Introduction to Pathways of Progress™ for Acadience® Math

Acadience Learning Pathways of Progress for Acadience Math offers a means of indexing student progress that can be used to evaluate the effectiveness of instruction, to establish meaningful, attainable, and ambitious goals, and to provide feedback on progress to students and educators. Pathways of Progress is based upon student growth percentiles (Betebenner, 2011). Thus, Pathways of Progress for Acadience Math is based on student rates of math progress relative to other students with the same initial skills. This information provides a normative reference for professionals to consider, along with the Acadience Math benchmarks, when establishing a goal and aimline for an individual student. Pathways of Progress is intended to be one of several frames of reference that should be considered when establishing a goal.

Pathways of Progress for Acadience Math classifies five types of student math progress, from Well Below Typical to Well Above Typical. These five pathways are calculated by comparing the end-of-year scores from all students who have the same beginning-of-year Math Composite Score (MCS). These comparisons are made for every possible beginning-of-year MCS value. For each beginning-of-year MCS, the end-of-year scores at the 20th, 40th, 60th, and 80th percentiles serve as boundaries for establishing the five Pathways of Progress (see *Figure 1*).

Figure 1. Pathways of Progress for Acadience Math Descriptors

Pathway Descriptor	Pathway Number	Progress Descriptor	Progress Percentile Range
★★★★★	5	WELL ABOVE TYPICAL	80th percentile and above
★★★★☆	4	ABOVE TYPICAL	60th to 79th percentile
★★★☆☆	3	TYPICAL	40th to 59th percentile
★★☆☆☆	2	BELOW TYPICAL	20th to 39th percentile
★☆☆☆☆	1	WELL BELOW TYPICAL	Below 20th percentile

Note. Pathways are calculated based on Acadience Math data for students across grades K–6.

Pathways of Progress provides educators with a research-based tool for (a) establishing individual student progress-monitoring goals; (b) evaluating individual student progress and rate of growth; and (c) reflecting on the effectiveness of support at the classroom, school, or district level.

Pathways of Progress Report

The Pathways of Progress Report shows student performance at the beginning and middle, or beginning and end, of the school year and provides the pathways for each student based on that student's MCS. This report is available for classrooms or instructional groups. A sample Pathways of Progress Report from Acadience Data Management is included in *Figure 2*.

One intended purpose of the Pathways of Progress Report is to be able to quickly and efficiently look at individual students—where they started, what pathway they are on and how you would describe their progress. Another purpose for the Pathways of Progress Report is to be able to make systems-level decisions. As a system, we want to know how effective instruction is for the whole class in each of the skill areas.

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Figure 2. Sample Pathways of Progress Report

School: Mockingbird Elementary School
Grade: First Grade, End of Year
Year: 2020-2021
Class: First Grade

Pathways of Progress® Report

End-of-year scores for each component Acadience Math measure with associated benchmark status and pathway

End-of-year Math Composite Score with associated pathway (indicated by number of stars)

Beginning-of-year Math Composite Score

BEGINNING OF YEAR

All pathways are based on the beginning-of-year composite score.

END OF YEAR
COMPONENT SCORE PATHWAYS

Component score pathways are compared to other students with the same beginning-of-year composite score.

To support overall math proficiency, more growth is needed in a student's areas of relative weakness.

END OF YEAR
OVERALL PATHWAY

A student's overall pathway is based on the student's end-of-year composite score compared to other students with the same beginning-of-year composite score.

Explanatory information to assist in navigating and interpreting the information

	BEGINNING OF YEAR	END OF YEAR COMPONENT SCORE PATHWAYS						END OF YEAR OVERALL PATHWAY	
Name	Math Composite Score	Advanced Quantity Discrimination Score	Pathway	Missing Number Fluency Score	Pathway	Computation Score	Pathway	Math Composite Score	Pathway
Arkansite, Stephanie	47 □	17 ◪	4	8 ◪	4	12 ◪	4	45 ◪	★★★★
Burgundy, Amy	103 ◪	17 ◪	2	8 ◪	2	11 ◪	2	44 ◪	★★
Cardinal, Paul	86 ◪	23 ■	4	11 ■	4	19 ■	4	64 ■	★★★★★
Copper, Andrea	229 ▲	31 ▲	3	14 ▲	2	20 ▲	2	79 ▲	★★
Diatomacious, Kenneth	140 ■	30 ▲	5	12 ▲	4	20 ▲	4	74 ▲	★★★★
Electric-Ultrame, Heather	141 ■	25 ▲	4	13 ▲	4	19 ■	3	70 ▲	★★★★
Fulvous, Sandra	54 □	20 ◪	5	8 ◪	4	13 ◪	4	49 ◪	★★★★
Gudmundite, Eric	105 ◪	22 ■	4	12 ▲	4	20 ▲	4	66 ■	★★★★
Livid, Lillian	54 □	20 ◪	5	11 ■	5	15 ◪	4	57 ◪	★★★★★
Meteoric-Iron, Daniel	160 ▲	25 ▲	3	15 ▲	5	19 ■	3	74 ▲	★★★★
Opal, Victor	88 ◪	24 ■	5	12 ▲	5	19 ■	4	67 ■	★★★★★
Pastel-Orange, Walter	183 ▲	27 ▲	3	12 ▲	2	21 ▲	3	72 ▲	★★★
Phthalo-Green, Anne	72 □	14 □	2	5 □	1	9 □	2	33 □	★
Praseme, Laura	28 □	17 ◪	5	8 ◪	5	11 ◪	4	44 ◪	★★★★★
Purple, Ruth	166 ▲	27 ▲	3	12 ▲	3	22 ▲	4	73 ▲	★★★
Salmon-Pink, Antonio	48 □	23 ■	5	10 ■	5	17 ■	5	60 ■	★★★★★
Stone, Scott	203 ▲	25 ▲	2	12 ▲	2	20 ▲	2	69 ▲	★★
Sunstone, Dorothy	143 ■	22 ■	2	11 ■	3	18 ■	3	62 ■	★★★

