

Linking the Ohio AIR to ISIP™

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Abstract

This study provides the proficiency projection of Istation's Indicators of Progress (ISIP™) Reading and ISIP Math on Ohio's state assessments, the American Institutes for Research English language arts (AIR ELA) and AIR Math, performance levels 2, 3, 4, and 5 for 3rd through 8th grade students. All data come from students in grades 3 through 8 in Youngstown City School District in the state of Ohio and were collected during the 2018-2019 school year from the middle-of-the-year benchmarking assessment month. Multinomial logistic regression analysis is applied. Results show that in ISIP Reading, third and fifth grade students need to score near the 50th percentile to be able to reach the *Proficient* level on the Ohio AIR ELA. Fourth and seventh grade students need to score near the 60th percentile, sixth grade students need to score near the 75th percentile, and eighth grade students need to score near the 70th percentile to be able to reach the *Proficient* level. For ISIP Math, third and fifth grade students need to score near the 40th percentile, fourth and eighth grade students need to score near the 45th percentile, and sixth and seventh grade students need to score near the 60th percentile to be able to reach the *Proficient* level on the Ohio AIR Math.

Introduction

ISIP is a web-delivered computer-adaptive testing (CAT) system. It is built using two-parameter Item Response Theory and is driven by a fully CAT algorithm. There are several different ISIP assessments: ISIP Reading, ISIP Math, and ISIP Español. ISIP gathers and reports frequent information about student progress in the critical domains throughout and across academic years (Patarapichayatham et al., 2013). ISIP accomplishes this by delivering monthly tests that target critical areas to inform instruction. With adequate computer resources, it is possible to administer ISIP assessments to an entire classroom, school, or district in a single day. Student results are immediately available online for teachers and administrators, illustrating each student's past and present performance and skill growth. Teachers are alerted when students are not making adequate progress so that the instructional program can be modified before a pattern of failure becomes established (Mathes, 2011).

The purpose of ISIP Reading is to measure reading ability and identify deficits in critical areas in order to provide continuous differentiated instruction. ISIP Early Reading is available for prekindergarten through 3rd grade, and ISIP Advanced Reading is available for 4th through 8th grade. ISIP Math is designed for students in prekindergarten through 8th grade. Each assessment item contains a question stem and four answer choices. ISIP provides teachers and other school personnel with easy-to-interpret, web-based reports that detail student strengths and deficits and provide links to teaching resources and targeted intervention strategies (Istation, 2018).

The Ohio State Board of Education adopted the Common Core State Standards (CCSS) in both English language arts (ELA) and mathematics as Ohio's Learning

Standards. Ohio’s Learning Standards are designed to ensure that students are college and career ready by the end of high school. The State of Ohio requires all students in grades 3 through 8 to take standardized tests in English language arts and mathematics each year. The Ohio Department of Education worked with Ohio educators and the American Institutes for Research (AIR) to develop the state assessments. Content advisory committees as well as fairness and sensitivity committees discussed whether test items were accurate and fair, were suitable for the course, and measured an aspect of Ohio’s Learning Standards (AIR, 2019; LaPlante, 2018).

The Ohio AIR overall scale score performance levels are used to place students’ assessment scores in one of five levels of achievement: level 1 – Limited; level 2 – Basic; level 3 – Proficient; level 4 – Accelerated, or level 5 – Advanced. The scale scores of each performance level are in Table 1. The purpose of this study is to provide the probability and the proficiency projection of the Ohio AIR ELA and Ohio AIR Math performance levels 2, 3, 4, and 5 using students’ ISIP Reading and ISIP Math scores in grades 3 through 8.

Table 1: ELA Scale Scores for AIR Performance Levels

Assessment	Grade	Level 1 Limited	Level 2 Basic	Level 3 Proficient	Level 4 Accelerated	Level 5 Advanced
AIR ELA	3	545–671	672–699	700–724	725–751	752–863
	4	549–673	674–699	700–724	725–752	753–846
	5	552–668	669–699	700–724	725–754	755–848
	6	555–667	668–699	700–724	725–750	751–851
	7	568–669	670–699	700–724	725–748	749–833
	8	586–681	682–699	700–724	725–743	744–805

Table 2: Math Scale Scores for AIR Performance Levels

Assessment	Grade	Level 1 Limited	Level 2 Basic	Level 3 Proficient	Level 4 Accelerated	Level 5 Advanced
AIR Math	3	587–682	683–699	700–724	725–752	753–818
	4	605–685	686–699	700–724	725–758	759–835
	5	624–686	687–699	700–724	725–748	749–804
	6	616–681	682–699	700–724	725–743	744–790
	7	605–683	684–699	700–724	725–754	755–806
	8	633–689	690–699	700–724	725–743	744–774

Data and Methods

Our analytic plan consisted of first evaluating the Pearson product-moment correlation between the ISIP assessments and the Ohio AIR and then using multinomial logistic regression to determine probabilities for reaching the *Proficient* level or above on the Ohio AIR. We conducted these analyses for both reading and math for grades 3-8.

ISIP Reading and AIR ELA

The ISIP Reading and AIR ELA assessments are used in this study. The data were collected from students in Youngstown City School District in Ohio during the 2018-2019 academic year. Each student had an ISIP Reading score from the middle-of-the-year benchmarking month (December 2018) and an AIR ELA score from the state test in spring 2019.

Approximately 2,000 students were part of this study. There were 339 students from 3rd grade, 390 from 4th grade, 336 from 5th grade, 319 from 6th grade, 301 from

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7th grade, and 274 from 8th grade. Of the students included in the study, 50% were male and 50% were female (see Table 2). Approximately 5% were English-language learners (ELLs). The sample's demographics were 55% African American, 20% Hispanic, 15% White, and 10% others. Table 3 shows descriptive statistics of the sample. The means of ISIP Reading scores, available in Table 3, were 223.13, 1721.81, 1852.83, 1901.60, 1985.45, and 2071.85 for grades 3 through 8, respectively. The means of AIR ELA scores were 674.51, 672.53, 683.57, 666.35, 677.38, and 679.20 for grades 3 through 8, respectively.

ISIP Math and AIR Math

Approximately 1,900 students were part of the ISIP Math and AIR Math analyses. There were 337 students from 3rd grade, 399 from 4th grade, 335 from 5th grade, 311 from 6th grade, 290 from 7th grade, and 236 from 8th grade. Demographics were identical to those for the reading study. Of the students included in the sample, 50% were male and 50% were female. Approximately 5% were ELL students. The sample's demographics were 55% African American, 20% Hispanic, 15% White, and 10% others (see also Table 3). The means of ISIP Math scores were 1786.12, 1871.88, 1814.96, 1879.19, 1920.41, and 1872.67 for grades 3 through 8, respectively. The means of AIR Math scores were 675.22, 683.03, 681.41, 673.74, 675.01, and 678.06 for grades 3 through 8, respectively (see Table 4).

Table 3: Demographics of the Sample

ISIP	Grade	N	Ethnicity				Gender		ELL students	
			Black	Hispanic	White	Others	Female	Male	Yes	No
English	3	339	55.0%	19.3%	16.5%	9.2%	45.5%	54.5%	3.7%	96.3%
	4	390	54.7%	17.9%	13.9%	13.5%	44.8%	55.2%	6.0%	64.0%
	5	336	56.1%	20.2%	15.5%	8.2%	44.4%	55.6%	5.3%	94.7%
	6	319	59.6%	20.5%	11.8%	8.1%	50.0%	50.0%	4.8%	95.2%
	7	301	55.6%	23.3%	13.4%	7.7%	51.4%	48.6%	4.8%	95.2%
	8	274	55.0%	25.9%	11.7%	7.4%	55.3%	44.7%	4.6%	95.4%
Math	3	337	53.9%	19.0%	17.6%	9.5%	46.3%	53.7%	3.5%	96.5%
	4	399	54.0%	17.9%	14.9%	13.2%	45.1%	54.9%	5.8%	94.2%
	5	335	55.9%	19.9%	15.5%	8.7%	44.7%	55.3%	5.1%	94.9%
	6	311	59.4%	19.3%	13.0%	8.3%	49.6%	50.4%	4.6%	95.4%
	7	290	55.7%	23.1%	14.1%	7.1%	50.9%	49.1%	4.8%	95.2%
	8	236	56.2%	26.2%	11.2%	6.4%	52.8%	47.2%	5.6%	94.4%

Correlations

We conducted Pearson product-moment correlations between ISIP Reading scores and AIR ELA scores, and results are available in Table 5. The correlations were 0.66, 0.63, 0.62, 0.68, 0.61, and 0.70 for grades 3 through 8, respectively. ISIP Reading and AIR ELA assessments show a strong relationship across grades, meaning that if students do well on ISIP Reading in the middle-of-the-year assessment month, it is likely that they will do well on the Ohio AIR in the spring.

Table 4: Mean and Standard Deviation of Samples

Grade	Reading			Math		
	N	ISIP	AIR	N	ISIP	AIR
3	339	223.13 (26.15)	674.51 (38.24)	337	460.76 (45.57)	675.22 (40.12)
4	390	1,721.81 (198.34)	672.53 (35.08)	399	493.38 (37.63)	683.03 (35.36)
5	336	1,852.83 (195.08)	683.57 (40.06)	335	493.65 (43.91)	681.41 (27.62)
6	319	1,901.60 (240.93)	666.35 (32.86)	311	515.33 (49.86)	673.74 (27.03)
7	301	1,985.45 (248.39)	677.38 (36.47)	290	520.55 (59.31)	675.01 (29.35)
8	274	2,071.85 (273.85)	679.20 (27.81)	236	513.18 (36.48)	678.06 (20.06)

Table 5: Pearson Product-Moment Correlation Coefficients between ISIP and AIR

Grade	ISIP Reading & AIR ELA	ISIP Math & AIR Math
3	0.66	0.70
4	0.63	0.66
5	0.62	0.73
6	0.68	0.76
7	0.61	0.69
8	0.70	0.50

Table 5 also shows the Pearson product-moment correlation coefficients between ISIP Math scores and AIR Math scores. They were 0.70, 0.65, 0.73, 0.76, 0.69, and 0.50 for grades 3 through 8, respectively. Correlations were stronger for math than they were for reading.

Analysis

To determine the probabilities of attaining the *Proficient* level or above on the Ohio AIR, we used multinomial logistic regression analysis. This method allows for multiple categories for the outcome variable.

