The Iowa Growth Model

The Iowa Growth Model measures the amount of students' academic progress between two points in time. The term "growth model" is used to document year-to-year growth on the Iowa Assessments.

The best tests to use for measuring yearly growth are vertically aligned and scaled. This means that each successive test builds upon the content and skills measured by the previous test. It assures that tests taken over multiple grade levels show a coherent progression in learning, for example, by making sure the fifth grade math test represents what a student should have learned in a year since taking the fourth grade test.

Think of a growth chart in a pediatrician's office. Children's height is measured against it and recorded during yearly check-ups. The measurements change as a child grows, but the reference points on the chart remain the same. The chart is also based on physical averages; doctors don't use a twenty-foot chart to measure human growth, yet the chart they use still accommodates the lower and upper extremes of children’s height. Tests that are vertically scaled work the same way. Knowledge is gained and students are tested over several grade levels, but students are scored against the same scale. The range of the scale varies depending on the range of knowledge the tests are measuring and the number of grade levels they are addressing.

Vertical scaling allows us to administer tests that are developed for different grade levels—for example, for fourth and fifth—but scored on the same scale. This way, educators are assured that a change in scores represents a change in student achievement instead of differences in the tests themselves.

Vertical Alignment

- Standards form a continuum of learning that builds upon previous learning
- A scale allows measurement of growth from year to year
Developing a Process for Monitoring Growth

The Iowa Growth Model uses information that is readily available to schools and districts after the Iowa Assessments have been administered and scored. Using the following steps, districts can evaluate individual student growth and the growth of groups of students.

**Step 1 – Determine the Model**

- As a first step, users should identify the tests or composite scores that will serve as the growth measures. For the Iowa Assessments, select the tests or composite scores that are aligned with the district's goals and consistent with the scope and complexity of what is taught in your district.
- Consider the reliability of these scores and tests and use this information in your selection of the appropriate measures to include. The more reliable a test or score is, the more accurate it will be in measuring growth.
- Consider the time span of interest. The Iowa Assessments allow you to measure growth across two years or across more than two years.

**Step 2 – Consider Expected Growth**

When a student has grown as much as expected since the previous year, this student is keeping pace with other students in the nation (at his/her achievement level). The growth chart in Figure 1 consists of a series of curves that illustrate the typical pace of performance for five different students that started in 3rd grade at different achievement levels. For each of these students, the expected national standard score for subsequent years is identified. For example, a student who scored a 213 in third grade, would be expected to achieve a 235 in fourth grade, 255 in fifth grade, and 328 by eleventh grade.

Growth charts such as these can be used by educators to track the growth of students. These charts provide guidelines that contribute to forming an overall plan for the construct being measured and are intended to be used as diagnostic tools.

The tables found at [https://itp.education.uiowa.edu/ja/documents/ExpectedStudentGrowth.pdf](https://itp.education.uiowa.edu/ja/documents/ExpectedStudentGrowth.pdf) provide the expected growth benchmarks from year to year for students.
**Step 3 – Calculate Observed Growth**

Using two or more data points across years, calculate the difference between standard scores for the test or score of interest to the district.

**Step 4 – Evaluate Growth**

The evaluation component of the growth model allows districts to compare expected growth (Step 2) to observed growth (Step 3). As stated in Step 2, the growth evaluation allows an educator to compare expected to observed growth.

eITP allows districts to summarize this information at the individual student level. Reports illustrated in Figure 2 can be generated for students of interest.

eITP also exports this information into Microsoft Excel for manipulation into information of interest to districts and Boards of Education.
Iowa Testing Programs  
(Individual report)  

Date Created: 3/8/2013  

Name: ABIGAIL ADAMS (ID: 9173642079)  
District: Mill Creek Community School District  
Building: ORCHARD PARK  
Grade: 9  
Page: 3  

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**Step 5 – Summarize Growth**

Figures 3 to 5 provide three different displays of summarizing growth scores across years within a district. Scores of zero and above illustrate cases where students or schools have achieved or exceeded expected growth based on the Iowa Growth Model.
Figure 3

A histogram of observed growth minus expected growth allows districts to better evaluate the performance of a group of students.
Figure 4

This figure allows a district to evaluate average growth across classrooms, teachers, or buildings.

Average Growth = Average Observed Growth – Average Expected Growth
Figure 5

These figures illustrate how a district may summarize student growth across two years to provide a comprehensive view of growth within a district.
**Establishing Growth Goals**

Expected growth is not the same as a **growth goal** for a student. As stated earlier, expected growth occurs when a student is keeping pace with other students in the nation that started at a similar point. However, for low performing students, teachers and parents may want the student to outpace other students in the nation. In such situations, the growth goal should be set beyond the expected growth.

For example, Table 1 illustrates the expected growth based on the observed growth for four different starting points of observed growth (159, 184, 194 and 205). For each of these starting points, the expected growth is generated from the Iowa Growth Model and these values are 170, 194, 205 and 213. However, as suggested in Figure 1, the student that begins Grade 3 at 159 and is expected to grow to 170 by Grade 4, may still be falling short of their growth goal. A growth goal for this student may be to grow 26 standard score points rather than the expected 11 points. Such a decision may be made because the student has received additional instruction throughout their third grade year.

Although there are many reasons to accelerate the growth goal beyond the expected growth, the goals should always be established taking into account as much information as possible about the student. This information may include the types of resources that have been provided to the student, additional assessment information, classroom performance, observations and conferences.

**Table 1**

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