



Special School District

INSTRUCTIONAL EFFECTIVENESS ***Technical Education*** **Program Evaluation**

Michael B. Rogg, Chair

Board Approved: April 26, 2011



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Executive Summary

As required by the Missouri School Improvement Plan (MISP) standards, School districts must evaluate Curriculum biennially. The focus of the present report is: *What do student outcomes as measured by District assessments and student data indicate about instructional effectiveness?* Based on stakeholder review of the data, strengths, concerns and recommendations are noted.

Strengths

- There is a pattern of increased achievement for students administered Reading, Math and Locating Information assessments of WorkKeys from the junior to the senior class; however, this is not a universally consistent pattern. . WorkKeys is the workforce readiness assessment of American College Testing (ACT). <http://www.act.org/workkeys/>
- There are obvious differences in initial test scores from one entering class of juniors to the next which accounts for differences from year to year in the percentages at each Level.
- With the notable exception of the 2007-2008 senior class at North Tech, there is a general decrease in the Level 0 numbers; Level 0 defined as students who were not administered the test.

Concerns

- It is difficult to determine instructional effectiveness from WorkKeys scores alone since the ability of each entering junior class varies so much from year to year. Current assessment schedule does not provide for fully realizing the potential of WorkKeys and Keytrain to impact Student workplace preparation due to the narrow scope of WorkKeys assessments employed; currently 3 of 9 Foundation Skills areas are administered. Keytrain helps build reading and math skills and is aligned to the WorkKeys assessment.
- Timing of the administration of assessments continues to be a challenge; only Students enrolled during Year 10 have the opportunity to access Keytrain™ online software prior to entering a Technical Program.
- Measurement of student performance on postsecondary assessment tests, as a part of the assessment plan, is limited.

Recommendation

- Implement the Keytrain assessment and remediation software that is directly tied to WorkKeys skill level attainment.
 - Juniors will take the Keytrain pretests and work from the WorkKeys level they scored; Seniors will continue to work through Keytrain to strengthen skills in Applied Math, Locating Information, and Reading for Information.
 - Seniors will take the full WorkKeys assessment in those three areas during their senior year.
- Continue to merge WorkKeys data with the new Student Information System (SIS) database in order to provide disaggregated data in the future.



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- Continue using Continuous Classroom Improvement Teaching strategies as the primary vehicle for improvement of reading and instruction.
- Pilot the administration of COMPASS Assessment of ACT to effect seamless student matriculation into postsecondary technical programs.
- Increase the scope of WorkKeys Foundation Skill areas assessments administered.
- Implement increased frequency of vocational classroom progress monitoring instruments to supplement Keytrain instruction and WorkKeys testing.

Program Evaluation Question(s)

What do student outcomes as measured by district assessments and student data indicate about instructional effectiveness?

I. Program/Service Information

1. Name of Program or Services: Instructional Effectiveness
2. Personnel Responsible for Evaluation and Program:
Michael B. Rogg, Director Career and Technical Education
3. Demographic Description of Program:

Location(s)	North Tech/South Tech
Number of staff:	210
Participants:	2160 Students
Length of program/service:	2007-2010
4. Date of Evaluation (Year/Duration):
April 05, 2011
5. Goal/Objective of Program/Services:
Provide academic and technical skill acquisition.
6. Brief description of relationship between program goals, CSIP and MSIP Standards:
MSIP Standard 6.2.1 requires that districts use a variety of assessment data (e.g., longitudinal, demographic, disaggregated, diagnostic, surveys, etc.) to support district-wide decisions about curriculum and instruction. MSIP Standard 8.1 requires that school districts evaluate instructional effectiveness at least biennially. Goal 1 of CSIP is directed at improvement of student progress in academic skill attainment.



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II. Evaluation Criteria for Programs/Services Offered

WorkKeys
STAR

III. Description of Stakeholders Engagement in Program Evaluation:

Technical Education staff that assesses the status of student skill acquisition is listed below. Activities include on-going assessment of the WorkKeys exams and periodic assessment of the STAR data and the analysis of those assessment results.

Name	Role
Michael B. Rogg	Chair
Randy Barnes	Program Evaluation
Mike Powers	Principal, North Tech
Dave Baker	Principal, South Tech
Shane Trafton	Administrator, Curriculum & Instruction
Kirsta Armstead	Assessment Facilitator, North Tech
Jill Wolken	Assessment Facilitator, South Tech

IV. Results

WorkKeys Data

WorkKeys is an ACT instrument which measures academic skills relative to practical skills necessary to be successful in real-world employment. WorkKeys is administered as a pre-test to 11th graders in the fall semester and then as a post-test to 12th graders in the spring semester. WorkKeys has been used in the tech schools for approximately ten years. There are nine (9) Foundational Skills tests available, but the three most often used are (1) Applied Mathematics, (2) Reading for Information and (3) Locating Information. Applied Mathematics is measured on five skills levels, ranging from Level 3 (the least complex) to Level 7 (the most complex). Reading for Information is measured on the same five levels; however, Locating Information is measured only on Levels 3 through 6. The number of students reported at “0” indicates those students did not complete that particular assessment.