ISIP Reading and AIR ELA

The ISIP Reading scores are the predictor, and the AIR ELA performance levels are the outcome variable. Students who had ISIP Reading scores between the 1st and 99th percentile ranks were included in the analysis. The model is fitted by grade level.

Based on the estimated multinomial logistic regression coefficients, probabilities for the four performance levels are computed for selected ISIP Reading scores. A total of 99 ISIP Reading scale scores in December are selected, which correspond to the 1st through 99th percentile ranks with an increment of 1 on the December assessment. For the outcome variable in the multinomial logistic regression, performance levels are defined by the AIR ELA proficiency cut points (see Table 1). There are five AIR ELA performance levels, but this study investigates performance levels of *Basic* (level 2), *Proficient* (level 3), *Accelerated* (level 4) and *Advanced* (level 5).

The probability of AIR ELA performance level 2 (*Basic*) or above is computed by adding the probabilities of levels 2, 3, 4, and 5. The probability of AIR ELA performance

level 3 (*Proficient*) or above is computed by adding the probabilities of levels 3, 4, and 5. The probability of AIR ELA performance level 4 (*Accelerated*) is computed by adding the probabilities of levels 4 and 5, and the probability of AIR ELA performance level 5 (*Advanced*) is the probability of level 5 itself. The analyses were completed using R software with the *nnet* package.

ISIP Math and AIR Math

The same procedure is applied for the ISIP Math and AIR Math data. See Table 2 for the Ohio AIR Math proficiency cut points. The scale score of 700 is considered a *Proficient* score across grade levels in both the Ohio AIR ELA and the Ohio AIR Math tests.

Results

ISIP Reading and AIR ELA

We report the scores that are at a 0.50 probability to reach the performance levels. If a student had an ISIP score lower than a 0.50 probability, the student was less likely to achieve a particular Ohio AIR ELA performance level.

Table 6 shows the probability projection of the middle-of-the-year third grade ISIP Reading score to predict Ohio AIR ELA performance levels. Students in 3rd grade who obtained an ISIP Reading score of 226 (19th percentile rank) had a 52% probability of achieving the *Basic* level or higher. If students obtained an ISIP Reading score of 242 (47th percentile rank), they had a 51% probability of achieving the *Proficient* level. Students with an ISIP Reading score of 260 (81st percentile rank) had a 51% probability

of achieving *Accelerated*, and students with scores of 273 (94th percentile rank) had a 51% probability of achieving the *Advanced* level.

Table 6: Third Grade Students' Probability for Performance Levels in Reading

ISIP Score in December	Percentile	Basic	Proficient	Accelerated	Advanced
200	1	0.091	0.007	0.001	<0.001
202	2	0.106	0.009	0.001	<0.001
206	3	0.144	0.015	0.002	<0.001
208	4	0.167	0.020	0.002	<0.001
211	5	0.208	0.029	0.004	<0.001
213	6	0.240	0.038	0.005	<0.001
214	7	0.257	0.043	0.006	<0.001
216	8	0.294	0.054	0.009	<0.001
217	9	0.314	0.061	0.010	<0.001
218	10	0.334	0.069	0.011	<0.001
219	11	0.356	0.077	0.013	0.001
220	12	0.378	0.086	0.015	0.001
221	13	0.401	0.096	0.018	0.001
222	14	0.425	0.107	0.020	0.001
223	15	0.449	0.119	0.023	0.001
224	16	0.474	0.132	0.026	0.001
225	17	0.499	0.146	0.030	0.002
225	18	0.499	0.146	0.030	0.002
226	19	0.524	0.161	0.034	0.002
227	20	0.550	0.177	0.039	0.003
227	21	0.550	0.177	0.039	0.003
228	22	0.575	0.193	0.044	0.003
229	23	0.601	0.211	0.049	0.004
229	24	0.601	0.211	0.049	0.004
230	25	0.626	0.230	0.055	0.005
230	26	0.626	0.230	0.055	0.005
231	27	0.651	0.250	0.062	0.006
231	28	0.651	0.250	0.062	0.006
232	29	0.675	0.271	0.069	0.007
233	30	0.699	0.292	0.077	0.008
234	31	0.722	0.314	0.085	0.009
234	32	0.722	0.314	0.085	0.009
235	33	0.744	0.337	0.094	0.011
235	34	0.744	0.337	0.094	0.011
236	35	0.765	0.360	0.104	0.013
236	36	0.765	0.360	0.104	0.013
237	37	0.785	0.384	0.114	0.015

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237	38	0.785	0.384	0.114	0.015
237	39	0.785	0.384	0.114	0.015
238	40	0.804	0.408	0.125	0.018
239	41	0.823	0.432	0.137	0.021
239	42	0.823	0.432	0.137	0.021
240	43	0.840	0.457	0.149	0.024
240	44	0.840	0.457	0.149	0.024
241	45	0.855	0.481	0.162	0.028
241	46	0.855	0.481	0.162	0.028
242	47	0.870	0.506	0.175	0.032
242	48	0.870	0.506	0.175	0.032
243	49	0.884	0.530	0.189	0.036
243	50	0.884	0.530	0.189	0.036
244	51	0.896	0.554	0.204	0.041
244	52	0.896	0.554	0.204	0.041
245	53	0.908	0.578	0.219	0.047
245	54	0.908	0.578	0.219	0.047
246	55	0.918	0.601	0.235	0.054
246	56	0.918	0.601	0.235	0.054
247	57	0.928	0.624	0.252	0.061
247	58	0.928	0.624	0.252	0.061
248	59	0.936	0.646	0.269	0.068
248	60	0.936	0.646	0.269	0.068
249	61	0.944	0.668	0.287	0.077
249	62	0.944	0.668	0.287	0.077
250	63	0.951	0.689	0.305	0.086
250	64	0.951	0.689	0.305	0.086
251	65	0.957	0.710	0.323	0.096
251	66	0.957	0.710	0.323	0.096
252	67	0.963	0.729	0.342	0.107
252	68	0.963	0.729	0.342	0.107
253	69	0.968	0.748	0.362	0.119
253	70	0.968	0.748	0.362	0.119
254	71	0.972	0.766	0.382	0.132
254	72	0.972	0.766	0.382	0.132
255	73	0.976	0.783	0.402	0.145
255	74	0.976	0.783	0.402	0.145
256	75	0.979	0.800	0.422	0.160
257	76	0.982	0.816	0.443	0.175
257	77	0.982	0.816	0.443	0.175
258	78	0.985	0.831	0.464	0.192
259	79	0.987	0.845	0.485	0.209
259	80	0.987	0.845	0.485	0.209
260	81	0.989	0.858	0.507	0.227
261	82	0.991	0.870	0.528	0.246

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261	83	0.991	0.870	0.528	0.246
262	84	0.992	0.882	0.549	0.266
263	85	0.993	0.893	0.571	0.287
264	86	0.995	0.903	0.592	0.308
265	87	0.995	0.912	0.612	0.330
266	88	0.996	0.921	0.633	0.352
267	89	0.997	0.929	0.653	0.375
268	90	0.997	0.936	0.673	0.398
269	91	0.998	0.943	0.692	0.422
270	92	0.998	0.949	0.711	0.446
271	93	0.999	0.955	0.729	0.469
273	94	0.999	0.965	0.764	0.516
274	95	0.999	0.969	0.780	0.539
276	96	0.999	0.976	0.810	0.585
278	97	>0.999	0.981	0.838	0.628
281	98	>0.999	0.988	0.873	0.688
285	99	>0.999	0.993	0.911	0.758

Students in 4th grade who obtained an ISIP Reading score of 1,766 (27th percentile rank) had a 50% probability of achieving the *Basic* level (see Table 7). If students obtained an ISIP Reading score of 1,922 (61st percentile rank), they had a 50% probability of reaching the *Proficient* level or higher. If they obtained an ISIP Reading score of 2,059 (86th percentile rank), they had a 52% probability of reaching *Accelerated*. We did not have enough information to compute the Ohio AIR ELA performance level 5 with this data set.

Table 7: Fourth Grade Students' Probability for Performance Levels in Reading

ISIP Score in December	Percentile	Basic	Proficient	Accelerated	Advanced
1463	1	0.132	0.010	<0.001	<0.001
1499	2	0.157	0.014	<0.001	<0.001
1535	3	0.186	0.020	<0.001	<0.001
1561	4	0.210	0.026	<0.001	<0.001
1581	5	0.230	0.032	<0.001	<0.001
1598	6	0.249	0.037	0.001	<0.001
1613	7	0.267	0.043	0.001	<0.001
1626	8	0.283	0.049	0.001	<0.001
1637	9	0.297	0.054	0.001	<0.001
1648	10	0.311	0.060	0.002	<0.001
1658	11	0.325	0.066	0.002	<0.001
1667	12	0.338	0.072	0.002	<0.001
1676	13	0.351	0.078	0.003	0.001
1684	14	0.363	0.084	0.003	0.001
1692	15	0.376	0.090	0.004	0.001
1699	16	0.387	0.096	0.004	0.001
1706	17	0.398	0.102	0.005	0.001
1713	18	0.410	0.109	0.005	0.001
1720	19	0.421	0.115	0.006	0.001
1726	20	0.432	0.122	0.007	0.001
1732	21	0.442	0.128	0.007	0.002
1739	22	0.454	0.136	0.008	0.002
1744	23	0.463	0.142	0.009	0.002
1750	24	0.474	0.149	0.010	0.002
1756	25	0.485	0.157	0.011	0.003
1761	26	0.494	0.163	0.012	0.003
1766	27	0.503	0.170	0.013	0.003
1772	28	0.514	0.179	0.015	0.003
1777	29	0.524	0.186	0.016	0.004
1782	30	0.533	0.193	0.017	0.004
1787	31	0.543	0.201	0.019	0.004
1792	32	0.552	0.209	0.021	0.005
1797	33	0.562	0.218	0.023	0.005
1802	34	0.572	0.226	0.024	0.006
1806	35	0.579	0.233	0.026	0.006
1811	36	0.589	0.242	0.028	0.007
1816	37	0.599	0.251	0.031	0.008
1820	38	0.607	0.259	0.033	0.008
1825	39	0.617	0.269	0.036	0.009
1829	40	0.624	0.276	0.038	0.009
1834	41	0.634	0.287	0.041	0.010