Key for interpreting the benchmark status

▲ Above Benchmark / Likely to Need Core Support
■ At Benchmark / Likely to Need Core Support
◪ Below Benchmark / Likely to Need Strategic Support
□ Well Below Benchmark / Likely to Need Intensive Support

Rate of progress compared to students with similar initial skills:

Key for interpreting the pathway number and the star rating

WELL ABOVE TYPICAL	5	★★★★★
ABOVE TYPICAL	4	★★★★
TYPICAL	3	★★★
BELOW TYPICAL	2	★★
WELL BELOW TYPICAL	1	★

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Using Pathways of Progress for Acadience Math for Evaluating Students' Progress

When using Pathways of Progress Reports to evaluate student progress within classrooms, the pathways are evaluated relative to typical progress for students with the same initial skill. We can describe the progress the student has made across the school year in this context. Evaluation of progress can be done at the individual student level and the classroom level.

When interpreting the Pathways of Progress Report, follow these steps:

1. **Review the MCS pathway for each student.** The number of stars corresponds to the Pathway of Progress (e.g., three stars for Pathway 3). The pathway for the MCS represents the overall progress each student made relative to other students with the same beginning-of-year MCS.
2. **Review the component measure scores for each student.** The end-of-year component scores and pathways (circled number[s]) are reported for each student. The symbols next to each score correspond to the student's benchmark status on that score. The component measure pathways and whether or not the student reached the end-of-year benchmark for component measures can contribute to understanding the overall pathways.

Consideration for Use

An important consideration when reviewing the Pathways of Progress Report includes the accuracy of scores.

Accuracy of Scores

Do you have confidence in the accuracy of the student scores on which the pathway is based? If yes, proceed with interpreting the Pathways of Progress Report. If no, then retest with alternate materials to validate those scores (see the discussion of Step 2 of the Outcomes-Driven Model in Chapter 1 of the *Acadience Math Assessment Manual*; Wheeler et al., 2019). The accuracy of scores may be called into question for a variety of reasons including: (a) suspected data entry error, (b) an error in the standard administration, or (c) an unusual pattern across students or teachers (i.e., unexpectedly low or high scores compared to past scores). The need to check the accuracy of scores should occur rarely. It is important to train assessors to administer and score the assessment with accuracy. Refresher trainings and checking administration and scoring accuracy through the use of the Acadience Math Assessment Accuracy Checklists is strongly recommended (see Appendix 3 of the *Acadience Math Assessment Manual*).

Improved Goal-Setting with Pathways of Progress for Acadience Math

When used in conjunction with the Acadience Math benchmarks, Pathways of Progress further empowers educators to set goals that are meaningful, ambitious, and attainable. The Acadience Math benchmarks are the same for all students in a grade, regardless of their starting skill level, and represent the lowest score for which a student is likely to still be on track to reach future math outcomes (e.g., to be on track for fourth grade, every third-grade students should reach a Math Composite Score of 101 by the end of the year).

While benchmarks are meaningful, there may be some students for whom they are not ambitious enough, and others for whom they are unattainable. Pathways of Progress helps increase decision-making precision with respect to goal setting and evaluating progress. Pathways of Progress allows teachers to use a normative context, in addition to the benchmarks, when setting goals and evaluating progress. Pathways of Progress clarifies what rate of progress is Typical, Above Typical, or Well Above Typical. Pathways of Progress also informs educators when the rate of progress is Below Typical or Well Below Typical. *Figure 3* shows how the Pathways of Progress might correspond to the Acadience Math benchmarks for a sample second-grade student, Josh. As illustrated in *Figure 1*, Pathways of Progress is particularly helpful for determining if reaching grade-level end-of-year benchmarks might be unrealistically ambitious.

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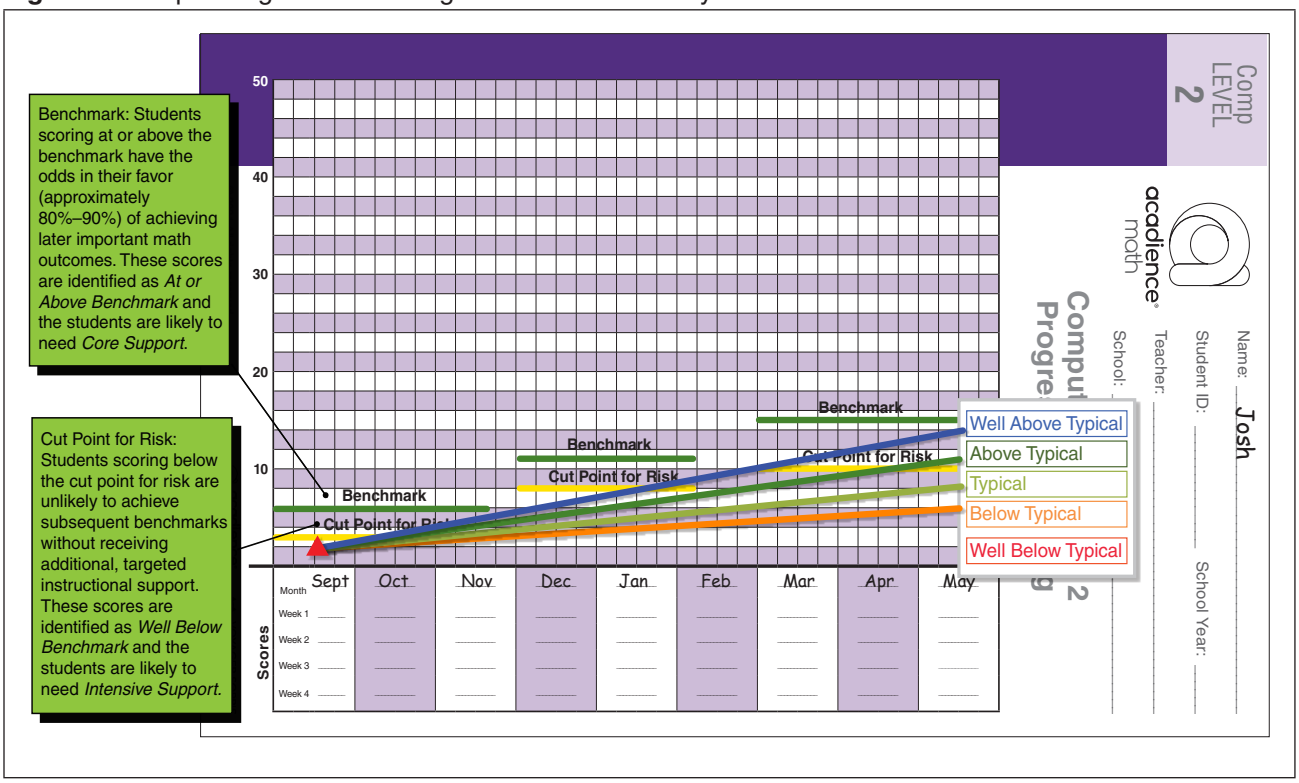
Figure 3. Sample Progress Monitoring Booklet with Pathways Shown



Teachers can use the Pathways of Progress goal-setting utility available in Acadience Learning's data management services to see the target scores for each pathway and set end-of-year goals for students. These features will assist teachers when tracking students' progress toward their goals throughout the year. Setting goals is particularly important for students who are performing Below or Well Below Benchmark and in need of additional instructional support. Goal setting is a professional decision that should be made with several considerations in mind. Student goals should represent a professional judgment about a goal that is simultaneously meaningful, ambitious, and attainable. When setting goals, consider the following:

1. **What is a meaningful goal?**
   - The big idea is to increase a student's odds of achieving important math outcomes in the future. Therefore, goals should be set with the intention of students exceeding, achieving, or coming as close as possible to their Acadience Math grade-level benchmarks.
   - Moving a student from Below Benchmark to At or Above Benchmark or moving a student from Well Below Benchmark to either Below Benchmark or to At or Above Benchmark represents a meaningful goal.
2. **What is an ambitious goal?**
   - Above Typical Progress (Pathway 4) and Well Above Typical Progress (Pathway 5) represent ambitious goals. Below Typical Progress (Pathway 2) and Well Below Typical Progress (Pathway 1) are not considered ambitious goals.
   - Typical Progress (Pathway 3) may be sufficient for students who are already At or Above Benchmark.
   - Typical Progress may *not* be adequate for students who are likely to need additional support to achieve benchmarks.
3. **What is an attainable goal?**
   - Goals in the Well Above Typical range may not always be attainable.
   - Typical and Above Typical Progress are likely attainable. Well Below Typical and Below Typical Progress may be attainable, but are not ambitious or meaningful. Appropriate goals are both *attainable* and *ambitious*.

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- It is important to consider what might be possible with a very effective, research-based intervention.

Acadience Math measures, on which Pathways of Progress for Acadience Math is based, are powerful, reliable, and valid indicators of a student's math proficiency. They are also brief and efficient. The goal is always to make good decisions. Establishing end-of-year goals is a professional judgment informed by the end-of-year benchmarks and the Pathways of Progress.

References

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