

# Calculating Overall Positions (OPs)

The basic principles





# Overall Positions (OPs)

## What is an OP?

Overall Positions (OPs) are a statewide rank order of students based on their achievement in Authority subjects. They show how well students performed in their senior studies, compared with the performance of all other students in the State. These comparisons take into account that different students take different subjects and attend different schools.

Each student receives one OP. The OP is a position in a rank order (first, second, third, etc.), not a score.

There are 25 OPs, from OP1 (highest performance) to OP25 (lowest performance). Many students receive the same OP, because each OP represents a group of students whose achievements are comparable enough to place them in the same band.

## How are OPs used?

OPs are used in the tertiary selection process. They are used by most tertiary institutions as a basis for making selections among applicants for a course when there are more eligible applicants than quota places for that course.

OPs provide the most equitable way of comparing overall achievement in Authority subjects among school-leavers.

There is no requirement for tertiary institutions to use OPs to select students, and many alternative grounds for selection are used such as auditions, portfolios, interviews and, in the case of non-school-leavers, alternative qualifications. It is also possible for school-leavers to enter some tertiary courses, generally courses in vocational education and training, without an OP.

## Who receives an OP?

To gain an OP, a student must study a certain number of Authority subjects and satisfy other requirements. The basic eligibility requirement is 20 semester units in Authority subjects, with at least three subjects taken for four semesters.

Each completed semester of a subject gives a student one unit of credit; studying a subject for four semesters gives four units; therefore, taking five subjects for four semesters gives 20 units.

Students are also required to complete Year 12 and sit the Queensland Core Skills (QCS) Test. In special cases, such as illness, these requirements may be waived.

The restriction to Authority subjects is based on their acceptance as appropriate preparation for university studies, especially in terms of their emphasis on academic content and skills. Students' achievements in these subjects are moderated, ensuring standards across the State are similar. Many students opt to be ineligible for an OP by choosing non-Authority subjects.

## Levels of achievement

OP calculations begin with students' results in the subjects they have studied. Results in each subject are reported on the Senior Statement in terms of five levels of achievement:

- Very High Achievement
- High Achievement
- Sound Achievement
- Limited Achievement
- Very Limited Achievement.

These results are awarded according to specified standards and are verified through statewide moderation.

Each level of achievement covers a range of achievement. This means that levels of achievement are too broad for calculating OPs. To calculate OPs, finer-grained comparisons of student achievement are necessary. These comparisons are provided by Subject Achievement Indicators (SAIs).

# Subject achievement indicators (SAIs)

## What are SAIs?

SAIs show one student's achievement in relation to the achievement of other students in that subject in that school. Each OP-eligible student is awarded an SAI for each subject studied. Students who are ineligible for an OP are not awarded SAIs and are not included in any OP calculations.

The group of students studying a particular subject in a particular school is called a "subject-group".

For large subject-groups (14 OP-eligible students or more studying that subject in that school), SAIs range from 400 (highest performing student in that subject in that school regardless of the level of achievement) to 200 (lowest performing student in that subject in that school regardless of the level of achievement). This range of numbers from 400 to 200 is used simply to compare the achievement of students in the subject-group. It is not a calculation or a conversion of any kind.

For small and intermediate subject-groups (fewer than 14 OP-eligible students), SAIs are expressed in terms of "level" (level of achievement) and "rung" (on a ladder of ten equal steps within the level of achievement); for example, HA6. SAIs for small and intermediate subject-groups are scaled differently to SAIs for large subject-groups.

The subject-group SAIs show the student ranking ("order") from highest to lowest and also the relative separations ("gaps") between students in that subject in that school. Students with similar achievement have SAIs that are close together, and students with dissimilar achievement have SAIs that are further apart. Students whose achievements are of the exactly same standard are allocated the same SAI.

Levels of achievement (i.e. VHA) are determined before SAIs are awarded. SAIs must be consistent with those levels of achievement.

A student with a lower level of achievement cannot be ranked ahead of a student with a higher level of achievement. However, students with the same level of achievement may be

awarded different SAIs if the quality of their achievement is different. Some students with different but adjacent levels of achievement may have fairly similar SAIs.

## How do students find out their SAIs?

Schools are encouraged to tell students about the importance of SAIs. Schools are also required to display final SAIs for every subject so that students can check that their results accord with their expectations. Students and parents/carers are encouraged to examine SAIs and discuss any queries they may have with teachers and school administration.

## Does QSA check SAIs?

Schools submit their subject-group SAIs to the Queensland Studies Authority (QSA). QSA checks the SAIs, then undertakes all the scaling calculations leading to OPs.

## Within-school scaling

### How are subject-groups compared within each school?

The first stage of scaling, the within-school stage, makes it possible to compare the achievement of students in one subject in a school with the achievement of students in other subjects in the same school.

It produces a single rank order within each school.

A standard baseline of comparison is needed for the first stage of scaling. This is provided by the QCS Test. This test is designed to measure achievement on the Common Curriculum Elements (CCEs) underpinning Authority subjects, independent of specific subject content. QCS Test scores provide a measure of achievement across the curriculum and can be used as a basis for comparing different groups of students.

The other measure of achievement across the curriculum for each student within a school is derived directly from SAIs, by interpreting these results as "wins" and "losses" against other students in the school. This measure is called the Within School Measure (WSM).

The WSM is used to determine what emphasis is placed on each student's QCS Test result

in the scaling. If a student's performance on the QCS Test is different from that student's overall achievement, as indicated by the WSM, then the QCS Test performance is down-weighted and contributes less to the group calculations.

If a student has an "off day" on the day of the test, this does not affect the validity of the scaling for subjects taken by that student. Similarly, a student who performs well on the test but has not achieved well in school does not contribute an unfair "boost" to other students in subjects taken by that student.

In the within-school stage of scaling, the average and spread of the subject-group SAIs are reset (scaled) to that group's average and spread of performance on the QCS Test. That is, the range of subject-group SAIs is mapped onto the range of scores obtained by those students on the QCS Test. These new numbers are referred to as "scaled SAIs". This is illustrated in Figure 1.

The relative "order" and "gaps" are retained; only the scale is changed. This change involves sliding (the average is lower) and shrinking (the spread is smaller) the set of SAIs. Because the statewide range of scaling scores derived from the QCS Test runs from about 75 to about 275 (technically: mean = 175; mean difference = 25), the scaled SAIs for any single subject-group will lie within this range.

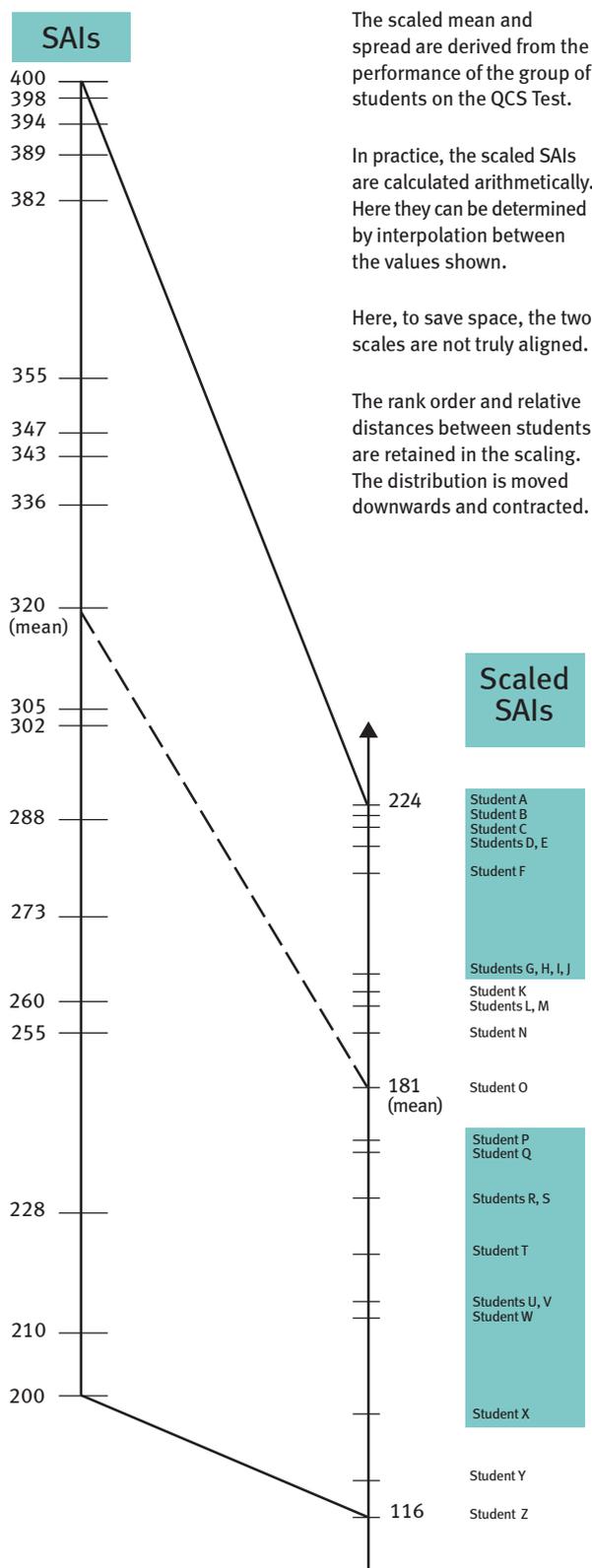
### How are small and intermediate subject-groups scaled?

The standard scaling process is inappropriate for small subject-groups, as there is insufficient data and the results would be unstable. Small subject-groups (fewer than ten OP-eligible students) are scaled by comparing them with all large subject-groups in that subject (or similar subjects).

For every large subject-group in the subject in the State, the scaled SAI boundary values relating to each level of achievement are found. These boundary values are then averaged across the State to produce a table of boundary values for small subject-groups. The small subject-group "level" and "rung" SAIs are then inserted between these boundary values to produce small subject-group scaled SAIs directly.

SAIs for intermediate groups (10 to 13 OP-eligible students) are scaled by both small subject-group and large subject-group methods and the two results are averaged.

Figure 1: Example of the first stage of scaling of a large group.



## How is a single rank order calculated within each school?

Once scaled SAIs have been produced, they can be compared across all subjects within a school. Scaled SAIs show how well a student has performed when compared with the overall performance of all other students in the school.

Scaled SAIs only allow comparison of achievement between subjects within a school and do not allow comparison of achievement between schools within a subject.

To produce a single rank order of students within a school, an Overall Achievement Indicator (OAI) is calculated.

The OAI indicates how well a student has performed across the Years 11 and 12 curriculum of Authority subjects, compared with all other students in the same school. The OAIs indicate a rank order for all OP-eligible students within the school. It shows their overall achievement relative to all other students in the school regardless of the combination of subjects each student took.

The OAI is determined using a student's best scaled SAIs, across 20 semester units. For most students this means their best five subjects taken for the four semesters. However, students may take some subjects for one, two, three or four semesters and their results need to be used in proportion to the number of semesters.

In calculating the OAIs, subjects count equally. The calculations are based on the best "100 weighted semester units", where every subject is given a weight of 5. That is, all scaled SAIs are multiplied by 5.

## Between-school scaling

### How are the school rank orders compared across schools?

The second stage of scaling, the between-school stage, allows rank orders to be compared across all schools. For large schools (more than 19 OP-eligible students) the average and spread of the OAIs for each school are reset (scaled) to the average and spread of QCS Test scores for all the students in that school. The emphasis to be given to each student's QCS Test score again depends on its agreement with that student's WSM. The calculation of scaled OAIs is similar to the calculation of scaled SAIs. This time the group is all OP-eligible students in the school, not just the OP-eligible students in one subject, but the principle is the same.

For small schools (fewer than 16 OP-eligible students) there is no second stage of scaling, that is, scaled OAIs = OAIs. For intermediate schools (from 16 to 19 OP-eligible students), a combination of small school and large school methods is used. The emphasis given to each method depends on the number of students.

Scaled OAIs provide a single rank order for the whole State. These scaled OAIs compare each student with all other students in the State, regardless of their combination of subjects and regardless of the school attended.

## Final OP allocation

Scaled OAIs place students in a single rank order across the whole State. However, they are calculated to a greater degree of precision than it is reasonable to report.

Students are "banded" together into OP bands. This ensures students who have performed very similarly are not falsely reported as being very different. Banding also ensures that the results are relatively stable and not vulnerable to minor uncertainties in subject results.

The cut-off for each OP is set each year so that there is approximate comparability with the standard of performance required to reach that OP in the previous year. This means that OPs are directly comparable from year to year.

## Important things to remember

- Scaling is not a substitute for moderation. Scaling is not concerned with comparing results within a subject across schools. In fact, the scaling process assumes that the subject results are already well moderated.
- In all the calculations for OPs, only those students eligible for an OP are included. Ineligible students are not included in any of the calculations. They will not receive any SAIs.
- Students who are ineligible for an OP may sit for the QCS Test and receive a QCS Test grade on their Senior Statement. Their QCS Test result will not, however, be included in any scaling calculations.
- A student's own QCS Test result contributes to the calculation of group averages and spreads but does not directly contribute to that student's OP. For example, getting an A on the QCS Test does not guarantee an OP1.
- Top and bottom students in each subject in each school are arbitrarily assigned 400 and 200 respectively regardless of their actual level of achievement. For example, a 400 in French cannot be compared with a 400 in Physical Education. This is simply a standard way of capturing the "order" and "gaps" for those students.
- SAIs are displayed within each school but are not otherwise publicly available. It is meaningless to compare large-group SAIs across schools since they are on an arbitrary scale (400–200 for all subjects in all schools). A student assigned the 400 may have achieved a VHA, but they might have achieved a lower level of achievement. As long as they are the highest achieving student in the subject group, they will receive an SAI of 400. Similarly, the student assigned an SAI of 200 will always be the lowest achieving student, regardless of whether their level of achievement is a VLA or VHA.
- Scaled SAIs, OAI and scaled OAI are also not publicly available since they are merely interim results in the calculation process and have no useful meaning outside that process. Only OPs are reported as these are the only interpretable and justifiable outcome of the calculations.
- OPs cannot be predicted accurately from levels of achievement. One reason is that levels of achievement provide only a broad measure of achievement whereas OPs are based on finer comparisons (provided by the SAIs).
- Two students in the same school studying exactly the same subjects and obtaining exactly the same SAIs will receive the same OP.
- Schools may have very different proportions of students in each OP band. These proportions depend on the achievement of the students. There is no predetermined allocation of OPs to schools. OPs are awarded to students, not to schools.

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