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1838	42	0.642	0.295	0.044	0.011
1843	43	0.652	0.305	0.047	0.012
1847	44	0.660	0.314	0.050	0.013
1851	45	0.668	0.323	0.053	0.014
1856	46	0.678	0.334	0.058	0.015
1860	47	0.685	0.343	0.061	0.016
1865	48	0.695	0.355	0.066	0.017
1869	49	0.703	0.364	0.070	0.019
1873	50	0.710	0.374	0.074	0.020
1878	51	0.720	0.386	0.080	0.021
1882	52	0.728	0.396	0.084	0.023
1886	53	0.735	0.406	0.089	0.024
1891	54	0.745	0.419	0.096	0.026
1895	55	0.752	0.429	0.101	0.028
1899	56	0.759	0.439	0.107	0.030
1904	57	0.768	0.453	0.114	0.032
1908	58	0.776	0.463	0.120	0.034
1913	59	0.784	0.477	0.129	0.036
1917	60	0.791	0.487	0.135	0.038
1922	61	0.800	0.501	0.144	0.041
1926	62	0.807	0.512	0.152	0.044
1931	63	0.815	0.526	0.161	0.047
1935	64	0.822	0.537	0.169	0.049
1940	65	0.830	0.551	0.180	0.053
1945	66	0.838	0.564	0.191	0.056
1949	67	0.844	0.576	0.200	0.059
1954	68	0.851	0.589	0.211	0.063
1959	69	0.859	0.603	0.223	0.067
1964	70	0.866	0.617	0.236	0.071
1969	71	0.873	0.631	0.249	0.076
1974	72	0.880	0.644	0.262	0.080
1979	73	0.886	0.658	0.275	0.085
1984	74	0.892	0.671	0.289	0.090
1990	75	0.900	0.687	0.306	0.096
1995	76	0.906	0.700	0.321	0.101
2001	77	0.912	0.715	0.339	0.107
2007	78	0.919	0.730	0.357	0.114
2012	79	0.924	0.742	0.372	0.120
2018	80	0.929	0.756	0.391	0.127
2025	81	0.936	0.772	0.413	0.135
2031	82	0.941	0.786	0.432	0.142
2038	83	0.946	0.801	0.454	0.151
2044	84	0.951	0.813	0.473	0.158
2052	85	0.956	0.829	0.498	0.169
2059	86	0.961	0.842	0.521	0.178

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2067	87	0.965	0.856	0.545	0.188
2075	88	0.969	0.869	0.570	0.199
2084	89	0.974	0.882	0.597	0.210
2093	90	0.977	0.895	0.623	0.222
2103	91	0.981	0.908	0.651	0.235
2114	92	0.984	0.920	0.681	0.249
2125	93	0.987	0.931	0.708	0.262
2138	94	0.990	0.942	0.739	0.278
2153	95	0.992	0.954	0.772	0.295
2170	96	0.994	0.964	0.804	0.314
2190	97	0.996	0.973	0.838	0.335
2216	98	0.998	0.982	0.874	0.360
2252	99	0.999	0.990	0.912	0.391

Students in 5th grade who obtained an ISIP Reading score of 1,775 (16th percentile rank) had a 51% probability of achieving *Basic* or higher on the Ohio AIR ELA (see Table 8). If 5th grade students obtained an ISIP Reading score of 1,952 (48th percentile rank), they had a 51% probability of reaching *Proficient*. If they obtained an ISIP Reading score of 2,110 (79th percentile rank), they had a 51% probability of achieving *Accelerated* or higher. Students with an ISIP Reading score of 2,300 (97th percentile rank) had a 53% probability of achieving the *Advanced* level.

Table 8: Fifth Grade Students' Probability for Performance Levels in Reading

ISIP Score in December	Percentile	Basic	Proficient	Accelerated	Advanced
1554	1	0.096	0.020	0.004	<0.001
1560	2	0.102	0.022	0.004	<0.001
1611	3	0.159	0.039	0.008	<0.001
1627	4	0.182	0.047	0.010	0.001
1649	5	0.218	0.059	0.014	0.001
1667	6	0.251	0.072	0.018	0.001
1682	7	0.282	0.084	0.021	0.001
1696	8	0.312	0.096	0.025	0.002
1709	9	0.342	0.109	0.030	0.002
1720	10	0.369	0.121	0.034	0.003
1731	11	0.396	0.133	0.038	0.003
1741	12	0.422	0.146	0.043	0.004
1750	13	0.446	0.157	0.048	0.004
1759	14	0.469	0.170	0.052	0.005
1767	15	0.491	0.181	0.057	0.006
1775	16	0.513	0.193	0.062	0.006
1783	17	0.534	0.205	0.067	0.007
1790	18	0.553	0.216	0.072	0.008
1797	19	0.572	0.227	0.077	0.009
1804	20	0.590	0.239	0.082	0.010
1810	21	0.606	0.249	0.087	0.011
1817	22	0.625	0.261	0.093	0.012
1823	23	0.640	0.271	0.098	0.013
1829	24	0.655	0.282	0.103	0.014
1835	25	0.670	0.292	0.109	0.015
1841	26	0.685	0.303	0.114	0.016
1847	27	0.699	0.314	0.120	0.018
1853	28	0.713	0.325	0.126	0.019
1858	29	0.725	0.334	0.131	0.020
1863	30	0.736	0.343	0.136	0.021
1869	31	0.749	0.354	0.143	0.023
1874	32	0.759	0.363	0.148	0.025
1879	33	0.770	0.373	0.154	0.026
1884	34	0.780	0.382	0.159	0.028
1889	35	0.789	0.391	0.165	0.029
1894	36	0.799	0.400	0.171	0.031
1899	37	0.808	0.410	0.177	0.033
1904	38	0.817	0.419	0.183	0.035
1909	39	0.826	0.428	0.189	0.036
1914	40	0.834	0.437	0.195	0.038
1919	41	0.842	0.446	0.202	0.041

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1924	42	0.850	0.456	0.208	0.043
1928	43	0.856	0.463	0.213	0.045
1933	44	0.863	0.472	0.220	0.047
1938	45	0.870	0.481	0.227	0.049
1943	46	0.876	0.490	0.233	0.052
1947	47	0.881	0.497	0.239	0.054
1952	48	0.888	0.506	0.246	0.057
1957	49	0.894	0.515	0.253	0.060
1961	50	0.898	0.522	0.259	0.062
1966	51	0.904	0.530	0.266	0.065
1971	52	0.909	0.539	0.273	0.068
1975	53	0.913	0.546	0.279	0.071
1980	54	0.918	0.554	0.286	0.074
1985	55	0.922	0.563	0.294	0.078
1989	56	0.926	0.569	0.300	0.080
1994	57	0.930	0.578	0.308	0.084
1999	58	0.934	0.586	0.315	0.088
2003	59	0.937	0.593	0.321	0.091
2008	60	0.941	0.601	0.329	0.095
2013	61	0.944	0.609	0.337	0.099
2018	62	0.947	0.617	0.345	0.103
2023	63	0.950	0.625	0.353	0.108
2028	64	0.953	0.633	0.361	0.112
2033	65	0.956	0.641	0.369	0.117
2038	66	0.959	0.648	0.378	0.122
2043	67	0.961	0.656	0.386	0.127
2048	68	0.964	0.663	0.394	0.132
2053	69	0.966	0.671	0.403	0.137
2058	70	0.968	0.678	0.411	0.142
2064	71	0.971	0.687	0.421	0.149
2069	72	0.972	0.694	0.430	0.154
2075	73	0.975	0.703	0.440	0.161
2080	74	0.976	0.710	0.449	0.167
2086	75	0.978	0.718	0.459	0.175
2092	76	0.980	0.727	0.469	0.182
2098	77	0.981	0.735	0.480	0.190
2104	78	0.983	0.743	0.490	0.198
2110	79	0.984	0.751	0.501	0.206
2117	80	0.986	0.760	0.513	0.215
2123	81	0.987	0.767	0.523	0.224
2130	82	0.988	0.776	0.535	0.234
2137	83	0.989	0.784	0.548	0.244
2145	84	0.990	0.794	0.562	0.257
2152	85	0.991	0.802	0.574	0.267
2160	86	0.992	0.811	0.587	0.280

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2169	87	0.993	0.821	0.603	0.295
2177	88	0.994	0.830	0.616	0.308
2187	89	0.995	0.840	0.633	0.325
2196	90	0.996	0.849	0.648	0.340
2207	91	0.996	0.859	0.666	0.359
2219	92	0.997	0.870	0.685	0.380
2231	93	0.997	0.881	0.704	0.402
2245	94	0.998	0.892	0.725	0.427
2260	95	0.998	0.903	0.746	0.454
2279	96	0.999	0.916	0.772	0.488
2300	97	0.999	0.929	0.799	0.526
2328	98	0.999	0.943	0.831	0.574
2367	99	>0.999	0.960	0.870	0.638

Students in 6th grade who obtained an ISIP Reading score of 1,943 (32nd percentile rank) had a 51% probability of achieving *Basic* or higher (see Table 9). If 6th grade students obtained an ISIP Reading score of 2,153 (75th percentile rank), they had a 51% probability of achieving *Proficient*. Students with a score of 2,431 (99th percentile rank) had a 51% probability of achieving *Accelerated* or higher. We did not have enough information to compute AIR ELA performance level 5 with this data set.