The Appendix provides a list of the various WorkKeys tests and contains a brief description of each of the three tests noted above. Each description is followed by the Characteristics/Skills required for each Level that is measured.

WorkKeys Foundation Skills requirements have been established as job specific through workplace and job analysis, by ACT, to determine if students have the necessary mastery of these skill areas to be successful in the workplace. Each program area has a correlating minimum skill level established as an indicator for workplace success; students not meeting the level of mastery of skills for their program area may use KeyTrain as a developmental tool to improve mastery of their foundation skills.



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In the following tables the “Index” column is calculated by multiplying the “Level” times the percentage of students scoring at that level. For example, if 50% of students scored at level 4, then the Index would be 50 x 4 = 200. The total Index score increases as students move from lower level into higher levels. This method is used by the Department of Elementary and Secondary Education (DESE) to make year to year comparisons of assessment data as outlined in *Understanding Your Annual Performance Report (APR) 2010-2011* which may be referenced at <http://dese.mo.gov/divimprove/sia/dar/understandingyourAPR.pdf>.

Tables 1 & 2: North Tech – Applied Mathematics

Table 1: Juniors – Applied Mathematics

	2006-2007			2007-2008			2008-2009			2009-2010		
Level	n	%	Index	n	%	Index	n	%	Index	n	%	Index
0	25	4.9	0	19	3.8	0	37	8.0	0	6	1.4	0
2	87	17	34	86	17.0	34	56	12.1	24	68	15.9	32
3	161	31.4	94	168	33.2	100	138	29.9	90	91	21.3	64
4	145	28.3	113	141	27.9	111	127	27.5	110	149	34.8	139
5	65	12.7	64	71	14.0	70	80	17.4	87	95	22.2	111
6	25	4.9	29	20	4.0	24	21	4.6	27	19	4.4	26
7	4	0.8	6	1	0.2	1	2	0.4	3	0	0	0
total	512	100	340	506	100	340	461	100	341	428	100	372

Table 2: Seniors– Applied Mathematics

	2006-2007			2007-2008			2008-2009			2009-2010		
Level	n	%	Index	n	%	Index	n	%	Index	n	%	Index
0	20	7.1685	0	58	18.0	0	10	2.7027	0	5	1.5	0
2	40	14.337	29	35	10.8	22	43	11.622	23	53	15.6	31
3	65	23.297	70	66	20.4	61	101	27.297	82	89	26.2	79
4	75	26.882	108	89	27.6	110	107	28.919	116	95	27.9	112
5	51	18.28	91	45	13.9	70	88	23.784	119	78	22.9	115
6	25	8.9606	54	29	9.0	54	20	5.4054	32	19	5.6	34
7	3	1.0753	8	1	0.3	2	1	0.2703	2	1	0.3	2
totals	279	100	359	323	100	319	370	100	374	340	100	372

The Index, the percent of Students scoring at any Level, multiplied by that the number associated with that Level, is established and included to identify overall trend(s) in student performance. Table 1: Junior scores were very consistent for 2006-2007, 2007-2008, 2008-2009 (340, 340 and 341 respectively) before increasing to 373 in 2009-2010. Table 2: Seniors scores, after falling from 359 in 2006-2007 to 319 in 2007-2008, rose to 374 in 2008-2009 then held steady at 372 for the 2009-2010 Academic Year.



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Tables 3 & 4: North Tech – Reading for Information

Table 3: Juniors – Reading for Information

	2006-2007			2007-2008			2008-2009			2009-2010		
Level	n	%	Index	n	%	Index	n	%	Index	n	%	Index
0	26	5.1	0	39	7.6	0	21	4.4	0	7	1.6	0
2	52	10.2	20	56	11.0	22	24	5.0	10	12	2.8	6
3	64	12.5	38	64	12.5	38	40	8.3	25	29	6.8	20
4	243	47.5	190	241	47.3	189	239	49.7	199	191	44.6	179
5	101	19.7	99	84	16.5	82	115	23.9	120	167	39.0	195
6	25	4.9	29	25	4.9	29	37	7.7	46	22	5.1	31
7	1	0.2	1	1	0.2	1	5	1.0	7	0	0.0	0
totals	512	100	377	510	100	362	481	100	407	428	100	430

Table 4: Seniors – Reading for Information

	2006-2007			2007-2008			2008-2009			2009-2010		
Level	n	%	Index	n	%	Index	n	%	Index	n	%	Index
0	21	7.5	0	57	17.6	0	6	1.6	0	6	1.8	0
2	15	5.4	11	26	8.0	16	35	9.5	19	24	7.1	14
3	43	15.4	46	35	10.8	33	39	10.5	32	29	8.5	26
4	131	47.0	188	142	44.0	176	173	46.8	187	163	47.9	192
5	44	15.8	79	41	12.7	63	82	22.2	111	92	27.1	136
6	21	7.5	45	22	6.8	41	28	7.6	45	22	6.5	39
7	4	1.4	10	0	0.0	0	7	1.9	13	4	1.2	8
total	279	100	379	323	100	329	370	100	407	340	100	414

Students demonstrated relatively consistent scores throughout each reporting period (i.e. 2008-2009 juniors / 2009-2010 seniors). In 2008-2009 and 2009-2010, students in the junior class demonstrated skills at Levels 5, 6, and 7 that are fairly consistent. Seniors scoring at the lower levels decrease in 2006-2007 and are maintained in following years. The number of seniors at Level 0 significantly decreases in years 2008-2009 and 2009-2010. Students in the senior class demonstrated increases, and maintained those increases, at Levels 4, 5, and 6 during the same time period. Table 3: Junior scores, after dipping lower from 377 in 2006-2007 to 362 in 2007-2008, have risen to 407 in 2008-2009 and to 430 in 2009-2010. Table 4, Senior scores after falling from 379 in 2006-2007 to 329 in 2007-2008, rose to 407 in 2008-2009 then again to 414 in the 2009-2010 Academic Year.



