- Profound and Multiple Learning Difficulties (PMLD)

- Severe Learning Difficulty (SLD)

- Moderate Learning Difficulty (MLD)

Other Categories of Need

- Specific Learning Difficulties (SpLD)

- Social, Emotional and Mental Health (SEMH) [previously Behavioural, Emotional and Social Difficulty (BESD)]

- Speech, Language and Communication Needs (SLCN)

- Autistic Spectrum Disorder (ASD)

- Visual Impairment (VI)

- Hearing Impairment (HI)

- Physical Disability (PD)

- Multi-Sensory Impairment (MSI)