Table 9: Sixth Grade Students' Probability for Performance Levels in Reading

ISIP Score in December	Percentile	Basic	Proficient	Accelerated	Advanced
1628	1	0.102	0.001	<0.001	<0.001
1633	2	0.105	0.001	<0.001	<0.001
1671	3	0.131	0.002	<0.001	<0.001
1699	4	0.154	0.004	<0.001	<0.001
1720	5	0.173	0.005	<0.001	<0.001
1738	6	0.191	0.006	<0.001	<0.001
1753	7	0.207	0.008	0.001	<0.001
1767	8	0.223	0.009	0.001	<0.001
1780	9	0.239	0.011	0.001	<0.001
1791	10	0.253	0.013	0.001	<0.001
1801	11	0.266	0.015	0.001	<0.001
1811	12	0.280	0.017	0.001	<0.001
1820	13	0.293	0.019	0.002	<0.001
1829	14	0.306	0.021	0.002	<0.001
1837	15	0.318	0.024	0.002	<0.001
1845	16	0.331	0.026	0.002	<0.001
1853	17	0.344	0.029	0.003	<0.001
1860	18	0.355	0.032	0.003	<0.001
1867	19	0.367	0.035	0.003	<0.001
1874	20	0.379	0.038	0.004	<0.001
1880	21	0.389	0.041	0.004	<0.001
1887	22	0.401	0.045	0.005	<0.001
1893	23	0.412	0.048	0.005	<0.001
1899	24	0.423	0.051	0.006	<0.001
1905	25	0.434	0.055	0.006	<0.001
1911	26	0.445	0.059	0.007	<0.001
1917	27	0.457	0.064	0.007	<0.001
1922	28	0.466	0.068	0.008	<0.001
1928	29	0.478	0.072	0.009	<0.001
1933	30	0.488	0.077	0.009	<0.001
1938	31	0.497	0.081	0.010	<0.001
1943	32	0.507	0.086	0.011	<0.001
1949	33	0.519	0.092	0.012	<0.001
1954	34	0.529	0.097	0.013	0.001
1959	35	0.539	0.103	0.013	0.001
1964	36	0.550	0.108	0.014	0.001
1969	37	0.560	0.114	0.015	0.001
1973	38	0.568	0.119	0.016	0.001
1978	39	0.578	0.126	0.017	0.001
1983	40	0.588	0.133	0.019	0.001
1988	41	0.598	0.140	0.020	0.001

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1993	42	0.609	0.147	0.021	0.001
1998	43	0.619	0.154	0.023	0.001
2002	44	0.627	0.161	0.024	0.001
2007	45	0.637	0.169	0.025	0.001
2011	46	0.645	0.175	0.027	0.002
2016	47	0.656	0.184	0.028	0.002
2021	48	0.666	0.193	0.030	0.002
2025	49	0.674	0.200	0.032	0.002
2030	50	0.684	0.210	0.034	0.002
2034	51	0.692	0.217	0.035	0.002
2039	52	0.701	0.227	0.037	0.003
2044	53	0.711	0.238	0.040	0.003
2048	54	0.719	0.246	0.042	0.003
2053	55	0.728	0.257	0.044	0.003
2058	56	0.738	0.268	0.047	0.004
2062	57	0.745	0.277	0.049	0.004
2067	58	0.755	0.288	0.051	0.004
2072	59	0.764	0.300	0.054	0.005
2076	60	0.771	0.309	0.057	0.005
2081	61	0.780	0.321	0.060	0.005
2086	62	0.788	0.334	0.063	0.006
2091	63	0.797	0.346	0.066	0.006
2096	64	0.805	0.359	0.070	0.007
2101	65	0.813	0.372	0.073	0.007
2106	66	0.821	0.385	0.077	0.008
2111	67	0.829	0.398	0.081	0.009
2116	68	0.837	0.411	0.085	0.009
2121	69	0.844	0.424	0.089	0.010
2126	70	0.851	0.438	0.093	0.011
2131	71	0.858	0.451	0.097	0.012
2137	72	0.866	0.467	0.103	0.013
2142	73	0.873	0.481	0.107	0.014
2148	74	0.880	0.497	0.113	0.015
2153	75	0.886	0.511	0.118	0.016
2159	76	0.893	0.527	0.123	0.017
2165	77	0.900	0.543	0.130	0.019
2171	78	0.906	0.559	0.136	0.020
2177	79	0.913	0.575	0.142	0.022
2184	80	0.919	0.593	0.150	0.024
2190	81	0.925	0.608	0.157	0.026
2197	82	0.931	0.626	0.165	0.028
2204	83	0.936	0.643	0.173	0.031
2211	84	0.942	0.660	0.181	0.034
2219	85	0.947	0.679	0.191	0.037
2227	86	0.952	0.698	0.201	0.040

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2235	87	0.957	0.715	0.211	0.044
2244	88	0.962	0.734	0.223	0.049
2253	89	0.966	0.753	0.235	0.054
2263	90	0.970	0.772	0.248	0.060
2273	91	0.974	0.791	0.262	0.066
2285	92	0.978	0.811	0.279	0.075
2297	93	0.982	0.830	0.297	0.084
2311	94	0.985	0.851	0.317	0.096
2326	95	0.988	0.870	0.340	0.110
2344	96	0.991	0.891	0.368	0.128
2366	97	0.994	0.913	0.404	0.154
2393	98	0.996	0.934	0.448	0.189
2431	99	0.998	0.957	0.513	0.247

Students in 7th grade who obtained an ISIP Reading score of 1,861 (6th percentile rank) had a 50% probability of achieving the *Basic* level (see Table 10). Students with an ISIP Reading score of 2,182 (55th percentile rank) had a 51% probability of achieving *Proficient* or higher. If they obtained an ISIP Reading score of 2,501 (97th percentile rank), they had a 52% probability of achieving the *Accelerated* level. We did not have enough information to compute AIR ELA performance level 5 with this data set.

Table 10: Seventh Grade Students' Probability for Performance Levels in Reading

ISIP Score in December	Percentile	Basic	Proficient	Accelerated	Advanced
1742	1	0.398	0.052	0.011	<0.001
1754	2	0.407	0.056	0.012	0.001
1793	3	0.440	0.072	0.016	0.001
1821	4	0.464	0.086	0.020	0.001
1843	5	0.484	0.098	0.024	0.002
1861	6	0.501	0.109	0.027	0.002
1877	7	0.516	0.120	0.031	0.002
1891	8	0.530	0.130	0.034	0.003
1904	9	0.543	0.141	0.037	0.003
1915	10	0.554	0.150	0.040	0.003
1926	11	0.565	0.159	0.043	0.004
1936	12	0.575	0.169	0.046	0.004
1945	13	0.584	0.177	0.049	0.004
1954	14	0.594	0.186	0.052	0.005
1963	15	0.603	0.195	0.055	0.005
1971	16	0.611	0.204	0.058	0.006
1978	17	0.619	0.211	0.061	0.006
1986	18	0.627	0.220	0.064	0.007
1993	19	0.635	0.229	0.067	0.007
2000	20	0.642	0.237	0.070	0.008
2006	21	0.648	0.244	0.073	0.008
2013	22	0.656	0.253	0.076	0.009
2019	23	0.662	0.260	0.079	0.009
2026	24	0.670	0.269	0.083	0.010
2032	25	0.676	0.277	0.086	0.010
2037	26	0.681	0.284	0.088	0.011
2043	27	0.688	0.292	0.092	0.012
2049	28	0.694	0.300	0.095	0.012
2054	29	0.699	0.307	0.098	0.013
2060	30	0.706	0.316	0.101	0.014
2065	31	0.711	0.323	0.104	0.014
2071	32	0.717	0.332	0.108	0.015
2076	33	0.722	0.339	0.111	0.016
2081	34	0.728	0.346	0.114	0.016
2086	35	0.733	0.354	0.117	0.017
2091	36	0.738	0.361	0.121	0.018
2096	37	0.743	0.369	0.124	0.019
2101	38	0.748	0.377	0.127	0.019
2106	39	0.753	0.385	0.131	0.020
2111	40	0.758	0.392	0.134	0.021
2116	41	0.763	0.400	0.138	0.022

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2121	42	0.768	0.408	0.142	0.023
2126	43	0.773	0.416	0.145	0.024
2130	44	0.777	0.423	0.148	0.025
2135	45	0.782	0.431	0.152	0.026
2140	46	0.787	0.439	0.156	0.027
2145	47	0.792	0.447	0.160	0.028
2149	48	0.796	0.453	0.163	0.029
2154	49	0.800	0.461	0.167	0.030
2159	50	0.805	0.470	0.171	0.031
2163	51	0.809	0.476	0.175	0.032
2168	52	0.813	0.484	0.179	0.034
2173	53	0.818	0.493	0.183	0.035
2177	54	0.821	0.499	0.187	0.036
2182	55	0.826	0.507	0.191	0.037
2187	56	0.830	0.516	0.195	0.039
2192	57	0.834	0.524	0.200	0.040
2196	58	0.838	0.530	0.203	0.042
2201	59	0.842	0.539	0.208	0.043
2206	60	0.846	0.547	0.212	0.045
2211	61	0.850	0.555	0.217	0.046
2216	62	0.854	0.563	0.222	0.048
2221	63	0.858	0.571	0.226	0.050
2226	64	0.862	0.579	0.231	0.052
2231	65	0.866	0.587	0.236	0.053
2236	66	0.870	0.595	0.241	0.055
2241	67	0.873	0.603	0.246	0.057
2246	68	0.877	0.611	0.251	0.059
2251	69	0.881	0.619	0.255	0.061
2257	70	0.885	0.628	0.261	0.064
2262	71	0.888	0.636	0.266	0.066
2268	72	0.892	0.645	0.273	0.069
2273	73	0.895	0.653	0.278	0.071
2279	74	0.899	0.662	0.284	0.074
2285	75	0.903	0.671	0.290	0.077
2290	76	0.906	0.678	0.295	0.079
2297	77	0.910	0.688	0.302	0.082
2303	78	0.914	0.697	0.309	0.086
2309	79	0.917	0.705	0.315	0.089
2316	80	0.921	0.715	0.322	0.093
2322	81	0.924	0.723	0.328	0.096
2329	82	0.927	0.732	0.336	0.100
2336	83	0.931	0.741	0.343	0.104
2344	84	0.935	0.752	0.352	0.109
2351	85	0.938	0.760	0.359	0.113
2359	86	0.941	0.770	0.368	0.118

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2368	87	0.945	0.781	0.378	0.124
2377	88	0.948	0.791	0.387	0.130
2386	89	0.952	0.801	0.397	0.137
2396	90	0.955	0.812	0.408	0.144
2407	91	0.959	0.823	0.420	0.152
2418	92	0.962	0.834	0.431	0.160
2431	93	0.966	0.846	0.445	0.171
2445	94	0.969	0.858	0.460	0.182
2461	95	0.973	0.871	0.477	0.196
2479	96	0.977	0.885	0.497	0.212
2501	97	0.981	0.900	0.520	0.232
2529	98	0.985	0.916	0.549	0.259
2568	99	0.989	0.936	0.588	0.300

Students in 8th grade who obtained an ISIP Reading score of 2,107 (25th percentile rank) had a 50% probability of achieving the basic level or higher. (see Table 11). Students who obtained an ISIP Reading score of 2,335 (66th percentile rank), had a 50% probability of achieving the *Proficient* level. We did not have enough information to compute AIR ELA *Accelerated* and *Advanced* levels.