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Tables 5 & 6: North Tech – Locating Information

Table 5: Juniors – Locating Information

Level	2006-2007			2007-2008			2008-2009			2009-2010		
	n	%	Index	n	%	Index	n	%	Index	n	%	Index
0	25	4.9	0	18	3.5	0	34	7.1	0	9	2.1	0
2	138	27.0	54	140	27.5	55	93	19.3	39	47	11.0	22
3	166	32.4	97	174	34.2	103	119	24.7	74	156	36.4	109
4	153	29.9	120	160	31.4	126	208	43.2	173	199	46.5	186
5	30	5.9	29	17	3.3	17	27	5.6	28	17	4.0	20
6	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0	0
total	512	100	300	509	100	300	481	100	314	428	100	337

Table 6: Seniors – Locating Information

Level	2006-2007			2007-2008			2008-2009			2009-2010		
	n	%	Index	n	%	Index	n	%	Index	n	%	Index
0	16	5.7	0	27	8.4	0	46	12.4	0	6	1.8	0
2	44	15.6	31	50	15.5	31	45	12.2	24	64	18.8	38
3	78	27.7	83	75	23.3	70	84	22.7	68	77	22.6	68
4	124	44.0	176	133	41.3	165	172	46.5	186	173	50.9	204
5	18	6.4	32	37	11.5	57	23	6.2	31	19	5.6	28
6	2	0.7	4	0	0.0	0	0	0.0	0	1	0.3	2
total	282	100	326	322	100	324	370	100	309	340	100	339

Table 5: Juniors; Scores were consistent for 2006-2007 and 2007-2008 at 300, then rose gradually to 314 in 2008-2009 to 337 in 2009-2010. Table 6, Seniors; Indexes declining slightly from 326 in 2006-2007 to 324 in 2007-2008, then again to 309 in 2008-2009 before increasing to 339 for the 2009-2010 Academic Year.



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Tables 7 & 8: South Tech – Applied Mathematics

Table 7: Juniors – Applied Mathematics

Level	2006-2007			2007-2008			2008-2009			2009-2010		
	n	%	Index	n	%	Index	n	%	Index	n	%	Index
0	49	13.4	0	0	0.0	0	2	0.6	0	15	3.2	0
2	0	0.0	0	29	9.5	19	42	13.6	27	75	15.9	32
3	87	23.8	71	99	32.5	97	88	28.5	85	75	15.9	48
4	114	31.1	124	83	27.2	109	97	31.4	126	154	32.6	130
5	88	24.0	120	71	23.3	116	63	20.4	102	125	26.4	132
6	24	6.6	40	22	7.2	43	16	5.2	31	27	5.7	34
7	4	1.1	8	1	0.3	2	1	0.3	2	2	0.4	3
totals	366	100	363	305	100	387	309	100	373	473	100	379

Table 8: Seniors – Applied Mathematics

Level	2006-2007			2007-2008			2008-2009			2009-2010		
	n	%	Index	n	%	Index	n	%	Index	n	%	Index
0	23	8.6	0	0	0.0	0	3	1.1	0	4	1.5	0
2	0	0	0	27	11.2	22	26	9.6	19	36	13.6	27
3	51	19.1	57	52	21.5	64	65	24.0	72	72	27.2	82
4	91	34.1	136	80	33.1	132	72	26.6	106	54	20.4	82
5	74	27.7	139	61	25.2	126	73	26.9	135	75	28.3	142
6	26	9.7	58	18	7.4	45	31	11.4	69	21	7.9	47
7	2	0.7	5	4	1.7	12	1	0.4	3	3	1.1	8
totals	267	100	395	242	100	401	271	100	403	265	100	387

Table 7: Juniors’ Index rose from 363 for 2006-2007 to 387 in 2007-2008 before declining to 373 in 2008-2009; the Index increased to 379 in 2009-2010. Table 8, Seniors’ Index scores increased from 395 in 2006-2007 to 401 in 2007-2008, and again increased to 403 in 2008-2009. The Index declined to 387 for the 2009-2010 Academic Year.



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Tables 9 & 10: South Tech – Reading for Information

Table 9: Juniors – Reading for Information

	2006-2007			2007-2008			2008-2009			2009-2010		
Level	n	%	Index	N	%	Index	n	%	Index	n	%	Index
0	37	10.1	0	0	0.0	0	3	1.0	0	5	1.1	0
2	0	0.0	0	30	9.8	20	30	9.7	19	43	9.1	18
3	53	14.5	44	37	12.1	36	32	10.4	31	47	9.9	30
4	140	38.4	153	127	41.5	166	146	47.4	190	188	39.7	159
5	107	29.3	147	92	30.1	150	80	26.0	130	165	34.9	175
6	24	6.6	39	14	4.6	27	14	4.5	27	23	4.9	29
7	4	1.1	8	6	2.0	14	3	1.0	7	2	0.4	3
total	365	100	391	306	100	413	308	100	404	473	100	413

Table 10: Seniors – Reading for Information

	2006-2007			2007-2008			2008-2009			2009-2010		
Level	n	%	Index	N	%	Index	n	%	Index	n	%	Index
0	14	5.2	0	0	0.0	0	5	1.8	0	13	4.9	0
2	0	0.0	0	18	7.4	15	28	10.3	21	33	12.5	25
3	23	8.6	26	30	12.4	37	29	10.7	32	33	12.5	38
4	94	35.2	141	97	40.1	160	95	35.1	140	98	36.9	148
5	91	34.1	171	73	30.2	151	91	33.6	168	57	21.5	108
6	41	15.4	92	21	8.7	52	20	7.4	44	29	10.9	65
7	4	1.5	11	3	1.2	9	3	1.1	8	2	0.7	5
totals	267	100	440	242	100	424	271	100	413	265	100	388

Table 9, Juniors, Indexes have held relatively steady during the period reviewed beginning at 391 for 2006-2007, increasing to 413 in 2007-2008, dipping to 404 in 2008-2009 before increasing again to 413 in 2009-2010. Table 10, Seniors; Indexes declined from 440 in 2006-2007 to 424 in 2007-2008, 413 in 2008-2009, and to 388 for 2009-2010.



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Tables 11 & 12: South Tech – Locating Information

Table 11: Juniors – Locating Information

	2006-2007			2007-2008			2008-2009			2009-2010		
Level	n	%	Index	N	%	Index	n	%	Index	n	%	Index
0	55	15.1	0	0	0.0	0	1	0.3	0	12	2.5	0
2	0	0.0	0	70	22.9	46	36	11.7	23	72	15.2	30
3	87	23.8	72	75	24.5	74	97	31.4	94	158	33.4	100
4	198	54.2	217	134	43.8	175	162	52.4	210	219	46.3	185
5	25	6.8	34	26	8.5	42	13	4.2	21	12	2.5	13
6	0	0.0	0	1	0.3	2	0	0	0	0	0	0
totals	365	100	323	306	100	339	309	100	348	473	100	328

Table 12: Seniors – Locating Information

	2006-2007			2007-2008			2008-2009			2009-2010		
Level	n	%	Index	N	%	Index	n	%	Index	n	%	Index
0	73	23.6	0	0	0.0	0	5	1.8	0	13	4.9	0
2	0	0.0	0	28	11.6	23	15	5.5	11	43	16.2	32
3	111	35.9	108	55	22.7	68	94	34.7	104	61	23.0	69
4	121	39.2	157	143	59.1	236	138	50.9	204	134	50.5	202
5	4	1.3	7	16	6.6	33	18	6.6	33	14	5.3	27
6	0	0.0	0	0	0.0	0	1	0.4	2	0	0.0	0
totals	309	100	271	242	100	361	271	100	354	265	100	330

Interpretation/summary of Tables 11 & 12:

Table 11, Juniors' Index for 2006-2007 was 323 increasing to 339 in 2007-2008 and 348 in 2008-2009 before declining to 328 in 2009-2010. Table 12, Seniors' Index increased markedly from 271 in 2006-2007 to 361 in 2007-2008, declined to 354 in 2008-2009 and then declined to 330 for the 2009-2010 Academic Year.



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STAR Data

The North and South Technical Schools began using STAR as a periodic assessment in the fall of 2007 with it being fully implemented across all three grade levels in the fall of 2008. STAR measures student achievement in mathematics and reading. The STAR assessments are meant to supplement the WorkKeys data. When a student demonstrated grade level skill in Reading and Math as assessed by this instrument, they were not required to participate in subsequent administrations.

SOUTH TECH

Table 13: South Tech STAR

SCT	Total (N)	Math (n) at Grade Level	% at GL	Reading (n) at Grade Level	% at GL
2007-08					
10	50	15	30.0%	12	20%
11	254	64	25.2%	88	34.6%
12	238	59	24.8%	99	41.6%
2008-09					
10	153	53	34.6%	49	32.0%
11	446	200	44.8%	180	40.4%
12	367	126	34.3%	148	40.3%
2009-10					
11	518	252	48.6%	213	41.1%
12	375	172	45.9%	157	41.9%

Interpretation/Summary of Data:

Testing has been scheduled to be administered three times during the course of the academic year. Beginning in 2009-2010 sophomore students at South Tech rotate out of the Career Exploration program at semester so they only have the opportunity to test once. Since they do not fit the model of three test administrations these students are not reported.

For the 2008-2009 school year 40.4% of 11th year students tested at or above grade level in Reading, with the subsequent year at 41.1%. Junior students performed at or above grade level on the Math assessment at 44.8% in 2008-2009. The following year, 48.6% of juniors tested were at or above grade level, a 4.2% increase.

Of students tested in the 12th grade, 40.3% demonstrated Reading skills at or above grade level in 2008-2009. The total percentage of students at or above grade level rose slightly to 41.9% in the 2009-2010 school year. Math scores recorded a significant increase of the number of students scoring at or above grade level from 34.3% in 2008-2009 to 45.9% in 2009-2010.

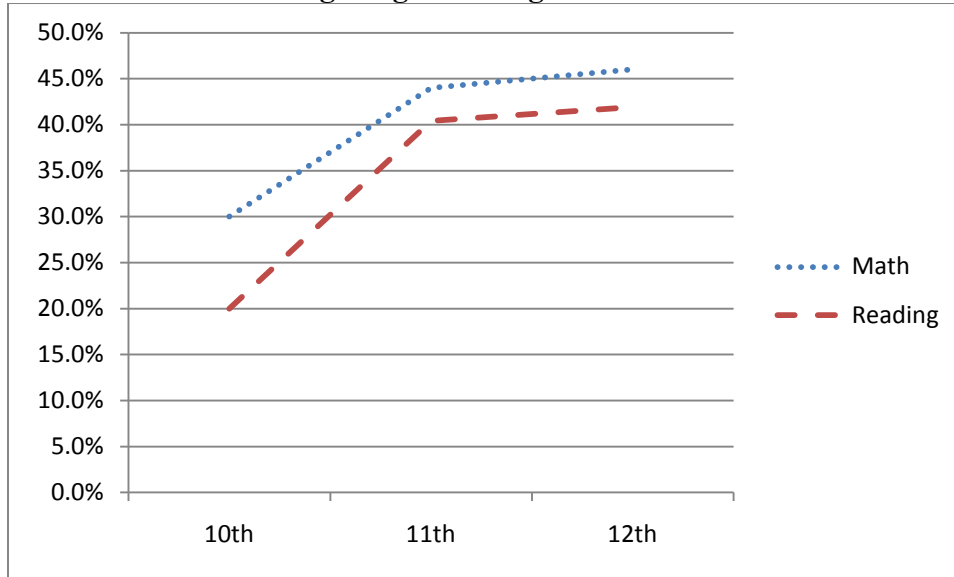


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Chart 1: Class Tracking for graduating class of 2009-2010 South Technical



Class	Math	Reading
10th	30.0%	20.0%
11th	44.0%	40.4%
12th	46.0%	41.9%

Interpretation/Summary of Data:

In the chart above, scores for 10th graders in 2007-2008, 11th graders in 2008-2009 and 12th graders in 2009-2010 were tracked across the three year period. Since these scores are group scores we are not able to compute true “cohort” scores. When tracked as a class, the percentage of students at grade level increased each year in both Math and Reading for the 12th year class, increasing from 20% to 41.9% in Reading and from 30% to 46% in Math. Overall, the percentage of students in this class performing at grade level rose 21.9% in Reading and 16% in Math for the period in review. Caution should be used in tracking group averages due to the high number of students entering and exiting a program, especially from sophomore to junior year. Only 115 of 517 (22%) of juniors in 2009-2010 had been in a 10th grade technical program, while 323 of 375 (86%) of seniors in 2009-2010 had been in an 11th grade technical program.



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NORTH TECH

Table 14: North Tech STAR

NCT	total(N)	Math (n) at Grade Level	% at GL	Reading (n) at Grade Level	% at GL
2007-08					
10	258	45	17.4%	48	18.6%
11	418	108	25.8%	119	31%
12	252	50	19.8%	76	30.2%
2008-09					
10	293	122	41.6%	77	26.3%
11	515	228	44.3%	168	32.6%
12	441	155	35.1%	156	35.4%
2009-10					
10	322	103	32.0%	76	23.6%
11	512	191	37.3%	101	19.7%
12	425	174	40.9%	102	24.0%

Interpretation/Summary of Data:

At North Tech during the 2008-2009 school year, every effort was made to test all students at three times during the school year. Administration procedures have since been altered to retest only those students who scored below grade level on previous testing.

The percentage of students in the 10th grade that demonstrated Math skills at grade level ranged from 17.4% in 2007-2008 to 41.6% in 2008-2009; 32% of 10th year students performed at grade level in 2009-2010. The percentage of students in the 10th grade that demonstrated Reading skills at grade level was recorded at 18.6% in 2007-2008, increased to 26.3% in 2008-2009 with the 10th year students performing at grade level in 2009-2010 remain steady at 26.6%.

During the 2007-2008 school year, 31% of 11th year students tested at or above grade level in Reading, with the subsequent year at 32.6% and then declining to 19.7% in 2009-2010. Junior students performed at or above grade level on the Math assessment at 25.8% in 2007-2008, increasing to 44.3% in 2008-2009, with 37.3% scoring at grade level in 2009-2010.

Year 12 students demonstrated Reading skills at or above grade level at 30.2% in 2007-2008, 35.4% in 2008-2009, and then declined to 24% in 2009-2010. Math scores recorded a steady increase from 19.8% in 2007-2008 to 35.1% in 2008-2009 and to 40.9% in 2009-2010.

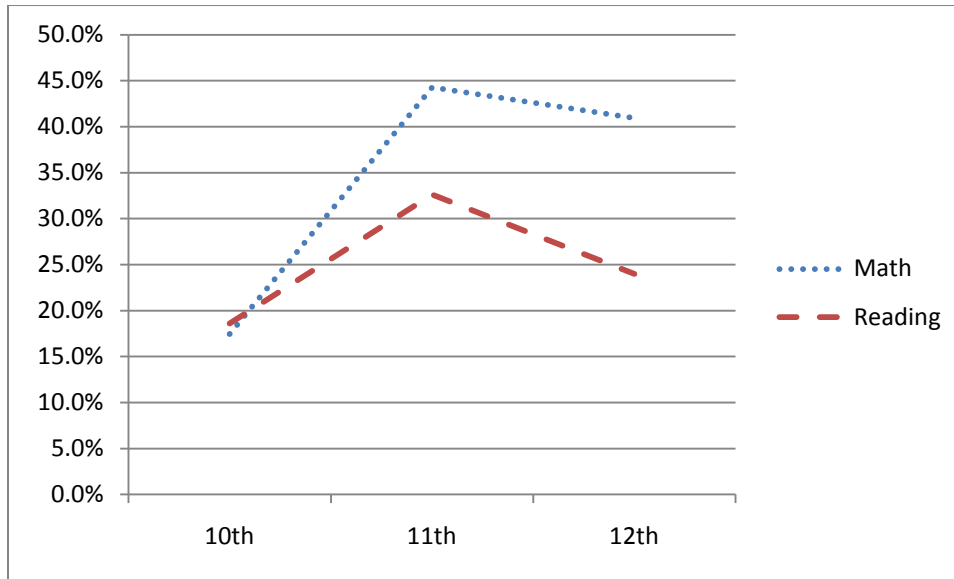


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Chart 2: Class Tracking for graduates of 2009-2010 North Technical



Class	Math	Reading
10th	17.4%	18.6%
11th	44.3%	32.6%
12th	40.9%	24.0%

Interpretation/Summary of Data:

When tracked as a class group, the percentage of students at grade level in Math increased from 17.4% in 10th grade to 44.3% in 11th grade, before declining to 40.9% in 12th grade. Reading scores followed a similar pattern, starting at 18.6% in 10th grade to 32.6% 11th grade and 24% for the 12th grade. Overall the percentage of students in this class performing at grade level rose 23.5% in Reading and 5.4% in Math for the period in review. Due to a relatively high number of students entering and exiting the program, caution should be used in drawing conclusions about the class as a whole. While 87% of the 2009-2010 seniors were in the 2008-2009 junior programs, only 39.5% of 2009-2010 juniors were in the preceding year's 10th grade class.

Follow up of Recommendations from previous Program Evaluation

Continue with the implementation of short term instructional assessments such as STAR as a supplement to the WorkKeys data.

- STAR data is monitored to determine the number of students at grade level in Reading and Math.



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Continue to merge WorkKeys data with the new SIS data base in order to provide disaggregated data in the future.

- The process of bringing WorkKeys data into SIS has been improved to be more systematic. Currently the data is being imported from files directly from ACT rather than being entered one at a time by hand.

Continue using MAX (Motivation, Acquisition, and eXtension) Teaching strategies as the primary vehicle for improvement of reading and instruction.

- MAX teaching strategies have become integrated into the instructional plans of both academic and vocational teachers. Currently we are getting feedback from students as recommended by the Baldrige team to determine which strategies are the most effective.

Implement increased frequency of progress monitoring instruments to supplement the STAR testing.

- Progress monitoring tools such as the *Edusoft*[™] online assessment, teacher developed assessments using Moodle and the Scantron *Prosper*[™] software provide online testing and item analysis to help teachers respond to specific needs of a student or an entire class. We are currently looking into using the released items from the End of Course (EOC) assessments in Moodle to provide progress monitoring in the EOC classes.

V. Discussion

Strengths

- There is a pattern of increased achievement on all three tests from the junior to the senior class; however, this is not a universally consistent pattern.
- There are obvious differences from one entering class of juniors to the next which accounts for differences from year to year in the percentages at each Level.

Concerns

- It is difficult to determine instructional effectiveness from WorkKeys scores alone since the ability of each entering junior class varies so much from year to year. However, comparison of Index scores allows general comparison from year to year.
- Use of the Index in WorkKeys analysis does not allow for comparison to national norms.
- Current assessment schedule does not provide for fully realizing the potential of WorkKeys and Keytrain to impact Student workplace preparation due to the current scope of WorkKey assessments employed; three (3) of nine (9) Foundation Skills areas are administered.



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- Timing of the administration of assessments continues to be a challenge; only Students enrolled during 10th grade have the opportunity to access Keytrain prior to entering a Technical Program.
- No assessments designed to measure or predict student performance on postsecondary placement assessments are consistently administered to students.

