

An assessment score is but a number, and to be useful, students, parents and guardians, and teachers must be able to make sense of the number. There are two major ways assessment programs help make assessment scores more meaningful – standards-based interpretation and normative information.

Standards-based Interpretation

Standards-based interpretation is the main approach used by PLTW. The first and second pages of the score report show standards-based results from the assessments – how the skills that the student demonstrated in solving the problems on the assessment fell within these achievement levels.

On the first page of the score report is a score from 100 to 600 and an achievement level – *Novice, Practiced, Accomplished, or Distinguished*.

On the second page of the report is a description of what each achievement level means in terms of what a student knows and can do. The range of scores assigned to each achievement level was decided by teachers, college faculty and staff, and industry professionals in the various fields that seek to employ students who have the skills that PLTW programs help students to develop.

Normative Information

The assessment provides normative information to show how students performed in comparison to their peers who took the same assessment. For example, the score might be as high as or higher than 10 percent of the comparison group, 50 percent, 90 percent or more. This year, the comparison group is everyone who took the same PLTW assessment in the 2018-19 academic year.

Normative and standard-based scores can sometimes appear inconsistent. For example, the current skills may fall within the *Novice* designation; yet the student may still outperform most students if most students who participated in the assessment also did not consistently demonstrate the complex skills required to earn the designations of *Accomplished* or *Distinguished*. Alternatively, the student may have demonstrated the complex skills for which the *Accomplished* and *Distinguished* designations require evidence – but so did most other students. It is not that the information is inconsistent, but that it is looking at student achievement in different ways.

The following normative table lists every possible PLTW assessment score from 100 to 600 and then lists each of the PLTW assessments, one per column. Assessments are organized within the PLTW Computer Science, PLTW Engineering, or PLTW Biomedical Science pathway. Each cell in a column indicates what percent of students scored at or below the score for that row. For example, find the column or normative data, for the Human Body Systems assessment. The first row is for a score of 100. In this case, 1 percent of students who took the Human Body Systems assessment in 2018-19 had a score of 100. In the second row we see that 2 percent of students scored 110 or below. If we go down to the row for a score of 350, we can see that score was as good or better than 53 percent of students who took the assessment.



PLTW Score Interpretation Guide

In addition to the normative information, we have shaded each cell for each assessment to indicate the achievement level – *Novice*, *Practiced*, *Accomplished*, or *Distinguished* – associated with each score.

One last piece of advice in interpreting assessment scores; *no assessment score is a perfect representation of student knowledge and capability*. Despite the care PLTW has taken in assessment development, students can make lucky guesses to solve some problems or make a simple error that leads them to solve another problem incorrectly that typically the student would correctly solve. The impact of these chance factors is typically small but should be recognized.