Table 11: Eighth Grade Students' Probability for Performance Levels in Reading

ISIP Score in December	Percentile	Basic	Proficient	Accelerated	Advanced
1787	1	0.110	0.021	0.001	<0.001
1799	2	0.118	0.023	0.001	0.001
1843	3	0.149	0.033	0.002	0.001
1873	4	0.175	0.041	0.003	0.001
1898	5	0.199	0.050	0.003	0.001
1918	6	0.221	0.058	0.004	0.001
1936	7	0.241	0.066	0.005	0.001
1951	8	0.260	0.073	0.006	0.002
1965	9	0.278	0.081	0.007	0.002
1978	10	0.295	0.089	0.008	0.002
1990	11	0.312	0.096	0.008	0.002
2001	12	0.328	0.104	0.009	0.003
2011	13	0.343	0.111	0.010	0.003
2021	14	0.358	0.119	0.011	0.003
2031	15	0.373	0.127	0.012	0.004
2040	16	0.388	0.134	0.013	0.004
2048	17	0.401	0.141	0.014	0.004
2056	18	0.414	0.148	0.016	0.005
2064	19	0.427	0.155	0.017	0.005
2072	20	0.440	0.163	0.018	0.005
2079	21	0.452	0.170	0.019	0.006
2087	22	0.466	0.178	0.020	0.006
2094	23	0.478	0.185	0.022	0.006
2101	24	0.490	0.193	0.023	0.007
2107	25	0.500	0.199	0.024	0.007
2114	26	0.513	0.207	0.026	0.008
2120	27	0.523	0.214	0.027	0.008
2127	28	0.535	0.222	0.028	0.008
2133	29	0.546	0.229	0.030	0.009
2139	30	0.556	0.236	0.031	0.009
2145	31	0.567	0.243	0.033	0.010
2151	32	0.577	0.251	0.034	0.010
2157	33	0.587	0.258	0.036	0.011
2162	34	0.596	0.264	0.037	0.011
2168	35	0.606	0.272	0.039	0.012
2174	36	0.616	0.280	0.041	0.012
2179	37	0.625	0.286	0.042	0.013
2185	38	0.635	0.294	0.044	0.013
2190	39	0.643	0.301	0.045	0.014
2196	40	0.653	0.309	0.047	0.014
2201	41	0.661	0.316	0.049	0.015

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2207	42	0.671	0.324	0.051	0.015
2212	43	0.679	0.331	0.053	0.016
2217	44	0.687	0.338	0.055	0.016
2222	45	0.695	0.345	0.057	0.017
2228	46	0.704	0.353	0.059	0.018
2233	47	0.712	0.360	0.061	0.018
2238	48	0.719	0.367	0.063	0.019
2243	49	0.727	0.374	0.065	0.020
2249	50	0.735	0.382	0.067	0.020
2254	51	0.743	0.389	0.069	0.021
2259	52	0.750	0.396	0.072	0.022
2264	53	0.757	0.403	0.074	0.022
2270	54	0.765	0.412	0.077	0.023
2275	55	0.772	0.419	0.079	0.024
2280	56	0.778	0.426	0.081	0.025
2285	57	0.785	0.433	0.084	0.025
2291	58	0.792	0.441	0.086	0.026
2296	59	0.798	0.448	0.089	0.027
2301	60	0.805	0.455	0.091	0.028
2307	61	0.812	0.464	0.095	0.029
2312	62	0.817	0.471	0.097	0.030
2318	63	0.824	0.479	0.100	0.031
2323	64	0.830	0.486	0.103	0.031
2329	65	0.836	0.494	0.106	0.032
2335	66	0.843	0.503	0.110	0.033
2340	67	0.848	0.509	0.113	0.034
2346	68	0.854	0.517	0.116	0.035
2352	69	0.859	0.526	0.119	0.037
2358	70	0.865	0.534	0.123	0.038
2364	71	0.871	0.541	0.127	0.039
2370	72	0.876	0.549	0.130	0.040
2376	73	0.881	0.557	0.134	0.041
2382	74	0.886	0.565	0.138	0.042
2389	75	0.891	0.574	0.142	0.044
2395	76	0.896	0.582	0.146	0.045
2402	77	0.901	0.590	0.151	0.047
2409	78	0.906	0.599	0.156	0.048
2416	79	0.911	0.608	0.160	0.050
2423	80	0.915	0.616	0.165	0.051
2431	81	0.920	0.626	0.171	0.053
2438	82	0.924	0.634	0.176	0.055
2446	83	0.929	0.643	0.182	0.056
2455	84	0.934	0.653	0.188	0.059
2463	85	0.938	0.662	0.194	0.061
2472	86	0.942	0.672	0.201	0.063

2481	87	0.946	0.682	0.208	0.065
2491	88	0.950	0.692	0.216	0.068
2502	89	0.954	0.704	0.225	0.070
2513	90	0.958	0.715	0.233	0.073
2525	91	0.962	0.726	0.243	0.077
2538	92	0.966	0.739	0.254	0.080
2552	93	0.970	0.751	0.266	0.084
2567	94	0.974	0.764	0.279	0.088
2585	95	0.977	0.780	0.294	0.093
2605	96	0.981	0.795	0.312	0.099
2629	97	0.985	0.813	0.334	0.107
2660	98	0.988	0.835	0.362	0.116
2704	99	0.992	0.862	0.403	0.130

ISIP Math and AIR Math

Tables 12-17 show the projected ISIP Math cut scores for achieving each AIR Math performance level when the ISIP Math assessment is taken in the middle-of-the-year assessment month. The ISIP Math assessment covers prekindergarten through eighth grade, and the norms and scales were updated in 2020. This analysis is based on the 2020 norms.

Students in 3rd grade who obtained an ISIP Math score of 483 (26th percentile rank) had more than a 50% probability of reaching the *Basic* performance level or higher. If 3rd grade students obtained an ISIP Math score of 500 (40th percentile rank), they had a 72% probability of reaching basic and a 51% probability of achieving *Proficient*. If they obtained an ISIP Math score of 523 (60th percentile rank), they had a 78% probability of reaching *Proficient* and a 51% probability of reaching the *Accelerated* level in the Ohio AIR Math.

Table 12: Third Grade Students' Probability for Performance Levels 2, 3, 4, and 5 in Math

ISIP Score in December	Percentile	Basic	Proficient	Accelerated	Advanced
409	1	0.042	0.012	0.001	<0.001
421	2	0.066	0.021	0.001	<0.001
428	3	0.086	0.030	0.002	<0.001
434	4	0.108	0.040	0.004	<0.001
439	5	0.130	0.051	0.005	<0.001
442	6	0.145	0.058	0.007	<0.001
446	7	0.167	0.070	0.009	<0.001
449	8	0.186	0.080	0.011	<0.001
452	9	0.206	0.092	0.013	<0.001
455	10	0.229	0.105	0.016	<0.001
457	11	0.244	0.115	0.018	<0.001
459	12	0.261	0.125	0.021	<0.001
461	13	0.279	0.136	0.024	<0.001
463	14	0.297	0.148	0.027	<0.001
465	15	0.316	0.161	0.031	<0.001
467	16	0.336	0.174	0.035	<0.001
469	17	0.357	0.189	0.040	<0.001
471	18	0.379	0.204	0.045	0.001
472	19	0.390	0.212	0.048	0.001
474	20	0.412	0.228	0.054	0.001
476	21	0.435	0.246	0.060	0.001
477	22	0.447	0.255	0.064	0.001
479	23	0.471	0.273	0.072	0.002
480	24	0.483	0.283	0.076	0.002
481	25	0.495	0.293	0.080	0.002
483	26	0.519	0.313	0.089	0.003
484	27	0.532	0.323	0.094	0.003
486	28	0.556	0.344	0.105	0.004
487	29	0.569	0.355	0.110	0.004
488	30	0.581	0.366	0.116	0.005
489	31	0.593	0.377	0.122	0.006
491	32	0.618	0.400	0.135	0.007
492	33	0.630	0.411	0.142	0.008
493	34	0.642	0.423	0.149	0.009
494	35	0.654	0.435	0.156	0.010
496	36	0.677	0.458	0.172	0.013
497	37	0.689	0.470	0.180	0.015
498	38	0.700	0.482	0.188	0.016
499	39	0.712	0.494	0.197	0.018
500	40	0.723	0.506	0.206	0.021

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501	41	0.734	0.519	0.215	0.023
503	42	0.755	0.543	0.235	0.029
504	43	0.766	0.555	0.245	0.032
505	44	0.776	0.567	0.256	0.036
506	45	0.786	0.580	0.267	0.040
507	46	0.796	0.592	0.278	0.044
508	47	0.806	0.604	0.290	0.049
509	48	0.815	0.616	0.302	0.055
510	49	0.824	0.628	0.315	0.060
512	50	0.842	0.653	0.341	0.074
513	51	0.850	0.665	0.354	0.081
514	52	0.858	0.677	0.368	0.090
515	53	0.866	0.689	0.383	0.099
516	54	0.874	0.701	0.397	0.108
517	55	0.881	0.713	0.413	0.119
518	56	0.889	0.724	0.428	0.130
519	57	0.896	0.736	0.444	0.142
521	58	0.909	0.759	0.477	0.168
522	59	0.915	0.770	0.493	0.183
523	60	0.921	0.781	0.510	0.198
524	61	0.926	0.792	0.528	0.214
525	62	0.932	0.803	0.545	0.231
526	63	0.937	0.813	0.563	0.249
528	64	0.946	0.834	0.598	0.288
529	65	0.951	0.843	0.616	0.308
530	66	0.955	0.853	0.634	0.329
531	67	0.959	0.862	0.652	0.350
532	68	0.962	0.871	0.669	0.372
534	69	0.969	0.888	0.704	0.417
535	70	0.972	0.896	0.721	0.440
536	71	0.974	0.903	0.737	0.463
538	72	0.979	0.917	0.768	0.510
539	73	0.981	0.924	0.783	0.533
540	74	0.983	0.930	0.798	0.555
542	75	0.987	0.941	0.825	0.600
543	76	0.988	0.946	0.838	0.621
544	77	0.990	0.951	0.850	0.642
546	78	0.992	0.959	0.872	0.682
547	79	0.993	0.963	0.882	0.701
549	80	0.994	0.970	0.900	0.737
551	81	0.996	0.975	0.916	0.770
552	82	0.996	0.978	0.923	0.785
554	83	0.997	0.982	0.936	0.813
556	84	0.998	0.986	0.947	0.838
558	85	0.998	0.988	0.956	0.860

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559	86	0.999	0.990	0.960	0.870
561	87	0.999	0.992	0.967	0.888
564	88	0.999	0.994	0.976	0.911
566	89	0.999	0.995	0.980	0.923
568	90	>0.999	0.996	0.984	0.934
571	91	>0.999	0.997	0.988	0.948
574	92	>0.999	0.998	0.991	0.959
577	93	>0.999	0.999	0.994	0.968
580	94	>0.999	0.999	0.995	0.974
584	95	>0.999	0.999	0.997	0.981
589	96	>0.999	>0.999	0.998	0.987
594	97	>0.999	>0.999	0.999	0.992
602	98	>0.999	>0.999	>0.999	0.995
613	99	>0.999	>0.999	>0.999	0.990

Students in 4th grade who obtained an ISIP Math score of 507 (31st percentile rank) had a 51% probability of achieving *Basic* or higher. If 4th grade students obtained an ISIP Math score of 523 (45th percentile rank), they had a 68% probability of achieving *Basic* and a 50% probability of achieving *Proficient* or higher. If they obtained an ISIP Math score of 540 (60th percentile rank), they had a 76% probability of achieving *Proficient* and a 51% probability of achieving *Accelerated* or higher. If they obtained an ISIP Math score of 570 (82nd percentile rank), they had a 50% probability of achieving the *Advanced* level.

Table 13: Fourth Grade Students' Probability for Performance Levels 2, 3, 4, and 5 in Math

ISIP Score in December	Percentile	Basic	Proficient	Accelerated	Advanced
425	1	0.062	0.024	<0.001	<0.001
437	2	0.088	0.037	<0.001	<0.001
445	3	0.110	0.049	<0.001	<0.001
450	4	0.127	0.058	<0.001	<0.001
455	5	0.146	0.068	<0.001	<0.001
459	6	0.163	0.078	<0.001	<0.001
463	7	0.181	0.088	<0.001	<0.001
466	8	0.196	0.097	0.001	<0.001
469	9	0.212	0.107	0.001	<0.001
471	10	0.224	0.114	0.002	<0.001
474	11	0.241	0.125	0.002	<0.001
476	12	0.254	0.133	0.003	<0.001
478	13	0.267	0.141	0.003	<0.001
480	14	0.280	0.150	0.004	<0.001
482	15	0.294	0.159	0.005	<0.001
484	16	0.308	0.169	0.006	<0.001
486	17	0.323	0.179	0.007	<0.001
488	18	0.338	0.189	0.008	0.001
489	19	0.346	0.195	0.009	0.001
491	20	0.362	0.206	0.011	0.001
493	21	0.379	0.218	0.013	0.001
494	22	0.387	0.225	0.015	0.001
496	23	0.405	0.238	0.018	0.002
497	24	0.414	0.244	0.020	0.002
499	25	0.432	0.258	0.024	0.002
500	26	0.441	0.266	0.026	0.003
501	27	0.450	0.273	0.028	0.003
503	28	0.469	0.289	0.034	0.004
504	29	0.479	0.297	0.037	0.004
505	30	0.489	0.305	0.041	0.005
507	31	0.509	0.323	0.049	0.006
508	32	0.519	0.332	0.053	0.007
509	33	0.530	0.341	0.058	0.008
510	34	0.540	0.350	0.064	0.009
512	35	0.562	0.370	0.076	0.011
513	36	0.572	0.381	0.082	0.012

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514	37	0.583	0.392	0.090	0.014
515	38	0.595	0.403	0.097	0.015
516	39	0.606	0.414	0.106	0.017
518	40	0.628	0.438	0.125	0.021
519	41	0.640	0.450	0.135	0.024
520	42	0.652	0.462	0.146	0.026
521	43	0.663	0.475	0.158	0.029
522	44	0.675	0.489	0.171	0.032
523	45	0.687	0.502	0.184	0.036
524	46	0.699	0.516	0.198	0.040
526	47	0.722	0.544	0.229	0.048
527	48	0.734	0.559	0.245	0.053
528	49	0.746	0.574	0.262	0.059
529	50	0.757	0.589	0.280	0.064
530	51	0.769	0.604	0.299	0.070
531	52	0.781	0.619	0.318	0.077
532	53	0.792	0.635	0.338	0.084
534	54	0.814	0.666	0.380	0.099
535	55	0.825	0.681	0.402	0.107
536	56	0.835	0.696	0.424	0.116
537	57	0.845	0.711	0.446	0.125
538	58	0.855	0.726	0.468	0.135
539	59	0.865	0.741	0.491	0.144
540	60	0.874	0.756	0.514	0.155
542	61	0.891	0.784	0.559	0.176
543	62	0.900	0.797	0.581	0.188
544	63	0.907	0.810	0.603	0.199
545	64	0.915	0.822	0.624	0.211
546	65	0.921	0.834	0.645	0.223
547	66	0.928	0.846	0.666	0.235
549	67	0.940	0.867	0.705	0.260
550	68	0.945	0.877	0.723	0.273
551	69	0.950	0.886	0.741	0.285
552	70	0.955	0.895	0.758	0.298
554	71	0.963	0.911	0.790	0.323
555	72	0.966	0.918	0.805	0.336
556	73	0.970	0.925	0.819	0.348
558	74	0.975	0.937	0.844	0.373
559	75	0.978	0.943	0.856	0.386
561	76	0.982	0.952	0.877	0.410
562	77	0.984	0.957	0.887	0.422
563	78	0.986	0.961	0.896	0.434

565	79	0.989	0.967	0.912	0.457
567	80	0.991	0.973	0.926	0.479
568	81	0.992	0.976	0.932	0.490
570	82	0.994	0.980	0.943	0.512
572	83	0.995	0.984	0.952	0.533
573	84	0.996	0.985	0.956	0.543
575	85	0.997	0.988	0.963	0.563
577	86	0.997	0.990	0.969	0.583
579	87	0.998	0.992	0.974	0.602
581	88	0.998	0.994	0.979	0.620
583	89	0.999	0.995	0.982	0.637
586	90	0.999	0.996	0.987	0.663
588	91	0.999	0.997	0.989	0.679
591	92	>0.999	0.998	0.992	0.702
594	93	>0.999	0.998	0.994	0.724
598	94	>0.999	0.999	0.996	0.751
602	95	>0.999	0.999	0.997	0.776
606	96	>0.999	>0.999	0.998	0.799
612	97	>0.999	>0.999	0.999	0.830
619	98	>0.999	>0.999	0.999	0.861
630	99	>0.999	>0.999	>0.999	0.900

Students in 5th grade who obtained an ISIP Math score of 509 (23rd percentile rank) had a 51% probability of achieving the *Basic* level. If 5th grade students obtained an ISIP Math score of 531 (39th percentile rank), they had a 77% probability of achieving the *Basic* level and a 53% probability of reaching the *Proficient* level. If they obtained an ISIP Math score of 575 (75th percentile rank), they had a 51% probability of achieving *Accelerated* or higher. Students with scores of 619 (95th percentile rank) had a 55% probability of reaching the *Advanced* level.

Table 14: Fifth Grade Students' Probability for Performance Levels 2, 3, 4, and 5 in Math

ISIP Score in December	Percentile	Basic	Proficient	Accelerated	Advanced
435	1	0.075	0.003	<0.001	<0.001
448	2	0.105	0.007	<0.001	<0.001
456	3	0.130	0.011	0.001	<0.001
462	4	0.153	0.017	0.001	<0.001
467	5	0.175	0.023	0.002	<0.001
471	6	0.195	0.029	0.003	<0.001
474	7	0.211	0.035	0.004	<0.001
478	8	0.235	0.044	0.005	<0.001
481	9	0.254	0.053	0.006	<0.001
484	10	0.275	0.063	0.008	<0.001
486	11	0.290	0.070	0.009	<0.001
489	12	0.314	0.084	0.012	<0.001
491	13	0.331	0.093	0.014	<0.001
493	14	0.348	0.104	0.016	<0.001
495	15	0.367	0.116	0.018	<0.001
497	16	0.386	0.129	0.021	<0.001
499	17	0.406	0.144	0.025	<0.001
501	18	0.426	0.159	0.028	<0.001
503	19	0.448	0.176	0.033	<0.001
504	20	0.459	0.185	0.035	<0.001
506	21	0.481	0.204	0.040	<0.001
507	22	0.492	0.214	0.043	<0.001
509	23	0.515	0.235	0.049	<0.001
511	24	0.539	0.257	0.055	<0.001
512	25	0.551	0.268	0.059	<0.001
514	26	0.575	0.292	0.066	<0.001
515	27	0.587	0.305	0.070	<0.001
516	28	0.599	0.317	0.074	<0.001
518	29	0.623	0.344	0.083	<0.001
519	30	0.635	0.357	0.088	<0.001
520	31	0.647	0.371	0.093	<0.001
522	32	0.670	0.399	0.104	<0.001
523	33	0.682	0.413	0.109	<0.001
524	34	0.694	0.427	0.115	<0.001
526	35	0.717	0.456	0.127	<0.001
527	36	0.728	0.470	0.133	<0.001
528	37	0.739	0.485	0.139	<0.001
529	38	0.749	0.499	0.146	<0.001
531	39	0.770	0.528	0.159	<0.001
532	40	0.781	0.543	0.166	<0.001

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533	41	0.790	0.557	0.173	<0.001
534	42	0.800	0.571	0.181	<0.001
535	43	0.809	0.585	0.188	<0.001
537	44	0.827	0.613	0.203	<0.001
538	45	0.836	0.627	0.211	<0.001
539	46	0.844	0.640	0.219	<0.001
540	47	0.852	0.653	0.226	<0.001
541	48	0.860	0.666	0.234	<0.001
543	49	0.874	0.691	0.251	<0.001
544	50	0.881	0.703	0.259	<0.001
545	51	0.888	0.715	0.267	<0.001
546	52	0.894	0.726	0.275	<0.001
547	53	0.900	0.738	0.283	<0.001
548	54	0.906	0.749	0.292	<0.001
550	55	0.917	0.769	0.308	0.001
551	56	0.922	0.779	0.316	0.001
552	57	0.926	0.789	0.325	0.001
553	58	0.931	0.798	0.333	0.001
554	59	0.935	0.807	0.341	0.001
555	60	0.939	0.816	0.350	0.001
557	61	0.947	0.832	0.366	0.001
558	62	0.950	0.840	0.375	0.002
559	63	0.953	0.848	0.383	0.002
560	64	0.956	0.855	0.391	0.002
562	65	0.962	0.868	0.407	0.002
563	66	0.964	0.875	0.415	0.003
564	67	0.967	0.881	0.423	0.003
565	68	0.969	0.887	0.432	0.004
567	69	0.973	0.898	0.448	0.004
568	70	0.975	0.903	0.455	0.005
569	71	0.977	0.908	0.463	0.006
571	72	0.980	0.917	0.479	0.007
572	73	0.981	0.921	0.487	0.008
573	74	0.983	0.925	0.495	0.009
575	75	0.985	0.933	0.510	0.011
576	76	0.986	0.936	0.518	0.012
578	77	0.988	0.943	0.534	0.015
579	78	0.989	0.946	0.541	0.017
581	79	0.991	0.952	0.557	0.021
583	80	0.992	0.957	0.572	0.026
584	81	0.993	0.959	0.580	0.029
586	82	0.994	0.964	0.596	0.036
588	83	0.995	0.968	0.612	0.044
590	84	0.995	0.971	0.628	0.055
591	85	0.996	0.973	0.636	0.060

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593	86	0.996	0.976	0.652	0.074
595	87	0.997	0.979	0.669	0.090
598	88	0.998	0.983	0.695	0.120
600	89	0.998	0.985	0.714	0.144
602	90	0.998	0.987	0.732	0.172
605	91	0.999	0.990	0.761	0.222
608	92	0.999	0.992	0.790	0.281
611	93	0.999	0.994	0.820	0.349
615	94	>0.999	0.996	0.858	0.449
619	95	>0.999	0.997	0.892	0.552
623	96	>0.999	0.998	0.922	0.651
629	97	>0.999	0.999	0.955	0.775
636	98	>0.999	>0.999	0.978	0.876
648	99	>0.999	>0.999	0.994	0.960

Students in 6th grade who obtained an ISIP Math score of 537 (35th percentile rank) had a 52% probability of reaching the *Basic* level. Students with scores of 567 (59th percentile rank) had an 85% probability of achieving *Basic* and a 50% probability of reaching *Proficient* or higher. Students with scores of 613 (88th percentile rank) had a 53% probability of reaching the *Accelerated* level, and students with scores of 621 had a 56% probability of achieving the *Advanced* level.

Table 15: Sixth Grade Students' Probability for Performance Levels 2, 3, 4, and 5 in Math

ISIP Score in December	Percentile	Basic	Proficient	Accelerated	Advanced
440	1	0.012	0.001	<0.001	<0.001
453	2	0.021	0.002	<0.001	<0.001
462	3	0.031	0.003	<0.001	<0.001
468	4	0.040	0.004	<0.001	<0.001
474	5	0.052	0.006	<0.001	<0.001
478	6	0.061	0.008	<0.001	<0.001
482	7	0.072	0.010	<0.001	<0.001
486	8	0.085	0.013	<0.001	<0.001
489	9	0.097	0.016	<0.001	<0.001
492	10	0.109	0.019	<0.001	<0.001
495	11	0.123	0.023	<0.001	<0.001
497	12	0.134	0.026	<0.001	<0.001
500	13	0.150	0.031	<0.001	<0.001
502	14	0.163	0.034	0.001	<0.001
504	15	0.176	0.039	0.001	<0.001
506	16	0.190	0.043	0.001	<0.001
508	17	0.205	0.049	0.001	<0.001
510	18	0.221	0.055	0.001	<0.001
512	19	0.238	0.061	0.001	<0.001
514	20	0.255	0.068	0.002	<0.001
516	21	0.274	0.076	0.002	<0.001
517	22	0.284	0.080	0.002	<0.001
519	23	0.304	0.089	0.002	<0.001
521	24	0.325	0.098	0.003	<0.001
522	25	0.336	0.103	0.003	<0.001
524	26	0.358	0.114	0.004	<0.001
525	27	0.370	0.120	0.004	<0.001
527	28	0.393	0.132	0.005	<0.001
528	29	0.405	0.138	0.005	<0.001
530	30	0.430	0.151	0.006	<0.001
531	31	0.442	0.158	0.006	<0.001
533	32	0.467	0.172	0.007	<0.001
534	33	0.480	0.180	0.008	<0.001
535	34	0.493	0.188	0.008	<0.001
537	35	0.518	0.204	0.009	<0.001
538	36	0.531	0.212	0.010	<0.001
539	37	0.544	0.221	0.011	<0.001
541	38	0.570	0.238	0.012	<0.001
542	39	0.582	0.247	0.013	<0.001
543	40	0.595	0.256	0.014	<0.001

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544	41	0.608	0.266	0.015	<0.001
546	42	0.633	0.285	0.017	<0.001
547	43	0.645	0.294	0.018	<0.001
548	44	0.657	0.304	0.019	<0.001
550	45	0.681	0.324	0.022	0.001
551	46	0.692	0.334	0.023	0.001
552	47	0.704	0.344	0.024	0.001
553	48	0.715	0.355	0.026	0.001
555	49	0.737	0.375	0.029	0.001
556	50	0.747	0.386	0.031	0.001
557	51	0.758	0.396	0.032	0.001
558	52	0.768	0.406	0.034	0.002
559	53	0.778	0.417	0.036	0.002
561	54	0.796	0.438	0.040	0.002
562	55	0.805	0.448	0.042	0.003
563	56	0.814	0.458	0.045	0.003
564	57	0.823	0.469	0.047	0.003
566	58	0.839	0.489	0.052	0.004
567	59	0.846	0.500	0.055	0.005
568	60	0.854	0.510	0.058	0.005
570	61	0.868	0.530	0.064	0.006
571	62	0.875	0.540	0.067	0.007
572	63	0.881	0.550	0.071	0.008
573	64	0.887	0.560	0.074	0.009
575	65	0.899	0.579	0.082	0.011
576	66	0.904	0.589	0.086	0.013
577	67	0.909	0.599	0.091	0.014
579	68	0.919	0.617	0.100	0.018
580	69	0.923	0.627	0.105	0.020
582	70	0.932	0.645	0.116	0.024
583	71	0.936	0.654	0.122	0.027
584	72	0.940	0.664	0.129	0.030
586	73	0.947	0.682	0.142	0.037
587	74	0.950	0.690	0.150	0.041
589	75	0.956	0.708	0.166	0.050
590	76	0.959	0.717	0.174	0.055
592	77	0.964	0.734	0.193	0.067
594	78	0.969	0.751	0.214	0.082
595	79	0.971	0.760	0.225	0.090
597	80	0.975	0.776	0.249	0.108
599	81	0.978	0.793	0.276	0.129
600	82	0.980	0.801	0.290	0.141
602	83	0.983	0.817	0.321	0.167
604	84	0.985	0.833	0.354	0.197
606	85	0.988	0.849	0.390	0.230

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608	86	0.990	0.864	0.428	0.267
610	87	0.992	0.879	0.467	0.307
613	88	0.994	0.899	0.529	0.372
615	89	0.995	0.912	0.571	0.418
618	90	0.996	0.930	0.634	0.489
621	91	0.998	0.945	0.694	0.559
624	92	0.998	0.958	0.749	0.627
627	93	0.999	0.968	0.798	0.689
631	94	0.999	0.979	0.852	0.762
635	95	>0.999	0.986	0.894	0.821
640	96	>0.999	0.992	0.933	0.877
646	97	>0.999	0.996	0.962	0.924
653	98	>0.999	0.998	0.980	0.957
665	99	>0.999	>0.999	0.994	0.984

Students in 7th grade who obtained an ISIP Math score of 549 (38th percentile rank) had a 50% probability of reaching the *Basic* level or higher. If 7th grade students obtained an ISIP Math score of 574 (56th percentile rank), they had a 73% probability of reaching the *Basic* level and a 51% probability of reaching proficient. If they obtained an ISIP Math score of 639 (92nd percentile rank), they had a 50% probability of achieving *Accelerated* or higher. Students with an ISIP Math score of 683 (99th percentile rank) had a 50% probability of achieving the *Advanced* level.

Table 16: Seventh Grade Students' Probability for Performance Levels 2, 3, 4, and 5 in Math

ISIP Score in December	Percentile	Basic	Proficient	Accelerated	Advanced
440	1	0.040	0.003	<0.001	<0.001
455	2	0.057	0.006	<0.001	<0.001
464	3	0.071	0.009	<0.001	<0.001
471	4	0.084	0.013	<0.001	<0.001
477	5	0.097	0.016	<0.001	<0.001
482	6	0.109	0.020	0.001	<0.001
486	7	0.120	0.024	0.001	<0.001
490	8	0.133	0.029	0.001	<0.001
493	9	0.143	0.033	0.001	<0.001
496	10	0.153	0.037	0.002	<0.001
499	11	0.165	0.042	0.002	<0.001
502	12	0.178	0.048	0.002	<0.001
505	13	0.191	0.054	0.003	<0.001
507	14	0.200	0.059	0.003	<0.001
510	15	0.215	0.067	0.004	<0.001
512	16	0.226	0.072	0.004	<0.001
514	17	0.237	0.078	0.005	<0.001
516	18	0.248	0.085	0.005	<0.001
518	19	0.260	0.092	0.006	<0.001
520	20	0.272	0.099	0.007	<0.001
522	21	0.285	0.107	0.008	<0.001
524	22	0.299	0.116	0.009	<0.001
526	23	0.312	0.125	0.010	<0.001
528	24	0.327	0.134	0.011	<0.001
529	25	0.334	0.139	0.012	<0.001
531	26	0.349	0.150	0.013	<0.001
533	27	0.365	0.161	0.014	<0.001
534	28	0.373	0.167	0.015	<0.001
536	29	0.389	0.179	0.017	<0.001
538	30	0.405	0.192	0.019	<0.001
539	31	0.414	0.198	0.020	<0.001
541	32	0.431	0.212	0.022	<0.001
542	33	0.440	0.219	0.023	<0.001
544	34	0.457	0.233	0.026	<0.001
545	35	0.466	0.241	0.027	<0.001
547	36	0.484	0.256	0.030	<0.001

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548	37	0.493	0.264	0.032	<0.001
549	38	0.503	0.273	0.033	<0.001
551	39	0.521	0.289	0.037	<0.001
552	40	0.530	0.298	0.039	<0.001
554	41	0.549	0.315	0.042	<0.001
555	42	0.558	0.324	0.045	<0.001
556	43	0.568	0.333	0.047	<0.001
558	44	0.587	0.352	0.051	<0.001
559	45	0.596	0.361	0.053	<0.001
560	46	0.605	0.370	0.056	<0.001
562	47	0.624	0.390	0.061	<0.001
563	48	0.633	0.399	0.064	<0.001
564	49	0.642	0.409	0.066	<0.001
566	50	0.660	0.429	0.072	0.001
567	51	0.669	0.438	0.075	0.001
568	52	0.678	0.448	0.078	0.001
570	53	0.696	0.468	0.085	0.001
571	54	0.704	0.478	0.088	0.001
573	55	0.721	0.498	0.095	0.001
574	56	0.730	0.508	0.099	0.001
575	57	0.738	0.518	0.102	0.001
577	58	0.754	0.538	0.110	0.001
578	59	0.762	0.548	0.114	0.001
579	60	0.770	0.558	0.118	0.002
581	61	0.785	0.577	0.127	0.002
582	62	0.792	0.587	0.131	0.002
583	63	0.799	0.596	0.136	0.002
585	64	0.813	0.615	0.145	0.003
586	65	0.819	0.624	0.149	0.003
588	66	0.832	0.643	0.159	0.003
589	67	0.838	0.652	0.164	0.003
591	68	0.850	0.669	0.174	0.004
592	69	0.856	0.678	0.179	0.004
594	70	0.867	0.695	0.190	0.005
595	71	0.872	0.703	0.195	0.005
597	72	0.882	0.719	0.207	0.006
598	73	0.887	0.727	0.212	0.007
600	74	0.896	0.742	0.224	0.008
601	75	0.901	0.750	0.230	0.008
603	76	0.909	0.764	0.242	0.009
605	77	0.917	0.778	0.254	0.011
607	78	0.924	0.791	0.267	0.012

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608	79	0.927	0.798	0.273	0.013
610	80	0.934	0.810	0.286	0.015
612	81	0.940	0.822	0.299	0.017
614	82	0.945	0.833	0.313	0.019
616	83	0.950	0.844	0.326	0.022
618	84	0.955	0.854	0.340	0.025
620	85	0.959	0.864	0.354	0.028
622	86	0.963	0.873	0.369	0.031
625	87	0.969	0.886	0.391	0.038
627	88	0.972	0.894	0.406	0.042
630	89	0.976	0.905	0.429	0.050
633	90	0.980	0.915	0.452	0.060
636	91	0.983	0.925	0.476	0.071
639	92	0.986	0.933	0.501	0.083
642	93	0.988	0.941	0.525	0.097
646	94	0.991	0.950	0.559	0.120
651	95	0.993	0.960	0.601	0.153
656	96	0.995	0.968	0.644	0.192
662	97	0.997	0.977	0.695	0.248
670	98	0.998	0.985	0.760	0.337
683	99	0.999	0.993	0.852	0.500

Students in 8th grade who obtained an ISIP Math score of 546 (30th percentile rank) had a 50% probability of achieving *Basic* or higher. If 8th grade students obtained an ISIP Math score of 568 (44th percentile rank), they had a 50% probability of achieving *Proficient*, and students with scores of 630 (83rd percentile rank) had a 50% probability of achieving *Accelerated* or higher. We did not have enough information to compute Ohio AIR Math performance level 5 using this data set.

Table 17: Eighth Grade Students' Probability for Performance Levels 2, 3, 4, and 5 in Math

ISIP Score in December	Percentile	Basic	Proficient	Accelerated	Advanced
440	1	0.055	0.006	<0.001	<0.001
456	2	0.077	0.011	<0.001	<0.001
466	3	0.095	0.017	<0.001	<0.001
474	4	0.113	0.023	<0.001	<0.001
480	5	0.128	0.030	<0.001	<0.001
485	6	0.143	0.036	<0.001	<0.001
490	7	0.160	0.044	<0.001	<0.001
494	8	0.174	0.052	<0.001	<0.001
498	9	0.190	0.061	<0.001	<0.001
501	10	0.203	0.068	<0.001	<0.001
504	11	0.217	0.076	<0.001	<0.001
507	12	0.232	0.085	<0.001	<0.001
510	13	0.247	0.095	<0.001	<0.001
513	14	0.264	0.106	0.001	<0.001
516	15	0.281	0.117	0.001	<0.001
518	16	0.293	0.126	0.001	<0.001
520	17	0.306	0.135	0.001	<0.001
523	18	0.325	0.149	0.001	<0.001
525	19	0.339	0.160	0.001	<0.001
527	20	0.353	0.171	0.002	<0.001
529	21	0.367	0.182	0.002	<0.001
531	22	0.382	0.194	0.002	<0.001
533	23	0.397	0.207	0.002	<0.001
535	24	0.413	0.220	0.003	<0.001
537	25	0.429	0.233	0.003	<0.001
539	26	0.445	0.247	0.004	<0.001
541	27	0.461	0.262	0.005	<0.001
542	28	0.470	0.270	0.005	<0.001
544	29	0.487	0.285	0.006	<0.001
546	30	0.504	0.301	0.006	<0.001
547	31	0.512	0.310	0.007	<0.001
549	32	0.529	0.326	0.008	<0.001
551	33	0.547	0.343	0.009	<0.001
552	34	0.556	0.352	0.010	<0.001
554	35	0.573	0.370	0.011	<0.001
555	36	0.582	0.379	0.012	<0.001
557	37	0.599	0.397	0.014	<0.001
559	38	0.617	0.416	0.016	<0.001
560	39	0.625	0.425	0.017	<0.001
562	40	0.642	0.444	0.020	<0.001

ISIP™ and Ohio AIR Linking Study

563	41	0.651	0.453	0.021	<0.001
565	42	0.668	0.472	0.024	<0.001
566	43	0.676	0.482	0.025	0.001
568	44	0.693	0.501	0.029	0.001
569	45	0.701	0.511	0.031	0.001
571	46	0.717	0.530	0.035	0.001
572	47	0.725	0.540	0.037	0.001
573	48	0.733	0.549	0.039	0.001
575	49	0.748	0.568	0.045	0.001
576	50	0.756	0.578	0.047	0.001
578	51	0.771	0.597	0.053	0.001
579	52	0.778	0.606	0.056	0.002
581	53	0.792	0.625	0.063	0.002
582	54	0.799	0.634	0.067	0.002
584	55	0.812	0.652	0.075	0.002
585	56	0.819	0.661	0.079	0.002
586	57	0.825	0.670	0.083	0.003
588	58	0.837	0.687	0.093	0.003
589	59	0.843	0.696	0.098	0.003
591	60	0.855	0.713	0.109	0.004
592	61	0.860	0.721	0.114	0.004
594	62	0.871	0.737	0.126	0.005
595	63	0.876	0.745	0.133	0.005
597	64	0.886	0.761	0.146	0.006
598	65	0.891	0.768	0.154	0.006
600	66	0.900	0.783	0.169	0.007
601	67	0.904	0.791	0.177	0.008
603	68	0.912	0.805	0.193	0.009
605	69	0.920	0.818	0.211	0.010
606	70	0.924	0.825	0.220	0.011
608	71	0.931	0.837	0.240	0.012
610	72	0.938	0.849	0.260	0.014
611	73	0.941	0.855	0.270	0.015
613	74	0.947	0.867	0.292	0.017
615	75	0.952	0.877	0.314	0.019
616	76	0.955	0.882	0.326	0.020
618	77	0.959	0.892	0.350	0.022
620	78	0.964	0.902	0.374	0.025
622	79	0.968	0.910	0.399	0.028
624	80	0.971	0.918	0.424	0.031
626	81	0.975	0.926	0.450	0.034
628	82	0.978	0.933	0.475	0.037
630	83	0.980	0.940	0.501	0.041
632	84	0.983	0.946	0.527	0.045
635	85	0.986	0.954	0.565	0.051

637	86	0.988	0.959	0.590	0.056
640	87	0.990	0.965	0.627	0.063
642	88	0.992	0.969	0.650	0.068
645	89	0.993	0.974	0.684	0.076
648	90	0.995	0.979	0.716	0.085
651	91	0.996	0.982	0.746	0.094
654	92	0.997	0.986	0.774	0.103
658	93	0.998	0.989	0.808	0.117
662	94	0.998	0.992	0.838	0.131
667	95	0.999	0.994	0.870	0.149
672	96	0.999	0.996	0.896	0.169
679	97	>0.999	0.998	0.925	0.198
688	98	>0.999	0.999	0.952	0.238
701	99	>0.999	>0.999	0.975	0.302

Implications

The scale score of 700 is considered a *Proficient* score across grade levels in both Ohio AIR ELA and Ohio AIR Math assessments. The projected ISIP Reading cut scores for achieving proficiency with a probability of 0.5 are as follows: 242 (47th percentile rank) for 3rd grade; 1,992 (61st percentile rank) for 4th grade; 1,952 (48th percentile rank) for 5th grade; 2,153 (75th percentile rank) for 6th grade; 2,182 (55th percentile rank) for 7th grade; and 2,335 (66th percentile rank) for 8th grade. Third and 5th grade students need to score near the 50th percentile to be able to achieve *Proficient*. Fourth and 7th grade students need to score near the 60th percentile, 6th grade students need to score near the 75th percentile, and 8th grade students need to score near the 70th percentile to achieve the *Proficient* level on the Ohio AIR ELA assessment.

For ISIP Math, the projected ISIP Math cut scores for achieving Ohio AIR Math *Proficient* or above with greater than 50% probability are as follows: 500 (40th percentile rank) for 3rd grade; 523 (45th percentile rank) for 4th grade; 531 (39th percentile rank) for 5th grade; 567 (59th percentile rank) for 6th grade; 754 (56th

percentile rank) for 7th grade; and 568 (44th percentile rank) for 8th grade. Third and 5th grade students need to score near the 40th percentile, 4th and 8th grade students need to score near the 45th percentile, and 6th and 7th grade students need to score near the 60th percentile to achieve the *Proficient* level or above.

Conclusions

These results provide useful information for school administrators, superintendents, teachers, and parents who will be able to use ISIP scores as well as percentile ranks to predict students' performance on the Ohio AIR ELA and Ohio AIR Math state tests. Also, teachers can use ISIP scores to encourage students to improve their reading and math abilities in order to achieve desired performance levels for proficiency in reading and math.

However, it must be understood that the results are assessment and grade-level specific. The generalizability of results can be limited. The sample in this study came from one school district. The reading and math abilities in this district are generally lower than state mean scores for reading and math in the 2018-2019 school year. Different sample sets may show different results. Complete certainty of achieving proficiency on the Ohio AIR ELA and Ohio AIR Math tests is unknown. There are many other factors that may affect students' scores besides their reading and math abilities. For example, if a student has a physical issue (e.g., sickness or stress) before or during the state test, he or she may or may not pass, despite having achieved the ISIP cut score. Finally, this study used ISIP scores from the middle-of-the-year benchmarking month, which is about three months before the state test in the spring. It must be understood

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that students need to continue improving their reading and math abilities until they take the assessments in the spring.

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