Recommendations

- Implement the Keytrain assessment and remediation software that is directly tied to WorkKeys skill level attainment.
 - Juniors will take the Keytrain pretests and work from the WorkKeys level they scored. Seniors will continue to work through Keytrain to strengthen skills in Applied Math, Locating Information, and Reading for Information.
 - Seniors will take the full WorkKeys assessment in those three areas during their senior year.
- Continue to merge WorkKeys data with the new Student Information System (SIS) data base in order to provide disaggregated data in the future.
- Continue using Continuous Classroom Improvement Teaching strategies as the primary vehicle for improvement of reading and instruction.
- Implement increased frequency of vocational classroom progress monitoring instruments to supplement Keytrain instruction and WorkKeys testing.
- Pilot the administration of COMPASS™ Assessment of American College Testing (ACT) to effect seamless student matriculation into postsecondary technical programs.
- Increase the scope of WorkKeys Foundation Skill areas assessments administered.
- Establish methods to measure performance of student cohort groups.

Person responsible to champion action plan:

Michael B. Rogg, Director Career and Technical Education

Timeframe for reporting updates to Board of Education:

Annually

Date: _____

Signature of Administrator Responsible for Chairing Evaluation



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APPENDIX

WorkKeys Information

The *Applied Mathematics* test measures the skill people use when they apply mathematical reasoning, critical thinking, and problem-solving techniques to work-related problems. The test questions require the examinee to set up and solve the types of problems and do the types of calculations that actually occur in the workplace.

This test is designed to be taken with a calculator. A formula sheet that includes all formulas required for the assessment is provided. While individuals may use calculators and conversion tables to help with the problems, they still need to use math skills to think them through.

There are five levels of difficulty. Level 3 is the least complex, and Level 7 is the most complex. The levels build on each other, each incorporating the skills assessed at the previous levels. For example, at Level 5, individuals need the skills from Levels 3, 4, and 5.

Level	Characteristics of Items	Skills
3	<ul style="list-style-type: none">• Translate easily from a word problem to a math equation• All needed information is presented in logical order• No extra information	<ul style="list-style-type: none">• Solve problems that require a single type of mathematics operation (addition, subtraction, multiplication, and division) using whole numbers• Add or subtract negative numbers• Change numbers from one form to another using whole numbers, fractions, decimals, or percentages• Convert simple money and time units (e.g., hours to minutes)
4	<ul style="list-style-type: none">• Information may be presented out of order• May include extra, unnecessary information• May include a simple chart, diagram, or graph	<ul style="list-style-type: none">• Solve problems that require one or two operations• Multiply negative numbers• Calculate averages, simple ratios, simple proportions, or rates using whole numbers and decimals• Add commonly known fractions, decimals, or percentages (e.g., $1/2$, $.75$, 25%)• Add up to three fractions that share a common denominator• Multiply a mixed number by a whole number or decimal• Put the information in the right order before performing calculations



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Level	Characteristics of Items	Skills
5	<ul style="list-style-type: none">Problems require several steps of logic and calculation (e.g., problem may involve completing an order form by totaling the order and then computing tax)	<ul style="list-style-type: none">Decide what information, calculations, or unit conversions to use to solve the problemLook up a formula and perform single-step conversions within or between systems of measurementCalculate using mixed units (e.g., 3.5 hours and 4 hours 30 minutes)Divide negative numbersFind the best deal using one- and two-step calculations and then compare resultsCalculate perimeters and areas of basic shapes (rectangles and circles)Calculate percent discounts or markups
6	<ul style="list-style-type: none">May require considerable translation from verbal form to mathematical expressionGenerally require considerable setup and involve multiple-step calculations	<ul style="list-style-type: none">Use fractions, negative numbers, ratios, percentages, or mixed numbersRearrange a formula before solving a problemUse two formulas to change from one unit to another within the same system of measurementUse two formulas to change from one unit in one system of measurement to a unit in another system of measurementFind mistakes in questions that belong at Levels 3, 4, and 5Find the best deal and use the result for another calculationFind areas of basic shapes when it may be necessary to rearrange the formula, convert units of measurement in the calculations, or use the result in further calculationsFind the volume of rectangular solidsCalculate multiple rates
7	<ul style="list-style-type: none">Content or format may be unusualInformation may be incomplete or implicitProblems often involve multiple steps of logic and calculation	<ul style="list-style-type: none">Solve problems that include nonlinear functions and/or that involve more than one unknownFind mistakes in Level 6 questionsConvert between systems of measurement that involve fractions, mixed numbers, decimals, and/or percentagesCalculate multiple areas and volumes of spheres, cylinders, or conesSet up and manipulate complex ratios or proportionsFind the best deal when there are several choicesApply basic statistical concepts



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The *Locating Information* test measures the skill people use when they work with workplace graphics. Examinees are asked to find information in a graphic or insert information into a graphic. They also must compare, summarize, and analyze information found in related graphics.

The skill people use when they locate, synthesize, and use information from workplace graphics such as charts, graphs, tables, forms, flowcharts, diagrams, floor plans, maps, and instrument gauges is a basic skill required in today's workforce.

Level	Characteristics of Items	Skills
3	<ul style="list-style-type: none">• Elementary workplace graphics such as simple order forms, bar graphs, tables, flowcharts, maps, instrument gauges, or floor plans• One graphic used at a time	<ul style="list-style-type: none">• Find one or two pieces of information in a graphic• Fill in one or two pieces of information that are missing from a graphic
4	<ul style="list-style-type: none">• Straightforward workplace graphics such as basic order forms, diagrams, line graphs, tables, flowcharts, instrument gauges, or maps• One or two graphics are used at a time	<ul style="list-style-type: none">• Find several pieces of information in one or two graphics• Understand how graphics are related to each other• Summarize information from one or two straightforward graphics• Identify trends shown in one or two straightforward graphics• Compare information and trends shown in one or two straightforward graphics
5	<ul style="list-style-type: none">• Complicated workplace graphics, such as detailed forms, tables, graphs, diagrams, maps, or instrument gauges• Graphics may have less common formats• One or more graphics are used at a time	<ul style="list-style-type: none">• Sort through distracting information• Summarize information from one or more detailed graphics• Identify trends shown in one or more detailed or complicated graphics• Compare information and trends from one or more complicated graphics
6	<ul style="list-style-type: none">• Very complicated and detailed graphs, charts, tables, forms, maps, and diagrams• Graphics contain large amounts of information and may have challenging formats• One or more graphics are used at a time• Connections between graphics may be subtle	<ul style="list-style-type: none">• Draw conclusions based on one complicated graphic or several related graphics• Apply information from one or more complicated graphics to specific situations• Use the information to make decisions



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The *Reading for Information* measures the skill people use when they read and use written text in order to do a job. The written texts include memos, letters, directions, signs, notices, bulletins, policies, and regulations. It is often the case that workplace communications are not necessarily well-written or targeted to the appropriate audience. *Reading for Information* materials do not include information that is presented graphically, such as in charts, forms, or blueprints.

There are five levels of difficulty. Level 3 is the least complex, and Level 7 is the most complex. The levels build on each other, each incorporating the skills assessed at the preceding levels. For example, at Level 5, individuals need the skills from Levels 3, 4, and 5. The reading materials at Level 3 are short and direct. The material becomes longer, denser, and more difficult to use as readers move toward Level 7. The tasks also become more complex as readers move from Level 3 to Level 7. At Level 3, readers begin by finding very obvious details and following short instructions. At the more complex levels, tasks can also involve more application and interpretation.

Level	Characteristics of Items	Skills
3	<ul style="list-style-type: none">• Reading materials include basic company policies, procedures, and announcements• Reading materials are short and simple, with no extra information• Reading materials tell readers what they should do• All needed information is stated clearly and directly• Items focus on the main points of the passages• Wording of the questions and answers is similar or identical to the wording used in the reading materials	<ul style="list-style-type: none">• Identify main ideas and clearly stated details• Choose the correct meaning of a word that is clearly defined in the reading• Choose the correct meaning of common, everyday workplace words• Choose when to perform each step in a short series of steps• Apply instructions to a situation that is the same as the one in the reading materials
4	<ul style="list-style-type: none">• Reading materials include company policies, procedures, and notices• Reading materials are straightforward but have longer sentences and contain a number of details• Reading materials use common words but do have some harder words, too• Reading materials describe procedures that include several steps• When following the procedures, individuals must think about changing conditions that affect what they should do• Questions and answers are often paraphrased from the passage	<ul style="list-style-type: none">• Identify important details that may not be clearly stated• Use the reading material to figure out the meaning of words that are not defined• Apply instructions with several steps to a situation that is the same as the situation in the reading materials• Choose what to do when changing conditions call for a different action (follow directions that include "if-then" statements)



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Level

Characteristics of Items

Skills

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- Policies, procedures, and announcements include all of the information needed to finish a task
 - Information is stated clearly and directly, but the materials have many details
 - Materials also include jargon, technical terms, acronyms, or words that have several meanings
 - Application of information given in the passage to a situation that is not specifically described in the passage
 - There are several considerations to be taken into account in order to choose the correct actions
- Figure out the correct meaning of a word based on how the word is used
 - Identify the correct meaning of an acronym that is defined in the document
 - Identify the paraphrased definition of a technical term or jargon that is defined in the document
 - Apply technical terms and jargon and relate them to stated situations
 - Apply straightforward instructions to a new situation that is similar to the one described in the material
 - Apply complex instructions that include conditionals to situations described in the materials
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- Reading materials include elaborate procedures, complicated information, and legal regulations found in all kinds of workplace documents
 - Complicated sentences with difficult words, jargon, and technical terms
 - Most of the information needed to answer the items is not clearly stated
- Identify implied details
 - Use technical terms and jargon in new situations
 - Figure out the less common meaning of a word based on the context
 - Apply complicated instructions to new situations
 - Figure out the principles behind policies, rules, and procedures
 - Apply general principles from the materials to similar and new situations
 - Explain the rationale behind a procedure, policy, or communication
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- Very complex reading materials
 - Information includes a lot of details
 - Complicated concepts
 - Difficult vocabulary
 - Unusual jargon and technical terms are used but not defined
 - Writing often lacks clarity and direction
 - Readers must draw conclusions from some parts of the reading and apply them to other parts
- Figure out the definitions of difficult, uncommon words based on how they are used
 - Figure out the meaning of jargon or technical terms based on how they are used
 - Figure out the general principles behind policies and apply them to situations that are quite different from any described in the materials