| Scale Score | PLTW Computer Science | | | | PLTW Engineering | | | | | | | PLTW Biomedical Science | | |
|-------------|-----------------------|-----------------------------|-----------------------------|---------------|-----------------------|------------------------------------|-----------------------------------|---------------------|------------------------------|------------------------------------|---------------------------|-------------------------|-----------------------|----------------------------------|
| | Computer Science A | Computer Science Essentials | Computer Science Principles | Cybersecurity | Aerospace Engineering | Civil Engineering and Architecture | Computer Integrated Manufacturing | Digital Electronics | Environmental Sustainability | Introduction to Engineering Design | Principles of Engineering | Human Body Systems | Medical Interventions | Principles of Biomedical Science |
| 100 | 1 | 2 | 2 | 2 | 3 | 2 | 2 | 1 | 3 | 3 | 2 | 1 | 2 | 1 |
| 110 | 1 | 2 | 2 | 3 | 3 | 2 | 3 | 1 | 4 | 3 | 2 | 2 | 2 | 2 |
| 120 | 1 | 3 | 3 | 3 | 3 | 2 | 3 | 1 | 4 | 4 | 3 | 2 | 2 | 2 |
| 130 | 2 | 3 | 3 | 3 | 4 | 3 | 4 | 2 | 4 | 4 | 3 | 2 | 2 | 2 |
| 140 | 2 | 4 | 4 | 4 | 4 | 3 | 4 | 2 | 5 | 5 | 4 | 3 | 3 | 3 |
| 150 | 3 | 5 | 5 | 5 | 5 | 4 | 5 | 3 | 6 | 6 | 4 | 3 | 3 | 4 |
| 160 | 4 | 6 | 6 | 5 | 6 | 4 | 6 | 3 | 6 | 7 | 5 | 4 | 4 | 4 |
| 170 | 5 | 7 | 6 | 6 | 6 | 5 | 6 | 4 | 8 | 8 | 6 | 5 | 5 | 5 |
| 180 | 6 | 8 | 8 | 7 | 7 | 6 | 7 | 5 | 8 | 9 | 7 | 6 | 6 | 6 |
| 190 | 7 | 9 | 9 | 9 | 8 | 7 | 8 | 6 | 10 | 11 | 8 | 7 | 7 | 7 |
| 200 | 8 | 11 | 10 | 10 | 9 | 8 | 10 | 8 | 11 | 13 | 10 | 8 | 8 | 8 |
| 210 | 10 | 12 | 12 | 11 | 11 | 10 | 11 | 10 | 13 | 14 | 12 | 9 | 9 | 9 |
| 220 | 12 | 14 | 13 | 13 | 12 | 12 | 13 | 12 | 14 | 16 | 13 | 11 | 11 | 11 |
| 230 | 14 | 16 | 15 | 15 | 14 | 14 | 15 | 15 | 16 | 19 | 15 | 13 | 13 | 13 |
| 240 | 16 | 19 | 17 | 16 | 16 | 16 | 17 | 17 | 17 | 21 | 17 | 15 | 14 | 15 |
| 250 | 19 | 21 | 20 | 18 | 18 | 18 | 19 | 20 | 19 | 23 | 20 | 18 | 17 | 17 |
| 260 | 22 | 23 | 22 | 19 | 20 | 21 | 21 | 23 | 21 | 26 | 22 | 20 | 19 | 20 |
| 270 | 24 | 26 | 25 | 21 | 22 | 24 | 23 | 27 | 24 | 28 | 25 | 23 | 23 | 23 |
| 280 | 27 | 28 | 27 | 24 | 25 | 27 | 26 | 30 | 26 | 31 | 28 | 26 | 25 | 26 |
| 290 | 31 | 31 | 30 | 27 | 28 | 30 | 29 | 34 | 29 | 33 | 31 | 30 | 28 | 30 |
| 300 | 34 | 34 | 33 | 30 | 30 | 35 | 32 | 37 | 32 | 36 | 34 | 33 | 32 | 33 |
| 310 | 38 | 37 | 36 | 34 | 34 | 38 | 35 | 41 | 34 | 39 | 38 | 37 | 35 | 37 |
| 320 | 42 | 40 | 39 | 38 | 37 | 42 | 38 | 45 | 37 | 42 | 41 | 41 | 39 | 41 |
| 330 | 46 | 44 | 44 | 42 | 42 | 46 | 42 | 48 | 41 | 45 | 45 | 45 | 44 | 44 |
| 340 | 49 | 47 | 47 | 45 | 45 | 50 | 46 | 52 | 44 | 48 | 48 | 49 | 47 | 48 |
| 350 | 53 | 51 | 51 | 50 | 49 | 54 | 50 | 55 | 47 | 51 | 52 | 53 | 52 | 52 |
| 360 | 57 | 55 | 55 | 54 | 53 | 58 | 54 | 59 | 52 | 55 | 56 | 57 | 54 | 57 |
| 370 | 60 | 59 | 58 | 59 | 57 | 61 | 58 | 62 | 56 | 59 | 60 | 61 | 60 | 60 |
| 380 | 64 | 63 | 62 | 63 | 61 | 65 | 62 | 65 | 59 | 62 | 63 | 65 | 64 | 64 |
| 390 | 67 | 67 | 66 | 68 | 65 | 69 | 66 | 69 | 63 | 66 | 67 | 69 | 67 | 68 |
| 400 | 71 | 70 | 70 | 71 | 69 | 72 | 70 | 72 | 68 | 70 | 71 | 72 | 71 | 71 |
| 410 | 74 | 74 | 73 | 75 | 73 | 75 | 73 | 75 | 72 | 74 | 74 | 76 | 73 | 75 |
| 420 | 76 | 78 | 77 | 77 | 78 | 78 | 77 | 77 | 76 | 78 | 77 | 78 | 77 | 77 |
| 430 | 79 | 81 | 80 | 81 | 81 | 80 | 80 | 80 | 80 | 82 | 80 | 81 | 81 | 80 |
| 440 | 82 | 84 | 83 | 83 | 84 | 83 | 84 | 83 | 83 | 86 | 83 | 84 | 83 | 82 |
| 450 | 84 | 87 | 85 | 86 | 87 | 85 | 86 | 85 | 87 | 89 | 86 | 86 | 86 | 85 |
| 460 | 86 | 89 | 88 | 89 | 90 | 87 | 89 | 87 | 90 | 91 | 88 | 88 | 89 | 87 |
| 470 | 88 | 91 | 91 | 90 | 92 | 90 | 91 | 89 | 92 | 94 | 90 | 91 | 90 | 90 |
| 480 | 90 | 93 | 92 | 92 | 94 | 91 | 93 | 90 | 94 | 96 | 92 | 92 | 93 | 91 |
| 490 | 92 | 94 | 94 | 94 | 95 | 93 | 94 | 92 | 96 | 97 | 94 | 93 | 93 | 94 |
| 500 | 93 | 95 | 95 | 95 | 96 | 94 | 95 | 93 | 97 | 98 | 95 | 94 | 95 | 94 |
| 510 | 95 | 96 | 97 | 96 | 97 | 95 | 97 | 95 | 98 | 99 | 96 | 95 | 96 | 94 |
| 520 | 96 | 97 | 98 | 97 | 98 | 96 | 97 | 95 | 98 | 99 | 97 | 96 | 96 | 97 |
| 530 | 97 | 98 | 98 | 98 | 99 | 97 | 98 | 96 | 99 | 99 | 98 | 97 | 97 | 97 |
| 540 | 98 | 98 | 99 | 98 | 99 | 98 | 99 | 97 | 99 | 99 | 98 | 97 | 98 | 97 |
| 550 | 99 | 99 | 99 | 99 | 99 | 98 | 99 | 98 | 99 | 99 | 99 | 98 | 98 | 99 |
| 560 | 99 | 99 | 99 | 99 | 99 | 98 | 99 | 98 | 99 | 99 | 99 | 98 | 99 | 99 |
| 570 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| 580 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| 590 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| 600 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |