

Appendix A

Group Consensus Values for Michigan Mathematics Extended Grade Level Content Expectations and Benchmarks

Table 3.14
Group Consensus
MI Math EGLCE Grade 2, Mathematics, Grade 2

Level	Description	DOK
N	NUMBERS AND OPERATIONS	3
N1	Topic 1: Count, write and order whole numbers	3
N.ME.EG01	Count using whole numbers to 30 in numerals and relate them to the quantities they represent.	2
N.ME.EG02	Explore and recognize equivalent representations and models for whole numbers to 30.	2
N.ME.EG03	Order numbers to 30; compare using phrases such as same as, greater/more than, greater than, fewer/less than, and equal to. Use equals (=) symbol.	3
N.MR.EG05	Create, describe, and extend simple number patterns.	3
M	MEASUREMENT	3
M1	Topic 1: Measure and use units	3
M.PS.EG01	Compare length using terms such as shorter, longer and taller.	3
M.UN.EG02	Know and use the common words for the parts of the day, e.g. morning, afternoon, evening, night, and relative time, e.g. yesterday, today, tomorrow, last week, next year.	3
M2	Topic 2: Money	2
M.UN.EG03	Identify the different denominations of coins.	2
G	GEOMETRY	3
G1	Topic 1: Identify and describe shapes	3
G.GS.EG01	Identify common two-dimensional shapes, including square, circle, triangle, and star.	2
G.LO.EG02	Describe and use relative position of objects on a plane and in space, using words such as above, below, over, under, behind, in front of, right, left.	3
G2	Topic 2: Patterns	3
G.SR.EG03	Create and describe repeating geometric patterns.	3
G.SR.EG04	Predict the next element in a simple geometric pattern.	3
D	DATA ANALYSIS	4
D1	Topic 1: Explore Data	4
D.RE.EG01	Collect and explore data through counting. Organize data using concrete objects.	4

Table 4.14
Group Consensus
MI Math EGLCE Grade 3, Mathematics, Grade 3

Level	Description	DOK
N	NUMBERS AND OPERATIONS	3
N1	Topic 1: Count, write and order whole numbers	2
N.ME.EG01	Read, write and count using whole numbers to 100 in numerals and words and relate them to the quantities they represent.	2
N.ME.EG02	Explore and recognize equivalent representations and models for whole numbers to 100.	2
N.ME.EG03	Represent whole numbers to 100 using concrete representations.	2
N.ME.EG04	Compose and decompose numbers to 30 using models of tens and units (bundles of 10 and units, base 10 blocks, etc.), For example, recognize 24 as 2 tens and 4 ones, 10 and 10 and 4, 20 and 4, and 24 ones.	3
N.ME.EG05	Order numbers to 100; compare using phrases such as same as, more than, greater than, fewer than, and use = symbol.	3
N.ME.EG06	Count to 100 by ones, 2s, 5s and 10s.	2
N.ME.EG07	Understand that a number to the right of another number on the number line is bigger and that a number to the left is smaller.	3
N.ME.EG08	Identify and place whole numbers on a number line that begins at zero.	2
N.MR.EG09	Create, describe, and extend simple number patterns.	3
N2	Topic 2: Compute with whole numbers	3
N.MR.EG10	Compare two or more sets in terms of the difference in number of elements.	3
N.MR.EG11	Understand the inverse relationship between addition and subtraction, e.g., subtraction “undoes” addition.	3
N.FL.EG12	Know all the addition facts up to $10 + 10$, and solve the related subtraction problems.	3
N.MR.EG13	Apply knowledge of fact families to solve simple open sentences for addition and subtraction, such as: $? + 2 = 7$ and $10 - ? = 6$.	3
N.FL.EG14	Add up to three one-digit numbers.	3
N.FL.EG16	Calculate sums and differences involving a one- or two-digit number and a one-digit number without regrouping	3
N.MR.EG17	Model addition and subtraction for numbers less than 20 for a given contextual situation using objects or pictures; explain in words; record using numbers and symbols; solve.	4
M	MEASUREMENT	3
M1	Topic 1: Measure and use units	3
M.PS.EG02	Compare length and weight of objects by comparing to reference objects, and use terms such as shorter, longer, taller, lighter, heavier.	3
M.UN.EG03	Know and use the common words for the parts of the day, e.g. morning, afternoon, evening, night, and relative time, e.g. yesterday, today, tomorrow, last week, next year.	3
M.UN.EG04	Identify daily landmark times to the nearest hour, e.g. lunchtime is 12 o'clock, bedtime is 8 o'clock.	2

Table 4.14
Group Consensus
MI Math EGLCE Grade 3, Mathematics, Grade 3

Level	Description	DOK
M.UN.EG05	Tell time on a twelve-hour radial clock or digital clock to the hour; no A.M. or P.M.	2
M.PS.EG06	Solve one-step word problems using addition and subtraction of length and time, including “how much more/less”, without mixing units.	3
M2	Topic 2: Money	3
M.UN.EG07	Identify the different denominations of coins and bills.	2
M.UN.EG08	Match one coin or bill of one denomination to an equivalent set of coins/bills of other denominations, e.g., 1 quarter = 2 dimes and 1 nickel.	3
M.PS.EG09	Add and subtract money in dollars only, or in cents only up to and including \$1.	3
G	GEOMETRY	3
G1	Topic 1: Identify and describe shapes	3
G.GS.EG01	Identify common two-dimensional shapes, including square, circle, triangle, and star, and describe their physical and geometric attributes, such as size and shape.	3
G.LO.EG02	Describe and use relative position of objects on a plane and in space, using words such as above, below, over, under, behind, in front of, right, left.	3
G2	Topic 2: Patterns	3
G.SR.EG04	Predict the next element in a simple geometric pattern.	3
D	DATA ANALYSIS	3
D1	Topic 1: Explore Data	3
D.RE.EG01	Collect and explore data through counting. Organize data using concrete objects.	4
D.RE.EG02	Read pictographs with a scale of one.	2
D.RE.EG03	Solve problems using information in pictographs with a scale of one.	3

Table 5.14
Group Consensus
MI Math EGLCE Grade 4, Mathematics, Grade 4

Level	Description	DOK
N	NUMBERS AND OPERATIONS	3
N1	Topic 1: Count, write and order whole numbers	2
N.ME.EG01	Read, write and count using whole numbers to 1000 in numerals and words, and relate them to the quantities they represent.	2
N.ME.EG02	Explore and recognize equivalent representations and models for whole numbers to 1000.	2
N.ME.EG03	Represent whole numbers to 1000 using concrete representations.	2
N.ME.EG04	Express numbers up to 1000 using place value, e.g., 137 is 1 hundred, 3 tens, and 7 ones.	3
N.ME.EG05	Order numbers to 1000; compare using phrases such as same as, more than, greater than, fewer than, and use = symbol.	3
N.ME.EG06	Count to 1000 by ones. Count to 100 by 2s, 5s and 10s.	2
N.ME.EG07	Use ordinals to identify position in a sequence, e.g., 1st, 2nd, 3rd.	3
N.ME.EG08	Identify and place whole numbers on a number line that begins at zero.	2
N.MR.EG09	Create, describe, and extend simple number patterns.	3
N2	Topic 2: Compute with whole numbers	3
N.MR.EG10	Compare two or more sets in terms of the difference in number of elements.	3
N.FL.EG11	Add and subtract two numbers with 1 or 2 digits each, including regrouping.	3
N.FL.EG12	Add two or three one-digit numbers.	2
N.MR.EG13	Model addition and subtraction for numbers less than 100; explain in words; record using numbers and symbols; solve.	4
N.MR.EG14	Solve simple open sentences for addition and subtraction.	3
N3	Topic 3: Problem solving and estimation	4
N.FL.EG15	Apply estimation in solving problems involving addition and subtraction.	4
N.MR.EG16	Select appropriate numbers in order to solve problems involving addition and subtraction and solve.	4
M	MEASUREMENT	3
M1	Topic 1: Measure and use units	3
M.UN.EG01	Select and use standard tools for measurement of length, time, weight and volume (e.g. calendars, clocks, rulers, tape measures, measuring cups, scales, etc.).	4
M.UN.EG02	Select appropriate units of measure for length and time, for a given context.	3
M.UN.EG03	Measure lengths to the nearest inch using a ruler and in non-standard units.	3
M.PS.EG04	Measure and compare lengths and weights. Use terms such as longer, shorter, heavier, lighter.	3
M.UN.EG05	Tell time on a twelve-hour radial clock or digital clock to the hour; no A.M. or P.M.	2

Table 5.14
Group Consensus
MI Math EGLCE Grade 4, Mathematics, Grade 4

Level	Description	DOK
M.PS.EG06	Solve one-step word problems using addition and subtraction of length, time and weight.	3
M2	Topic 2: Money	3
M.UN.EG07	Identify and use different denominations of coins and bills.	3
M.UN.EG08	Match coins or bills of one denomination to an equivalent set of coins/bills of other denominations, e.g., 3 quarters = 6 dimes and 3 nickels.	3
M.PS.EG09	Tell the amount of money: in cents up to and including \$1, in dollars up to and including \$100. Use the symbols \$ and ¢.	3
M.PS.EG10	Add and subtract money in dollars only, or in cents only, up to and including \$10.	3
G	GEOMETRY	3
G1	Topic 1: Identify and describe shapes	3
G.GS.EG01	Identify, describe, and compare familiar two-dimensional shapes, such as triangles, rectangles, squares, and circles.	3
G.LO.EG02	Describe and use relative position of objects on a plane and in space, using words such as above, below, over, under, behind, in front of, right, left.	3
D	DATA ANALYSIS	3
D1	Topic 1: Explore Data	3
D.RE.EG01	Read and explain data they have collected and organized themselves.	5
D.RE.EG02	Read tables, graphs, tallies and pictographs with a scale of one.	2
D.RE.EG03	Solve problems using information presented in tables, graphs, tallies and pictographs with a scale of one.	3

Table 6.14
Group Consensus
MI Math EGLCE Grade 5, Mathematics, Grade 5

Level	Description	DOK
N	NUMBERS AND OPERATIONS	3
N1	Topic 1: Count, write and order whole numbers	3
N.ME.EG01	Read, write and count using whole numbers to 10,000 in numerals and words, and relate them to the quantities they represent.	3
N.ME.EG02	Explore and recognize equivalent representations for whole numbers to 10,000.	3
N.ME.EG03	Represent whole numbers to 10,000 using concrete representations.	3
N.ME.EG04	Investigate the ways numbers are used, e.g. counting, ordering, naming, locating, and measuring.	3
N.ME.EG05	Express numbers to 10,000 using place value.	3
N.ME.EG06	Order numbers to 10,000; compare using phrases such as same as, more than, greater than, fewer than, and use = symbol.	3
N.ME.EG07	Count numbers to 10,000. Count by 2's, 5's, 10's and 100's starting from any number from 1 to 1000.	3
N.ME.EG08	Identify and place whole numbers on a number line.	3
N.MR.EG09	Create, describe, and extend simple number patterns, including patterns that involve data.	4
N.MR.EG10	Explain how to find the next number in a simple repeating pattern.	3
N2	Topic 2: Compute with whole numbers	3
N.FL.EG11	Understand and use addition properties of 0.	2
N.FL.EG12	Add and subtract two numbers with 1 or 2 digits each with regrouping.	3
N.MR.EG13	Solve simple open sentences for addition and subtraction.	3
N3	Topic 3: Problem solving and estimation	4
N.FL.EG14	Apply estimation in solving problems involving addition and subtraction.	3
N.MR.EG15	Select appropriate numbers in order to solve problems involving addition and subtraction and solve.	4
M	MEASUREMENT	3
M1	Topic 1: Measure and use units	3
M.UN.EG01	Select and use standard tools for measurement of length, time, weight, volume and temperature.	2
M.UN.EG02	Select appropriate units of measure for length, time, weight, area, volume (gallon, cubic inches, etc.), temperature (degrees Fahrenheit, °F, only) and money for a given context.	2
M.PS.EG03	Measure and compare integer temperatures in degrees (degrees Fahrenheit, °F, only).	2
M.UN.EG04	Approximate temperature (degrees Fahrenheit, °F, only) based on given criteria, e.g. "What temperature might it be if you must wear a winter coat and gloves outside?"	3
M.UN.EG05	Measure lengths to the nearest inch using a ruler.	3
M.PS.EG06	Measure and compare lengths, weights, and volumes. Use terms such as longer, longest, shorter, shortest, heavy, and heavier.	3

Table 6.14
 Group Consensus
 MI Math EGLCE Grade 5, Mathematics, Grade 5

Level	Description	DOK
M.UN.EG07	Tell time on a twelve-hour radial clock or digital clock to the nearest hour; no A.M. or P.M.	3
M.PS.EG08	Solve one-step word problems using addition and subtraction of length, time, weight, area, volume and temperature.	2
M2	Topic 2: Money	3
M.UN.EG09	Identify and use different coins and bills.	3
M.UN.EG10	Recognize equivalent sets of coins and bills.	3
M.PS.EG11	Tell the amount of money in dollars and cents up to and including \$100. Use the symbols \$ and ¢.	3
M.PS.EG12	Add and subtract money in dollars and cents, and combinations of dollars and cents, up to and including \$100.	3
G	GEOMETRY	3
G1	Topic 1: Identify and describe shapes	3
G.GS.EG01	Identify, describe, and compare familiar two-dimensional shapes, including semi-circles.	3
G.LO.EG02	Describe and use relative position of objects on a plane and in space using words such as above, below, over, under, behind, in front of, right, left.	3
D	DATA ANALYSIS	4
D1	Topic 1: Explore Data	4
D.RE.EG01	Read data from charts, tables, bar graphs, circle graphs, tallies, and pictographs with a scale up to two.	3
D.RE.EG02	Draw, explain and justify predictions and conclusions from data presented in tables, graphs and charts.	5
D.RE.EG03	Describe the shape of data using informal language (e.g. increasing, decreasing).	4

Table 7.14
 Group Consensus
 MI Math EGLCE Grade 6, Mathematics, Grade 6

Level	Description	DOK
N	NUMBERS AND OPERATIONS	3
N1	Topic 1: Count, write and order whole numbers	3
N.ME.EG01	Read, write and count using whole numbers to 10,000 in numerals and words, and relate them to the quantities they represent.	2
N.ME.EG02	Explore and recognize equivalent representations for whole numbers to 10,000.	2
N.ME.EG03	Express numbers to 10,000 using place value.	3
N.ME.EG04	Order numbers to 10,000; compare whole numbers using phrases such as same as, more than, greater than, fewer than and use = symbol.	3
N.MR.EG05	Create, describe, and extend simple number patterns, including patterns that involve data.	3
N.MR.EG06	Explain how to find the next number in a simple repeating pattern.	3
N2	Topic 2: Compute with whole numbers	4
N.FL.EG07	Add and subtract one- and two-digit numbers, written in words or numerals, with regrouping.	3
N.MR.EG08	Solve simple number sentences for addition and subtraction.	3
N.MR.EG09	Understand multiplication as the result of counting the total number of objects in a set of equal groups, e.g., 3×5 gives the number of objects in 3 groups of 5 objects, i.e., $3 \times 5 = 5 + 5 + 5 = 15$.	4
N.FL.EG10	Develop strategies for fluently multiplying numbers up to 5×5 .	4
N.ME.EG11	Understand and use the various meanings and applications of division, e.g. repetitive subtraction.	4
N.MR.EG13	Given a simple situation involving groups of equal size or of sharing equally, represent with objects, words, and symbols and solve.	4
N3	Topic 3: Problem solving and estimation	4
N.FL.EG14	Apply estimation in solving problems involving addition and subtraction.	4
N.MR.EG15	Select appropriate numbers in order to solve problems, write number sentences and solve.	4
N.MR.EG16	Solve applied problems using the four basic arithmetic operations for whole numbers (limited multiplication and division).	3
M	MEASUREMENT	3
M1	Topic 1: Measure and use units	3
M.UN.EG01	Select and use standard tools for measurement of length, time, weight, volume and temperature.	4
M.UN.EG02	Select appropriate units of measure for length, time, weight, area, volume and temperature (degrees Fahrenheit, °F, only) for a given context.	3
M.UN.EG03	Measure and compare integer temperatures in degrees (degrees Fahrenheit, °F, only).	3
M.UN.EG04	Measure lengths to the nearest half-inch using a ruler.	3
M.UN.EG07	Tell time on a twelve-hour radial clock or digital clock to the nearest hour; no A.M. or P.M.	2

Table 7.14
Group Consensus
MI Math EGLCE Grade 6, Mathematics, Grade 6

Level	Description	DOK
M.UN.EG08	Know equivalent calendar units, e.g. 60 seconds in a minute, 60 minutes in an hour, 24 hours in a day, 7 days in a week, 12 months in a year.	3
M.PS.EG09	Solve one-step word problems using addition and subtraction of length, time, weight, area, volume and temperature.	3
M2	Topic 2: Money	3
M.UN.EG10	Recognize equivalent sets of coins and bills.	3
M.PS.EG11	Tell the amount of money in dollars and cents up to and including \$100. Use the symbols \$ and ¢.	3
M.PS.EG12	Add and subtract money in dollars and cents, and combinations of dollars and cents, up to and including \$100.	3
G	GEOMETRY	3
G1	Topic 1: Identify and describe shapes	3
G.LO.EG01	Describe and use relative position of objects on a plane and in space using words such as above, below, over, under, behind, in front of, right, and left.	3
G2	Topic 2: Use maps and grids	4
G.LO.EG02	Find and name locations using simple coordinate systems such as maps and first quadrant grids.	3
G.LO.EG03	Read, interpret and use maps and grids with legends. Understand and use directions such as north, south, east and west and directional turns such as left and right.	4
D	DATA ANALYSIS	4
D1	Topic 1: Explore Data	4
D.RE.EG01	Read data from charts, tables, bar graphs, circle graphs, tallies and pictographs with a scale up to ten.	3
D.RE.EG02	Draw, explain and justify predictions and conclusions from data presented in tables, graphs and charts.	5
D.RE.EG03	Describe the shape of data using informal language (e.g. increasing, decreasing).	4
D.RE.EG04	Solve problems using data presented in tables, bar graphs, circle graphs, tallies and pictographs.	4

Table 8.14
Group Consensus
MI Math EGLCE Grade 7, Mathematics, Grade 7

Level	Description	DOK
N	NUMBERS AND OPERATIONS	3
N1	Topic 1: Count, write and order whole numbers	3
N.ME.EG01	Read, write and count using whole numbers to 100,000 in numerals and words, and relate them to the quantities they represent.	2
N.ME.EG02	Explore and recognize equivalent representations for whole numbers to 100,000.	2
N.ME.EG03	Express numbers to 100,000 using place value.	3
N.ME.EG04	Order numbers to 100,000; compare whole numbers using phrases such as same as, more than, greater than, fewer than, and use = symbol.	3
N.ME.EG05	Round whole numbers to the nearest one, ten, hundred or thousand.	4
N.MR.EG06	Create, describe, and extend simple number patterns, including patterns that involve data.	3
N.MR.EG07	Explain how to find the next number in a simple repeating pattern.	3
N2	Topic 2: Compute with whole numbers	4
N.FL.EG09	Add and subtract one-, two- and three-digit numbers, written in words or numerals, with regrouping.	3
N.MR.EG10	Solve simple open sentences for addition, subtraction, multiplication and division.	4
N.FL.EG11	Find products fluently up to 10×10 ; find related quotients using multiplication and division relationships and fact families.	4
N.MR.EG12	Find solutions to open sentences, such as $7 \times ? = 42$ or $12 \div ? = 4$, using the inverse relationship between multiplication and division.	4
N.FL.EG13	Calculate simple products, up to and including 2 two-digit numbers, and simple quotients, up to and including a two-digit number by a one-digit number.	3
N.MR.EG14	Solve simple division problems involving remainders, viewing remainder as the “number left over” (less than the divisor); e.g., 4 children per group; we have 25 children; there are 6 groups with 1 child left over; interpret based on problem context.	4
N3	Topic 3: Fractions and Decimals	4
N.ME.EG15	Recognize, name, represent and write commonly used unit fractions with denominators of 12 or less; model $\frac{1}{2}$, $\frac{1}{3}$, and $\frac{1}{4}$ by folding strips	4
N.ME.EG16	Place 0 and halves, e.g., $\frac{1}{2}$, $1\frac{1}{2}$, $2\frac{1}{2}$, on the number line, relate to a ruler	3
N.MR.EG17	Compare and order unit fractions from $\frac{1}{100}$ to $\frac{1}{2}$.	4
N.MR.EG18	Compare and order fractions within the same fraction family.	3
N.ME.EG19	Recognize that fractions such as $\frac{2}{2}$, and $\frac{3}{3}$ and $\frac{4}{4}$ are equal to the whole (one).	3
N.ME.EG20	Understand that any fraction can be written as a sum of unit fractions, e.g., $\frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$.	3

Table 8.14
Group Consensus
MI Math EGLCE Grade 7, Mathematics, Grade 7

Level	Description	DOK
N.MR.EG21	Multiply fractions by whole numbers, using repeated addition and area or array models.	4
N.ME.EG22	Understand and use decimal fractions up to 2 decimals.	4
N4	Topic 4: Problem solving and estimation	4
N.FL.EG23	Apply estimation in solving problems involving addition, subtraction, multiplication or division.	4
N.MR.EG24	Select appropriate numbers in order to solve problems, write number sentences and solve.	4
N.MR.EG25	Solve applied problems using the four basic arithmetic operations for whole numbers.	3
A	ALGEBRA	4
A1	Topic 1: Expressions and equations	4
A.FO.EG01	Solve applied problems involving rates, including speed, e.g., if a car is going 50 miles per hour, how far will it go in 3 hours.	4
A.FO.EG02	Represent information given in words using algebraic expressions and equations.	4
M	MEASUREMENT	3
M1	Topic 1: Measure and use units	3
M.UN.EG01	Select and use standard tools for measurement of length, time, weight, volume and temperature.	4
M.UN.EG02	Select appropriate units of measure for length, time, weight, area, volume and temperature (degrees Fahrenheit, °F, only) for a given context.	3
M.UN.EG03	Measure and compare integer temperatures in degrees (degrees Fahrenheit, °F, only).	3
M.UN.EG04	Measure lengths to the nearest quarter-inch using a ruler.	3
M.UN.EG07	Understand and use terms such as circumference and distance around a rectangle.	3
M.UN.EG08	Measure the distance around a rectangle (perimeter).	3
M.UN.EG09	Convert one unit of measure to a larger or smaller unit of measure, given the conversion factor.	4
M.UN.EG10	Tell time on a twelve-hour radial clock or digital clock to the nearest half-hour . Address A.M. and P.M. Add or subtract multiples of 5 minutes.	4
M.UN.EG11	Use equivalent calendar units.	3
M.PS.EG12	Solve one- or two-step word problems using addition and subtraction of length, time, weight, area, volume or temperature.	4
M2	Topic 2: Money	3
M.UN.EG13	Recognize equivalent sets of coins and bills.	3
M.PS.EG14	Tell the amount of money in dollars and cents up to and including \$100. Use the symbols \$ and ¢.	3
M.PS.EG15	Add and subtract money in dollars and cents, and combinations of dollars and cents (no decimals), up to and including \$100.	3

Table 8.14
 Group Consensus
 MI Math EGLCE Grade 7, Mathematics, Grade 7

Level	Description	DOK
G	GEOMETRY	3
G1	Topic 1: Identify and describe shapes	3
G.LO.EG01	Describe and use relative position of objects on a plane and in space using words such as above, below, over, under, behind, in front of, right, left.	3
G2	Topic 2: Use maps and grids	4
G.LO.EG02	Find and name locations using simple coordinate systems such as maps and first quadrant grids.	3
G.LO.EG03	Read, interpret and use maps and grids with legends. Understand and use directions such as north, south, east and west and directional turns such as left and right.	4
D	DATA ANALYSIS	4
D1	Topic 1: Explore Data	4
D.RE.EG01	Read data from charts, tables, bar graphs, circle graphs, tallies, and pictographs with a scale up to ten.	3
D.RE.EG02	Draw, explain and justify predictions and conclusions from data presented in tables, graphs and charts.	5
D.RE.EG03	Describe the shape of data using informal language, e.g. increasing, decreasing, stays the same.	4
D.RE.EG04	Solve problems using data presented in tables, bar graphs, circle graphs, tallies and pictographs, including graphs and charts that have more than one set of data.	4

Table 11.14
 Group Consensus
 MI Math EGLCE Grade 11, Mathematics, Grade 11

Level	Description	DOK
F	PATTERNS AND RELATIONSHIPS	3
F1	Topic 1: Patterns	3
F.11.EB01	Create, describe, and extend simple number patterns.	3
F.11.EB02	Explain how to find the next number in a simple repeating pattern.	3
F.11.EB03	Identify, describe and extend patterns found in daily life, such as calendars, schedules, etc.	4
G	GEOMETRY AND MEASUREMENT	3
G1	Topic 1: Measure and use units	3
G.11.EB01	Select and use standard tools for measurement of distance, time, weight, volume and temperature.	3
G.11.EB02	Select appropriate units of measure for distance, time, weight, area, volume and temperature (degrees Fahrenheit, °F, only) for a given context.	3
G.11.EB03	Measure and compare integer temperatures in degrees (degrees Fahrenheit, °F, only).	3
G.11.EB04	Read gauges and meters, e.g. speedometers.	3
G.11.EB05	Measure lengths to the nearest eighth-inch using a ruler. Round measures to the nearest quarter-inch.	3
G.11.EB08	Measure the distance around a rectangle (perimeter).	3
G.11.EB09	Convert measurements of length within a given system.	3
G.11.EB10	Tell time to the nearest 5 minutes. Address A.M. and P.M.	4
G.11.EB11	Know equivalent calendar units.	3
G.11.EB12	Use a calendar and use equivalent calendar units.	3
G.11.EB13	Read and interpret schedules.	3
G.11.EB14	Solve one- and two-step word problems using addition and subtraction of length, time, weight, area, volume or temperature.	4
G2	Topic 2: Money	3
G.11.EB15	Recognize equivalent sets of coins and bills.	3
G.11.EB16	Tell the amount of money in dollars and cents up to and including \$100. Use the symbols \$ and ¢ and decimal notation.	3
G.11.EB17	Add and subtract money in dollars and cents, and combinations of dollars and cents, up to \$1000.	3
G.11.EB18	Round money to the nearest dollar, ten dollars or hundred dollars.	4
G3	Topic 3: Use maps and grids	4
G.11.EB19	Find and name locations using simple coordinate systems such as maps and first quadrant grids.	3
G.11.EB20	Read, interpret and use maps and grids with legends, landmarks and city blocks. Follow and give directions such as north, south, east and west and directional turns such as left and right.	4
D	DATA ANALYSIS	4
D1	Topic 1: Explore Data	4
D.11.EB01	Read data from charts, tables, bar graphs, circle graphs, tallies, pictographs and line graphs.	3

Table 11.14
Group Consensus
MI Math EGLCE Grade 11, Mathematics, Grade 11

Level	Description	DOK
D.11.EB03	Draw, explain and justify predictions and conclusions from data presented in tables, graphs and charts.	5
D.11.EB04	Describe the shape of data using informal language, e.g. increasing, decreasing.	3
D.11.EB05	Solve problems using data presented in tables, charts, bar graphs, circle graphs, tallies, pictographs, and line graphs, including graphs and charts with more than one set of data.	4
D.11.EB06	Collect and explore data to make daily living decisions.	5
D.11.EB07	Identify what data are needed to answer a question or solve a problem.	4
N	NUMBER SENSE AND NUMERATION	4
N1	Topic 1: Count, write and order whole numbers	3
N.11.EB01	Read, write and count using whole numbers to 100,000 in numerals and words.	2
N.11.EB02	Explore and recognize equivalent representations for whole numbers to 100,000.	2
N.11.EB03	Express numbers to 100,000 using place value.	3
N.11.EB04	Order numbers to 100,000; compare whole numbers using phrases such as same as, more than, greater than, fewer than, and use = symbol.	3
N.11.EB05	Round whole numbers to the nearest one, ten, hundred or thousand.	4
N2	Topic 2: Compute with whole numbers	4
N.11.EB06	Add, subtract, multiply and divide whole numbers fluently.	3
N.11.EB07	Apply estimation in solving problems.	4
N.11.EB08	Solve simple open sentences.	4
N.11.EB09	Select appropriate numbers in order to solve problems.	4
N3	Topic 3: Fractions, decimals and percentages	4
N.11.EB10	Understand percentages as parts out of 100, use % notation, and express a part of a whole as a percentage.	4
N.11.EB11	Convert between percentages, decimals and fractions. E.g. $\frac{1}{2} = 0.5 = 50\%$.	4
N.11.EB12	Solve word problems involving percentages in such contexts as sales, taxes and tips.	4
N.11.EB13	Recognize, name, represent and write fractions with denominators of 100 or less.	3
N.11.EB14	Compare and order fractions, including improper fractions and mixed numbers.	4
N.11.EB15	Add and subtract two fractions with like denominators.	3
N.11.EB16	Compare and order decimal fractions in relation to money.	4
N.11.EB17	Round money to the nearest dollar or ten dollars.	4
N.11.EB18	Add, subtract, multiply and divide decimal fractions in relation to money in applied situations.	3
N4	Topic 4: Problem solving and estimation	4
N.11.EB19	Apply estimation in solving problems involving addition, subtraction, multiplication or division.	4

Table 11.14
Group Consensus
MI Math EGLCE Grade 11, Mathematics, Grade 11

Level	Description	DOK
N.11.EB20	Select appropriate numbers and operations in order to solve problems, write number sentences and solve.	4
N.11.EB21	Solve applied problems involving the four basic arithmetic operations for whole numbers, fractions and decimals.	3
A	NUMERICAL AND ALGEBRAIC OPERATIONS AND ANALYTICAL THINKING	4
A1	Topic 1: Expressions and equations	4
A.11.EB01	Solve applied problems involving rates, including speed.	4
A.11.EB02	Identify the unknown quantity in an applied problem.	4
A.11.EB03	Represent information given in words using algebraic expressions and equations.	4

Appendix B

Data Analysis Tables

Michigan Grades 3–8 and 11 Functional Independence Mathematics Grade Level Content Expectations/Benchmarks and MI- Access Assessments

Brief Explanation of Data in the Alignment Tables by Column

Tables *grade.1*

Standards #	Number of standards plus one for a generic standard for each standard.
Standards #	Average number of standards for reviewers. If the number is greater than the actual number in the standard, then at least one reviewer coded an item for the standard/standard but did not find any standard in the standard that corresponded to the item.
Level	The Depth-of-Knowledge level coded by the reviewers for the standards for each standard.
# of standards by	
Level	The number of standards coded at each level
% w/in std	
by Level	The percent of standards coded at each level
Hits	
Mean & SD	Mean and standard deviation number of items reviewers coded as corresponding to standard. The total is the total number of coded hits.
Cat. Conc.	
Accept.	“Yes” indicates that the standard met the acceptable level for criterion. “Yes” if mean is six or more. “Weak” if mean is five to six. “No” if mean is less than five.

Tables *grade.2*

	First five columns repeat columns from Table 1.
Level of Item	
w.r.t. Stand	Mean percent and standard deviation of items coded as “under” the Depth-of-Knowledge level of the corresponding standard, as “at” (the same) the Depth-of-Knowledge level of the corresponding standard, and as “above” the Depth-of-Knowledge level of the corresponding standard.
Depth-of-	
Know.	
Consistency	
Accept.	“Yes” indicates that 50% or more of the items were rated as “at” or “above” the Depth-of-Knowledge level of the corresponding standards. “Weak” indicates that 40% to 50% of the items were rated as “at” or “above” the Depth-of-Knowledge level of the corresponding standards. “No” indicates that less than 40% items were rated as “at” or “above” the Depth-of-Knowledge level of the corresponding standards.

Tables *grade.3*

First five columns repeat columns from Table 1 and 2.

Range of

Standards

Standards Hit

Average number and standard deviation of the standards hit coded by reviewers.

% of Total

Average percent and standard deviation of the total standards that had at least one item coded.

Range of

Know.

Accept.

“Yes” indicates that 50% or more of the standards had at least one coded standard.

“Weak” indicates that 40% to 50% of the standards had at least one coded standard.

“No” indicates that 40% or less of the standards had at least one coded standard.

Balance

Index

% Hits in

Std/Ttl Hits

Average and standard deviation of the percent of the items hit for a standard of total number of hits (see total under the Hits column).

Index

Average and standard deviation of the Balance Index.

$$\text{Note: BALANCE INDEX} = 1 - \left(\sum_{k=1} \left| 1/(O) - I_{(k)} / (H) \right| \right) / 2$$

Where O = Total number of standards hit for the standard

I_(k) = Number of items hit corresponding to standard (k)

H = Total number of items hit for the standard

Bal. of Rep

Accept.

“Yes” indicates that the Balance Index was .7 or above (items evenly distributed among standards).

“Weak” indicates that the Balance Index was .6 to .7 (a high percentage of items coded as corresponding to two or three standards).

“No” indicates that the Balance Index was .6 or less (a high percentage of items coded as corresponding to one standard.)

Tables *grade.4*

Summary if standard met the acceptable level for the four criteria by each standard.

Tables *grade.6*

The DOK value for each assessment item given by each reviewer. The intraclass correlation for the group of reviewers is given on the last row.

Tables *grade.8*

The DOK level and standard code assigned by each reviewer for each item.

Tables *grade.9*

This list for each item all of the standards coded by the group of reviewers as corresponding to the item. Repeat of a standard indicates the number of reviewers who coded that standard as corresponding to the item.

Tables *grade.10*

This lists for each standard all of the items coded by the group of reviewers as corresponding to the standard. Repeat of an item indicates the number of reviewers who coded the item as corresponding to the standard.

Tables *grade.12*

This table summarizes the number of reviewers who coded an item as corresponding to a standard. It contains the same information as in Table 10.

Tables *grade.13*

This table can be used to compare the DOK level of a standard to the average DOK level of the items reviewers assigned to the standard. This table is helpful to identify items with a lower DOK level that should be replaced by an item with a higher DOK level to improve the Depth-of-Knowledge Consistency.

Table 3.1

Categorical Concurrence Between Standards and Assessment as Rated by Six Reviewers
MI Functional Independence Math Grade 3
Number of Assessment Items - 30

Standards			Level by Objective			Hits		Cat. Concurr.
Title	Goals #	Objs #	Level	# of objs by Level	% w/in std by Level	Mean	S.D.	
N - NUMBERS AND OPERATIONS	1	4	2 3	2 2	50 50	13.67	1.49	YES
M - MEASUREMENT	2	3	2 3	1 2	33 66	8	0	YES
G - GEOMETRY	2	4	2 3	1 3	25 75	9	0	YES
D - DATA ANALYSIS	1	1	4	1	100	0	0	NO
Total	6	12	2 3 4	4 7 1	33 58 8	30.67	1.49	

Table 3.2

Depth-of-Knowledge Consistency Between Standards and Assessment as Rated by Six Reviewers

MI Functional Independence Math Grade 3

Number of Assessment Items - 30

Standards			Hits		Level of Item w.r.t. Standard						DOK Consistency
					% Under		% At		% Above		
Title	Goals #	Objs #	M	S.D.	M	S.D.	M	S.D.	M	S.D.	
N - NUMBERS AND OPERATIONS	1	4	13.67	1.49	11	22	78	34	11	30	YES
M - MEASUREMENT	2	3	8	0	10	26	90	26	0	0	YES
G - GEOMETRY	2	4	9	0	11	31	85	34	4	15	YES
D - DATA ANALYSIS	1	1	0	0	0	0	0	0	0	0	NO
Total	6	12	30.67	1.49	11	26	84	32	5	20	

Table 3.3

Range-of-Knowledge Correspondence and Balance of Representation Between Standards and Assessment as Rated by Six Reviewers
MI Functional Independence Math Grade 3
Number of Assessment Items - 30

Standards			Hits		Range of Objectives				Rng. of Know.	Balance Index				Bal. of Represent.
					# Objs Hit		% of Total			% Hits in Std/Ttl Hits		Index		
Title	Goals #	Objs #	Mean	S.D.	Mean	S.D.	Mean	S.D.		Mean	S.D.	Mean	S.D.	
N - NUMBERS AND OPERATIONS	1	4	13.67	1.49	3.33	0.47	83	12	YES	44	2	0.74	0.03	YES
M - MEASUREMENT	2	3	8	0	3	0	100	0	YES	26	1	0.92	0	YES
G - GEOMETRY	2	4	9	0	3	0	75	0	YES	29	1	0.89	0	YES
D - DATA ANALYSIS	1	1	0	0	0	0	0	0	NO	0	0	0	0	NO
Total	6	12	30.67	1.49	2.33	0.31	65	12		25	8	0.64	0.08	

Table 3.4

Summary of Attainment of Acceptable Alignment Level on Four Content Focus Criteria as Rated by Six Reviewers

MI Functional Independence Math Grade 3

Number of Assessment Items - 30

Standards	Alignment Criteria			
	Categorical Concurrence	Depth-of- Knowledge Consistency	Range of Knowledge	Balance of Representation
N - NUMBERS AND OPERATIONS	YES	YES	YES	YES
M - MEASUREMENT	YES	YES	YES	YES
G - GEOMETRY	YES	YES	YES	YES
D - DATA ANALYSIS	NO	NO	NO	NO

Table 3.6
Depth-of-Knowledge Levels by Item and Reviewers
Intraclass Correlation
MI Functional Independence Math Grade 3

Item	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6
1	3	3	3	2	3	3
2	3	3	3	2	3	3
3	3	3	3	3	3	3
4						
5	3	3	3	2	2	3
6	3	3	3	2	2	3
7	3	3	3	2	2	3
8	3	3	3	2	2	3
9	2	2	2	3	2	2
10	2	2	2	3	2	2
11	2	2	2	3	2	2
12						
13	2	2	2	3	2	2
14	2	2	2	3	2	2
15	2	2	2	3	2	2
16	2	2	2	2	2	2
17	2	2	2	2	2	2
18	3	3	3	3	2	3
19	3	3	3	3	3	3
20						
21	3	3	3	3	3	3
22						
23						
24	2	2	2	2	2	2
25	2	2	2	2	2	2
26	2	2	2	2	2	2
27	3	3	3	5	3	3
28	3	3	3	5	3	3
29	3	3	3	3	3	3
30	3	2	3	3	3	2
31	3	3	3	3	3	2
32						
33						
34	3	2	2	4	3	3
35	2	3	3	4	3	3
36						
37	2	2	2	3	2	3
38	2	2	2	3	3	2

Table 3.6
Depth-of-Knowledge Levels by Item and Reviewers
Intraclass Correlation
MI Functional Independence Math Grade 3

Intraclass Correlation: 0.8314

Pairwise Comparison: 0.6978

Table 3.8
DOK Levels and Objectives Coded by Each Reviewer
MI Functional Independence Math Grade 3

Item	DOK 0	PObj 0	DOK 1	PObj 1	DOK 2	PObj 2	DOK 3	PObj 3	DOK 4	PObj 4	S1Obj 4	S2Obj 4	DOK 5	PObj 5	S1Obj 5	S2Obj 5
1	3	N.MR.EG05	3	N.MR.EG05	3	N.MR.EG05	2	N.MR.EG05	3	N.MR.EG05			3	N.MR.EG05		
2	3	N.MR.EG05	3	N.MR.EG05	3	N.MR.EG05	2	N.MR.EG05	3	N.MR.EG05			3	N.MR.EG05		
3	3	N.MR.EG05	3	N.MR.EG05	3	N.MR.EG05	3	N.MR.EG05	3	N.MR.EG05			3	N.MR.EG05		
4																
5	3	G.LO.EG02	3	G.LO.EG02	3	G.LO.EG02	2	G.LO.EG02	2	G.LO.EG02			3	G.LO.EG02		
6	3	G.LO.EG02	3	G.LO.EG02	3	G.LO.EG02	2	G.LO.EG02	2	G.LO.EG02			3	G.LO.EG02		
7	3	G.LO.EG02	3	G.LO.EG02	3	G.LO.EG02	2	G.LO.EG02	2	G.LO.EG02			3	G.LO.EG02		
8	3	G.LO.EG02	3	G.LO.EG02	3	G.LO.EG02	2	G.LO.EG02	2	G.LO.EG02			3	G.LO.EG02		
9	2	N.ME.EG02	2	N.ME.EG02	2	N.ME.EG02	3	N.ME.EG02	2	N.ME.EG01	N.ME.EG02		2	N.ME.EG02		
10	2	N.ME.EG02	2	N.ME.EG02	2	N.ME.EG02	3	N.ME.EG02	2	N.ME.EG01	N.ME.EG02		2	N.ME.EG02		
11	2	N.ME.EG02	2	N.ME.EG02	2	N.ME.EG02	3	N.ME.EG02	2	N.ME.EG01	N.ME.EG02		2	N.ME.EG02		
12																
13	2	N.ME.EG02	2	N.ME.EG02	2	N.ME.EG02	3	N.ME.EG02	2	N.ME.EG02			2	N.ME.EG02		
14	2	N.ME.EG02	2	N.ME.EG02	2	N.ME.EG02	3	N.ME.EG02	2	N.ME.EG01			2	N.ME.EG02		
15	2	N.ME.EG02	2	N.ME.EG02	2	N.ME.EG02	3	N.ME.EG02	2	N.ME.EG01			2	N.ME.EG02		

Table 3.8
DOK Levels and Objectives Coded by Each Reviewer
MI Functional Independence Math Grade 3

Item	DOK 0	PObj 0	DOK 1	PObj 1	DOK 2	PObj 2	DOK 3	PObj 3	DOK 4	PObj 4	S1Obj 4	S2Obj 4	DOK 5	PObj 5	S1Obj 5	S2Obj 5
16	2	G.GS.EG01	2	G.GS.EG01	2	G.GS.EG01	2	G.GS.EG01	2	G.GS.EG01			2	G.GS.EG01		
17	2	G.GS.EG01	2	G.GS.EG01	2	G.GS.EG01	2	G.GS.EG01	2	G.GS.EG01			2	G.GS.EG01		
18	3	M.PS.EG01	3	M.PS.EG01	3	M.PS.EG01	3	M.PS.EG01	2	M.PS.EG01			3	M.PS.EG01		
19	3	M.PS.EG01	3	M.PS.EG01	3	M.PS.EG01	3	M.PS.EG01	3	M.PS.EG01			3	M.PS.EG01		
20																
21	3	M.PS.EG01	3	M.PS.EG01	3	M.PS.EG01	3	M.PS.EG01	3	M.PS.EG01			3	M.PS.EG01		
22																
23																
24	2	M.UN.EG03	2	M.UN.EG03	2	M.UN.EG03	2	M.UN.EG03	2	M.UN.EG03			2	M.UN.EG03		
25	2	M.UN.EG03	2	M.UN.EG03	2	M.UN.EG03	2	M.UN.EG03	2	M.UN.EG03			2	M.UN.EG03		
26	2	M.UN.EG03	2	M.UN.EG03	2	M.UN.EG03	2	M.UN.EG03	2	M.UN.EG03			2	M.UN.EG03		
27	3	G.SR.EG04	3	G.SR.EG04	3	G.SR.EG04	5	G.SR.EG04	3	G.SR.EG04			3	G.SR.EG04		
28	3	G.SR.EG04	3	G.SR.EG04	3	G.SR.EG04	5	G.SR.EG04	3	G.SR.EG04			3	G.SR.EG04		
29	3	G.SR.EG04	3	G.SR.EG04	3	G.SR.EG04	3	G.SR.EG04	3	G.SR.EG04			3	G.SR.EG04		
30	3	M.UN.EG02	2	M.UN.EG02	3	M.UN.EG02	3	M.UN.EG02	3	M.UN.EG02			2	M.UN.EG02		

Table 3.8
DOK Levels and Objectives Coded by Each Reviewer
MI Functional Independence Math Grade 3

Item	DOK 0	PObj 0	DOK 1	PObj 1	DOK 2	PObj 2	DOK 3	PObj 3	DOK 4	PObj 4	S1Obj 4	S2Obj 4	DOK 5	PObj 5	S1Obj 5	S2Obj 5
31	3	M.UN.EG0 2	3	M.UN.EG0 2	3	M.UN.EG0 2	3	M.UN.EG0 2	3	M.UN.EG0 2			2	M.UN.EG0 2		
32																
33																
34	3	N.ME.EG0 3	2	N.ME.EG0 3	2	N.ME.EG0 3	4	N.ME.EG0 3	3	N.ME.EG0 3			3	N.ME.EG0 3		
35	2	N.ME.EG0 3	3	N.ME.EG0 3	3	N.ME.EG0 3	4	N.ME.EG0 3	3	N.ME.EG0 3			3	N.ME.EG0 3		
36																
37	2	N.ME.EG0 2	2	N.ME.EG0 2	2	N.ME.EG0 2	3	N.ME.EG0 2	2	N.ME.EG0 2	N.ME.EG0 1		3	N.ME.EG0 3		
38	2	N.ME.EG0 2	2	N.ME.EG0 2	2	N.ME.EG0 2	3	N.ME.EG0 2	3	N.ME.EG0 1			2	N.ME.EG0 1		

Objective Pairwise Comparison: 0.9085
Standard Pairwise Comparison: 1

Table 3.9
Objectives Coded to Each Item by Reviewers
MI Functional Independence Math Grade 3

Low		Medium		High
0		4.842105		7

1	N.M	N.M	N.M	N.M	N.M	N.M	
	R.E	R.E	R.E	R.E	R.E	R.E	
	G05	G05	G05	G05	G05	G05	
2	N.M	N.M	N.M	N.M	N.M	N.M	
	R.E	R.E	R.E	R.E	R.E	R.E	
	G05	G05	G05	G05	G05	G05	
3	N.M	N.M	N.M	N.M	N.M	N.M	
	R.E	R.E	R.E	R.E	R.E	R.E	
	G05	G05	G05	G05	G05	G05	
4							
5	G.L	G.L	G.L	G.L	G.L	G.L	
	O.E	O.E	O.E	O.E	O.E	O.E	
	G02	G02	G02	G02	G02	G02	
6	G.L	G.L	G.L	G.L	G.L	G.L	
	O.E	O.E	O.E	O.E	O.E	O.E	
	G02	G02	G02	G02	G02	G02	
7	G.L	G.L	G.L	G.L	G.L	G.L	
	O.E	O.E	O.E	O.E	O.E	O.E	
	G02	G02	G02	G02	G02	G02	
8	G.L	G.L	G.L	G.L	G.L	G.L	
	O.E	O.E	O.E	O.E	O.E	O.E	
	G02	G02	G02	G02	G02	G02	
9	N.M	N.M	N.M	N.M	N.M	N.M	N.M
	E.E	E.E	E.E	E.E	E.E	E.E	E.E
	G01	G02	G02	G02	G02	G02	G02
10	N.M	N.M	N.M	N.M	N.M	N.M	N.M
	E.E	E.E	E.E	E.E	E.E	E.E	E.E
	G01	G02	G02	G02	G02	G02	G02
11	N.M	N.M	N.M	N.M	N.M	N.M	N.M
	E.E	E.E	E.E	E.E	E.E	E.E	E.E
	G01	G02	G02	G02	G02	G02	G02
12							
13	N.M	N.M	N.M	N.M	N.M	N.M	
	E.E	E.E	E.E	E.E	E.E	E.E	
	G02	G02	G02	G02	G02	G02	
14	N.M	N.M	N.M	N.M	N.M	N.M	
	E.E	E.E	E.E	E.E	E.E	E.E	
	G01	G02	G02	G02	G02	G02	

Table 3.9
Objectives Coded to Each Item by Reviewers
MI Functional Independence Math Grade 3

15	N.M E.E G01	N.M E.E G02	N.M E.E G02	N.M E.E G02	N.M E.E G02	N.M E.E G02
16	G.G S.E G01	G.G S.E G01	G.G S.E G01	G.G S.E G01	G.G S.E G01	G.G S.E G01
17	G.G S.E G01	G.G S.E G01	G.G S.E G01	G.G S.E G01	G.G S.E G01	G.G S.E G01
18	M.P S.E G01	M.P S.E G01	M.P S.E G01	M.P S.E G01	M.P S.E G01	M.P S.E G01
19	M.P S.E G01	M.P S.E G01	M.P S.E G01	M.P S.E G01	M.P S.E G01	M.P S.E G01
20						
21	M.P S.E G01	M.P S.E G01	M.P S.E G01	M.P S.E G01	M.P S.E G01	M.P S.E G01
22						
23						
24	M.U N.E G03	M.U N.E G03	M.U N.E G03	M.U N.E G03	M.U N.E G03	M.U N.E G03
25	M.U N.E G03	M.U N.E G03	M.U N.E G03	M.U N.E G03	M.U N.E G03	M.U N.E G03
26	M.U N.E G03	M.U N.E G03	M.U N.E G03	M.U N.E G03	M.U N.E G03	M.U N.E G03
27	G.S R.E G04	G.S R.E G04	G.S R.E G04	G.S R.E G04	G.S R.E G04	G.S R.E G04
28	G.S R.E G04	G.S R.E G04	G.S R.E G04	G.S R.E G04	G.S R.E G04	G.S R.E G04
29	G.S R.E G04	G.S R.E G04	G.S R.E G04	G.S R.E G04	G.S R.E G04	G.S R.E G04
30	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02

Table 3.9
Objectives Coded to Each Item by Reviewers
MI Functional Independence Math Grade 3

31	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02	
32							
33							
34	N.M E.E G03	N.M E.E G03	N.M E.E G03	N.M E.E G03	N.M E.E G03	N.M E.E G03	
35	N.M E.E G03	N.M E.E G03	N.M E.E G03	N.M E.E G03	N.M E.E G03	N.M E.E G03	
36							
37	N.M E.E G01	N.M E.E G02	N.M E.E G02	N.M E.E G02	N.M E.E G02	N.M E.E G02	N.M E.E G03
38	N.M E.E G01	N.M E.E G01	N.M E.E G02	N.M E.E G02	N.M E.E G02	N.M E.E G02	

Table 3.10
Items Coded by Reviewers to Each Objective
MI Functional Independence Math Grade 3

Low		Medium		High
0		8		43

N																				
N1																				
N.M E.E G01	9	10	11	14	15	37	38	38												
N.M E.E G02	9	9	9	9	9	9	10	10	10	10	10	10	11	11	11	11	11	11	13	13
	13	13	13	13	14	14	14	14	14	15	15	15	15	15	37	37	37	37	37	
	38	38	38	38																
N.M E.E G03	34	34	34	34	34	34	35	35	35	35	35	35	37							
N.M R.E G05	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3		
M																				
M1																				
M.P S.E G01	18	18	18	18	18	18	19	19	19	19	19	19	21	21	21	21	21	21		
M.U N.E G02	30	30	30	30	30	30	31	31	31	31	31	31								
M2																				
M.U N.E G03	24	24	24	24	24	24	25	25	25	25	25	25	26	26	26	26	26	26		
G																				
G1																				
G.G S.E G01	16	16	16	16	16	16	17	17	17	17	17	17								
G.L O.E G02	5	5	5	5	5	5	6	6	6	6	6	6	7	7	7	7	7	7	8	8
	8	8	8	8																
G2																				

Table 3.10
Items Coded by Reviewers to Each Objective
MI Functional Independence Math Grade 3

G.S R.E G03																		
G.S R.E G04	27	27	27	27	27	27	28	28	28	28	28	28	29	29	29	29	29	29
D																		
D1																		
D.R E.E G01																		

Table 3.11

Number of Reviewers Coding an Item by Objective (Item Number: Number of Reviewers)
MI Functional Independence Math Grade 3

Low		Medium		High
1		3		6

N								
N1								
N.M E.E G01	9:1	10:1	11:1	14:1	15:1	37:1	38:2	
N.M E.E G02	9:6	10:6	11:6	13:6	14:5	15:5	37:5	38:4
N.M E.E G03	34:6	35:6	37:1					
N.M R.E G05	1:6	2:6	3:6					
M								
M1								
M.P S.E G01	18:6	19:6	21:6					
M.U N.E G02	30:6	31:6						
M2								
M.U N.E G03	24:6	25:6	26:6					
G								
G1								
G.G S.E G01	16:6	17:6						
G.L O.E G02	5:6	6:6	7:6	8:6				
G2								
G.S R.E G03								

Table 3.11

Number of Reviewers Coding an Item by Objective (Item Number: Number of Reviewers)
MI Functional Independence Math Grade 3

G.S R.E G04	27:6	28:6	29:6
D			
D1			
D.R E.E G01			

Table 3.12

Number of Reviewers Coding an Objective by Item (Objective: Number of Reviewers)
MI Functional Independence Math Grade 3

Low		Medium		High
1		3		6

1	N.M R.E G05: 6	
2	N.M R.E G05: 6	
3	N.M R.E G05: 6	
4		
5	G.L O.E G02: 6	
6	G.L O.E G02: 6	
7	G.L O.E G02: 6	
8	G.L O.E G02: 6	
9	N.M E.E G01: 1	N.M E.E G02: 6
10	N.M E.E G01: 1	N.M E.E G02: 6
11	N.M E.E	N.M E.E

Table 3.12

Number of Reviewers Coding an Objective by Item (Objective: Number of Reviewers)
MI Functional Independence Math Grade 3

	G01: 1	G02: 6
12		
13	N.M E.E G02: 6	
14	N.M E.E G01: 1	N.M E.E G02: 5
15	N.M E.E G01: 1	N.M E.E G02: 5
16	G.G S.E G01: 6	
17	G.G S.E G01: 6	
18	M.P S.E G01: 6	
19	M.P S.E G01: 6	
20		
21	M.P S.E G01: 6	
22		
23		
24	M.U N.E G03: 6	
25	M.U N.E	

Table 3.12

Number of Reviewers Coding an Objective by Item (Objective: Number of Reviewers)
MI Functional Independence Math Grade 3

	G03: 6		
26	M.U N.E G03: 6		
27	G.S R.E G04: 6		
28	G.S R.E G04: 6		
29	G.S R.E G04: 6		
30	M.U N.E G02: 6		
31	M.U N.E G02: 6		
32			
33			
34	N.M E.E G03: 6		
35	N.M E.E G03: 6		
36			
37	N.M E.E G01: 1	N.M E.E G02: 5	N.M E.E G03: 1
38	N.M E.E	N.M E.E	

Table 3.12

Number of Reviewers Coding an Objective by Item (Objective: Number of Reviewers)

MI Functional Independence Math Grade 3

	G01: 2	G02: 4
--	-----------	-----------

Table 3.13

Assessment Item DOK vs Consensus DOK (Item Number: Number of Reviewers [Average DOK])

MI Functional Independence Math Grade 3

Low DOK		Matched DOK		High DOK
1		3		6

N [3]:								
N1 [3]:								
N.M E.E G01 [2]:	9:1[2]	10:1 [2]	11:1 [2]	14:1 [2]	15:1 [2]	37:1 [2]	38:2 [2.5]	
N.M E.E G02 [2]:	9:6[2.17]	10:6 [2.1 7]	11:6 [2.1 7]	13:6 [2.1 7]	14:5 [2.2]	15:5 [2.2]	37:5 [2.2]	38:4 [2.2 5]
N.M E.E G03 [3]:	34:6 [2.8 3]	35:6 [3]	37:1 [3]					
N.M R.E G05 [3]:	1:6[2.83]	2:6[2.83]	3:6[3]					
M [3]:								
M1 [3]:								
M.P S.E G01 [3]:	18:6 [2.8 3]	19:6 [3]	21:6 [3]					
M.U N.E G02 [3]:	30:6 [2.6 7]	31:6 [2.8 3]						
M2 [2]:								
M.U N.E G03 [2]:	24:6 [2]	25:6 [2]	26:6 [2]					

Table 3.13

Assessment Item DOK vs Consensus DOK (Item Number: Number of Reviewers [Average DOK])

MI Functional Independence Math Grade 3

G [3]:				
G1 [3]:				
G.G S.E G01 [2]:	16:6 [2]	17:6 [2]		
G.L O.E G02 [3]:	5:6[2.67]	6:6[2.67]	7:6[2.67]	8:6[2.67]
G2 [3]:				
G.S R.E G03 [3]:				
G.S R.E G04 [3]:	27:6 [3.3 3]	28:6 [3.3 3]	29:6 [3]	
D [4]:				
D1 [4]:				
D.R E.E G01 [4]:				

Table 4.1

Categorical Concurrence Between Standards and Assessment as Rated by Six Reviewers

MI Functional Independence Math Grade 4

Number of Assessment Items - 30

Standards			Level by Objective			Hits		Cat. Concurr.
Title	Goals #	Objs #	Level	# of objs by Level	% w/in std by Level	Mean	S.D.	
N - NUMBERS AND OPERATIONS	2	17.33	2 3 4	5 10 1	31 62 6	17	1.91	YES
M - MEASUREMENT	2	8	2 3	3 5	37 62	8.67	0.75	YES
G - GEOMETRY	2	3.17	3	3	100	4.83	0.37	NO
D - DATA ANALYSIS	1	3	2 3 4	1 1 1	33 33 33	1.67	1.11	NO
Total	7	31.5	2 3 4	9 19 2	30 63 6	32.17	0.69	

Table 4.2

Depth-of-Knowledge Consistency Between Standards and Assessment as Rated by Six Reviewers

MI Functional Independence Math Grade 4

Number of Assessment Items - 30

Standards			Hits		Level of Item w.r.t. Standard						DOK Consistency
					% Under		% At		% Above		
Title	Goals #	Objs #	M	S.D.	M	S.D.	M	S.D.	M	S.D.	
N - NUMBERS AND OPERATIONS	2	17.33	17	1.91	15	32	80	36	5	19	YES
M - MEASUREMENT	2	8	8.67	0.75	4	13	87	30	9	29	YES
G - GEOMETRY	2	3.17	4.83	0.37	25	42	75	42	0	0	YES
D - DATA ANALYSIS	1	3	1.67	1.11	0	0	44	46	56	46	YES
Total	7	31.5	32.17	0.69	12	30	79	37	9	27	

Table 4.3

Range-of-Knowledge Correspondence and Balance of Representation Between Standards and Assessment as Rated by Six Reviewers
MI Functional Independence Math Grade 4
Number of Assessment Items - 30

Standards			Hits		Range of Objectives				Rng. of Know.	Balance Index				Bal. of Represent.
					# Objs Hit		% of Total			% Hits in Std/Ttl Hits		Index		
Title	Goals #	Objs #	Mean	S.D.	Mean	S.D.	Mean	S.D.		Mean	S.D.	Mean	S.D.	
N - NUMBERS AND OPERATIONS	2	17.33	17	1.91	10.83	1.77	62	7	YES	53	5	0.80	0.03	YES
M - MEASUREMENT	2	8	8.67	0.75	5.5	0.76	69	10	YES	27	2	0.75	0.04	YES
G - GEOMETRY	2	3.17	4.83	0.37	3	0.58	94	12	YES	15	1	0.89	0.05	YES
D - DATA ANALYSIS	1	3	1.67	1.11	1.33	0.47	44	16	WEAK	5	3	1	0	YES
Total	7	31.5	32.17	0.69	5.17	3.74	67	21		25	18	0.86	0.10	

Table 4.4

*Summary of Attainment of Acceptable Alignment Level on Four Content Focus Criteria
as Rated by Six Reviewers*

MI Functional Independence Math Grade 4

Number of Assessment Items - 30

Standards	Alignment Criteria			
	Categorical Concurrence	Depth-of- Knowledge Consistency	Range of Knowledge	Balance of Representation
N - NUMBERS AND OPERATIONS	YES	YES	YES	YES
M - MEASUREMENT	YES	YES	YES	YES
G - GEOMETRY	NO	YES	YES	YES
D - DATA ANALYSIS	NO	YES	WEAK	YES

Table 4.6
Depth-of-Knowledge Levels by Item and Reviewers
Intraclass Correlation
MI Functional Independence Math Grade 4

Item	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6
1	2	3	3	3	3	2
2	2	3	3	3	3	2
3						
4	3	2	3	3	3	2
5	3	2	2	3	2	3
6						
7						
8	3	3	2	2	3	3
9	3	3	2	3	3	3
10	3	3	3	3	2	2
11	2	2	2	2	2	2
12	2	2	2	2	2	2
13	3	3	3	3	3	3
14	3	2	3	2	3	3
15						
16						
17	3	3	3	3	3	3
18	3	3	3	3	3	3
19						
20	3	3	3	3	3	3
21	3	3	2	3	2	3
22	3	3	3	3	3	2
23	3	3	3	4	3	3
24	2	2	2	2	2	2
25	2	2	2	2	2	2
26	2	2	2	2	2	2
27	3	3	3	5	3	2
28						
29	3	3	3	2	3	3
30	3	2	3	4	3	3
31	2	2	2	2	2	3
32						
33	2	2	3	4	3	3
34	2	3	3	3	3	3
35	2	3	3	3	3	3
36	3	3	3	3	3	4
37	2	2	2	2	2	3
38	2	3	3	3	3	3

Table 4.6
Depth-of-Knowledge Levels by Item and Reviewers
Intraclass Correlation
MI Functional Independence Math Grade 4

Intraclass Correlation: 0.784

Pairwise Comparison: 0.68

Table 4.8
DOK Levels and Objectives Coded by Each Reviewer
MI Functional Independence Math Grade 4

Item	DOK 0	PObj 0	S1Ob j0	DOK 1	PObj 1	S1Ob j1	DOK 2	PObj 2	S1Ob j2	DOK 3	PObj 3	S1Ob j3	DOK 4	PObj 4	S1Ob j4	DOK 5	PObj 5	S1Ob j5
1	2	G.SR.EG04		3	G.SR.EG04		3	G.SR.EG04		3	G.SR.EG04		3	G.SR.EG04		2	G2	
2	2	G.SR.EG04		3	G.SR.EG04		3	G.SR.EG04		3	G.SR.EG04		3	G.SR.EG04		2	G.SR.EG04	
3																		
4	3	N.MR.EG09		2	N.ME.EG06		3	N.MR.EG09		3	N.MR.EG09		3	N.MR.EG09		2	N.ME.EG06	
5	3	N.MR.EG09		2	N.MR.EG09		2	N.MR.EG09		3	N.MR.EG09		2	N.MR.EG09		3	N.MR.EG09	
6																		
7																		
8	3	G.LO.EG02		3	G.LO.EG02		2	G.LO.EG02		2	G.LO.EG02		3	G.LO.EG02		3	G.LO.EG02	
9	3	G.LO.EG02		3	G.LO.EG02		2	G.LO.EG02		3	G.LO.EG02		3	G.LO.EG02		3	G.LO.EG02	
10	3	N.MR.EG10		3	N.MR.EG10		3	N.MR.EG10		3	D.RE.EG02		2	N.ME.EG02		2	N.ME.EG02	
11	2	N.ME.EG01		2	N.ME.EG01		2	N.ME.EG01		2	N.ME.EG01		2	N.ME.EG01		2	N.ME.EG01	
12	2	N.ME.EG02		2	N.ME.EG02		2	N.ME.EG02		2	N.ME.EG02		2	N.ME.EG01		2	N.ME.EG02	
13	3	D.RE.EG03		3	N.ME.EG05		3	N.ME.EG05		3	D.RE.EG03		3	N.ME.EG05		3	N.ME.EG05	
14	3	D.RE.EG02		2	D.RE.EG02		3	D.RE.EG02		2	D.RE.EG02		3	D.RE.EG02		3	D.RE.EG02	
15																		
16																		
17	3	G.GS.EG01		3	G.GS.EG01		3	G.GS.EG01		3	D.RE.EG03	G.GS.EG01	3	N.ME.EG02	N.ME.EG01	3	G.GS.EG01	

Table 4.8
DOK Levels and Objectives Coded by Each Reviewer
MI Functional Independence Math Grade 4

Item	DOK 0	PObj 0	S1Ob j0	DOK 1	PObj 1	S1Ob j1	DOK 2	PObj 2	S1Ob j2	DOK 3	PObj 3	S1Ob j3	DOK 4	PObj 4	S1Ob j4	DOK 5	PObj 5	S1Ob j5
18	3	N.FL. EG16		3	N.FL. EG16		3	N.FL. EG16		3	N.FL. EG12		3	N.FL. EG12		3	N.FL. EG16	N.FL. EG12
19																		
20	3	N.ME .EG0 5		3	N.ME .EG0 5		3	N.ME .EG0 5		3	N.ME .EG0 5		3	N.ME .EG0 5		3	N.ME .EG0 5	
21	3	N.ME .EG0 5		3	N.ME .EG0 4		2	N.ME .EG0 4		3	N.ME .EG0 4		2	N.ME .EG0 4	N.ME .EG0 1	3	N.ME .EG0 4	
22	3	N.ME .EG0 5		3	N.ME .EG0 5		3	N.ME .EG0 5		3	N.ME .EG0 5		3	N.ME .EG0 5		2	N.ME .EG0 5	
23	3	M.UN .EG0 3		3	M.UN .EG0 3		3	M.UN .EG0 3		4	M.UN .EG0 3		3	M.UN .EG0 3		3	M.UN .EG0 3	
24	2	M.UN .EG0 5		2	M.UN .EG0 5		2	M.UN .EG0 5		2	M.UN .EG0 5		2	M.UN .EG0 5		2	M.UN .EG0 5	
25	2	M.UN .EG0 5		2	M.UN .EG0 5		2	M.UN .EG0 5		2	M.UN .EG0 5		2	M.UN .EG0 5		2	M.UN .EG0 5	
26	2	M.UN .EG0 5		2	M.UN .EG0 5		2	M.UN .EG0 5		2	M.UN .EG0 5		2	M.UN .EG0 5		2	M.UN .EG0 5	
27	3	M.PS .EG0 6		3	M.PS .EG0 6		3	M.PS .EG0 6		5	M.PS .EG0 6		3	M.PS .EG0 6		2	M.UN .EG0 5	
28																		
29	3	M.PS .EG0 9		3	M.PS .EG0 9		3	M.PS .EG0 9		2	M.PS .EG0 9		3	M.PS .EG0 9		3	M.PS .EG0 9	
30	3	M.UN .EG0 8		2	M.PS .EG0 9		3	M.UN .EG0 8		4	M.UN .EG0 8		3	M.UN .EG0 8		3	M.UN .EG0 8	
31	2	M.UN .EG0 7		2	M.UN .EG0 7		2	M.UN .EG0 7		2	M.UN .EG0 7		2	M.UN .EG0 7		3	N.ME .EG0 7	
32																		

Table 4.8
DOK Levels and Objectives Coded by Each Reviewer
MI Functional Independence Math Grade 4

Item	DOK 0	PObj 0	S1Ob j0	DOK 1	PObj 1	S1Ob j1	DOK 2	PObj 2	S1Ob j2	DOK 3	PObj 3	S1Ob j3	DOK 4	PObj 4	S1Ob j4	DOK 5	PObj 5	S1Ob j5
33	2	N.FL. EG12		2	N.FL. EG16		3	N.FL. EG16	N.FL. EG12	4	N.MR .EG1 1		3	N.FL. EG16		3	N.FL. EG16	
34	2	N.FL. EG12		3	M.PS .EG0 9		3	M.PS .EG0 9		3	M.PS .EG0 9		3	M.PS .EG0 9		3	N.FL. EG16	
35	2	N.FL. EG16	N.FL. EG12	3	N.FL. EG16	N.FL. EG12	3	N.FL. EG12	N.FL. EG16	3	N.MR .EG1 0		3	N.FL. EG16		3	N.FL. EG16	
36	3	N.MR .EG1 3		3	N.MR .EG1 3		3	N.MR .EG1 3		3	N.FL. EG14		3	N.MR .EG1 3		4	N.FL. EG12	
37	2	N.ME .EG0 1		2	N2	N1	2	N2	N1	2	N2	N1	2	N.FL. EG14	N.ME .EG0 1	3	N2	N1
38	2	M.PS .EG0 6		3	N.FL. EG14		3	N.FL. EG14		3	N.FL. EG14		3	N.FL. EG14		3	N.FL. EG14	

Objective Pairwise Comparison: 0.6926
Standard Pairwise Comparison: 0.9099

Table 4.9
Objectives Coded to Each Item by Reviewers
MI Functional Independence Math Grade 4

Low		Medium		High
0		5.078948		11

1	G2	G.S R.E G04	G.S R.E G04	G.S R.E G04	G.S R.E G04	G.S R.E G04
2	G.S R.E G04	G.S R.E G04	G.S R.E G04	G.S R.E G04	G.S R.E G04	G.S R.E G04
3						
4	N.M E.E G06	N.M E.E G06	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09
5	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09
6						
7						
8	G.L O.E G02	G.L O.E G02	G.L O.E G02	G.L O.E G02	G.L O.E G02	G.L O.E G02
9	G.L O.E G02	G.L O.E G02	G.L O.E G02	G.L O.E G02	G.L O.E G02	G.L O.E G02
10	N.M E.E G02	N.M E.E G02	N.M R.E G10	N.M R.E G10	N.M R.E G10	D.R E.E G02
11	N.M E.E G01	N.M E.E G01	N.M E.E G01	N.M E.E G01	N.M E.E G01	N.M E.E G01
12	N.M E.E G01	N.M E.E G02	N.M E.E G02	N.M E.E G02	N.M E.E G02	N.M E.E G02
13	N.M E.E G05	N.M E.E G05	N.M E.E G05	N.M E.E G05	D.R E.E G03	D.R E.E G03
14	D.R E.E G02	D.R E.E G02	D.R E.E G02	D.R E.E G02	D.R E.E G02	D.R E.E G02
15						
16						

Table 4.9
Objectives Coded to Each Item by Reviewers
MI Functional Independence Math Grade 4

17	N.M E.E G01	N.M E.E G02	G.G S.E G01	G.G S.E G01	G.G S.E G01	G.G S.E G01	G.G S.E G01	D.R E.E G03
18	N.F L.E G12	N.F L.E G12	N.F L.E G12	N.F L.E G16	N.F L.E G16	N.F L.E G16	N.F L.E G16	
19								
20	N.M E.E G05	N.M E.E G05	N.M E.E G05	N.M E.E G05	N.M E.E G05	N.M E.E G05		
21	N.M E.E G01	N.M E.E G04	N.M E.E G04	N.M E.E G04	N.M E.E G04	N.M E.E G04	N.M E.E G05	
22	N.M E.E G05	N.M E.E G05	N.M E.E G05	N.M E.E G05	N.M E.E G05	N.M E.E G05		
23	M.U N.E G03	M.U N.E G03	M.U N.E G03	M.U N.E G03	M.U N.E G03	M.U N.E G03		
24	M.U N.E G05	M.U N.E G05	M.U N.E G05	M.U N.E G05	M.U N.E G05	M.U N.E G05		
25	M.U N.E G05	M.U N.E G05	M.U N.E G05	M.U N.E G05	M.U N.E G05	M.U N.E G05		
26	M.U N.E G05	M.U N.E G05	M.U N.E G05	M.U N.E G05	M.U N.E G05	M.U N.E G05		
27	M.U N.E G05	M.P S.E G06	M.P S.E G06	M.P S.E G06	M.P S.E G06	M.P S.E G06		
28								
29	M.P S.E G09	M.P S.E G09	M.P S.E G09	M.P S.E G09	M.P S.E G09	M.P S.E G09		
30	M.U N.E G08	M.U N.E G08	M.U N.E G08	M.U N.E G08	M.U N.E G08	M.P S.E G09		
31	N.M E.E G07	M.U N.E G07	M.U N.E G07	M.U N.E G07	M.U N.E G07	M.U N.E G07		
32								

Table 4.9
Objectives Coded to Each Item by Reviewers
MI Functional Independence Math Grade 4

33	N.M	N.F	N.F	N.F	N.F	N.F	N.F			
	R.E	L.E	L.E	L.E	L.E	L.E	L.E			
	G11	G12	G12	G16	G16	G16	G16			
34	N.F	N.F	M.P	M.P	M.P	M.P				
	L.E	L.E	S.E	S.E	S.E	S.E				
	G12	G16	G09	G09	G09	G09				
35	N.M	N.F	N.F	N.F	N.F	N.F	N.F	N.F	N.F	
	R.E	L.E	L.E	L.E	L.E	L.E	L.E	L.E	L.E	
	G10	G12	G12	G12	G16	G16	G16	G16	G16	
36	N.F	N.M	N.M	N.M	N.M	N.F				
	L.E	R.E	R.E	R.E	R.E	L.E				
	G12	G13	G13	G13	G13	G14				
37	N1	N1	N1	N1	N.M	N.M	N2	N2	N2	N2
					E.E	E.E				
	N.F									
	L.E									
	G14									
38	N.F	N.F	N.F	N.F	N.F	M.P				
	L.E	L.E	L.E	L.E	L.E	S.E				
	G14	G14	G14	G14	G14	G06				

Table 4.10
Items Coded by Reviewers to Each Objective
MI Functional Independence Math Grade 4

Low		Medium		High
0		4.595238		19

N																	
N1	37	37	37	37													
N.M E.E G01	11	11	11	11	11	11	12	17	21	37	37						
N.M E.E G02	10	10	12	12	12	12	12	17									
N.M E.E G03																	
N.M E.E G04	21	21	21	21	21												
N.M E.E G05	13	13	13	13	20	20	20	20	20	20	21	22	22	22	22	22	
N.M E.E G06	4	4															
N.M E.E G07	31																
N.M E.E G08																	
N.M R.E G09	4	4	4	4	5	5	5	5	5	5							
N2	37	37	37	37													
N.M R.E G10	10	10	10	35													
N.M R.E G11	33																
N.F L.E G12	18	18	18	33	33	34	35	35	35	36							

Table 4.10
Items Coded by Reviewers to Each Objective
MI Functional Independence Math Grade 4

N.M R.E G13	36	36	36	36															
N.F L.E G14	36	37	38	38	38	38	38												
N.F L.E G16	18	18	18	18	33	33	33	33	34	35	35	35	35	35	35				
N.M R.E G17																			
M																			
M1																			
M.P S.E G02																			
M.U N.E G03	23	23	23	23	23	23													
M.U N.E G04																			
M.U N.E G05	24	24	24	24	24	24	25	25	25	25	25	25	25	26	26	26	26	26	27
M.P S.E G06	27	27	27	27	27	38													
M2																			
M.U N.E G07	31	31	31	31	31														
M.U N.E G08	30	30	30	30	30														
M.P S.E G09	29	29	29	29	29	29	30	34	34	34	34								
G																			
G1																			
G.G S.E G01	17	17	17	17	17														

Table 4.10
Items Coded by Reviewers to Each Objective
MI Functional Independence Math Grade 4

G.L O.E G02	8	8	8	8	8	8	9	9	9	9	9	9
G2	1											
G.S R.E G04	1	1	1	1	1	2	2	2	2	2	2	
D												
D1												
D.R E.E G01												
D.R E.E G02	10	14	14	14	14	14	14					
D.R E.E G03	13	13	17									

Table 4.11

Number of Reviewers Coding an Item by Objective (Item Number: Number of Reviewers)
 MI Functional Independence Math Grade 4

Low		Medium		High
1		3		6

N	
N1	37:4
N.ME.EG01	11:6 12:1 17:1 21:1 37:2
N.ME.EG02	10:2 12:5 17:1
N.ME.EG03	
N.ME.EG04	21:5
N.ME.EG05	13:4 20:6 21:1 22:6
N.ME.EG06	4:2
N.ME.EG07	31:1
N.ME.EG08	
N.MR.EG09	4:4 5:6
N2	37:4
N.MR.EG10	10:3 35:1
N.MR.EG11	33:1
N.FL.EG12	18:3 33:2 34:1 35:3 36:1
N.MR.EG13	36:4
N.FL.EG14	36:1 37:1 38:5
N.FL.EG16	18:4 33:4 34:1 35:5
N.MR.EG17	
M	
M1	
M.PS.EG02	
M.UN.EG03	23:6
M.UN.EG04	
M.UN.EG05	24:6 25:6 26:6 27:1
M.PS.EG06	27:5 38:1
M2	
M.UN.EG07	31:5
M.UN.EG08	30:5
M.PS.EG09	29:6 30:1 34:4
G	
G1	
G.GS.EG01	17:5
G.LO.EG02	8:6 9:6
G2	1:1
G.SR.EG04	1:5 2:6
D	
D1	

Table 4.11

Number of Reviewers Coding an Item by Objective (Item Number: Number of Reviewers)
MI Functional Independence Math Grade 4

D.RE.EG01		
D.RE.EG02	10:1	14:6
D.RE.EG03	13:2	17:1

Table 4.12

Number of Reviewers Coding an Objective by Item (Objective: Number of Reviewers)
 MI Functional Independence Math Grade 4

Low		Medium		High
1		3		6

1	G2:1	G.SR.EG04:5		
2	G.SR.EG04:6			
3				
4	N.ME.EG06:2	N.MR.EG09:4		
5	N.MR.EG09:6			
6				
7				
8	G.LO.EG02:6			
9	G.LO.EG02:6			
10	N.ME.EG02:2	N.MR.EG10:3	D.RE.EG02:1	
11	N.ME.EG01:6			
12	N.ME.EG01:1	N.ME.EG02:5		
13	N.ME.EG05:4	D.RE.EG03:2		
14	D.RE.EG02:6			
15				
16				
17	N.ME.EG01:1	N.ME.EG02:1	G.GS.EG01:5	D.RE.EG03:1
18	N.FL.EG12:3	N.FL.EG16:4		
19				
20	N.ME.EG05:6			
21	N.ME.EG01:1	N.ME.EG04:5	N.ME.EG05:1	
22	N.ME.EG05:6			
23	M.UN.EG03:6			
24	M.UN.EG05:6			
25	M.UN.EG05:6			
26	M.UN.EG05:6			
27	M.UN.EG05:1	M.PS.EG06:5		
28				
29	M.PS.EG09:6			
30	M.UN.EG08:5	M.PS.EG09:1		
31	N.ME.EG07:1	M.UN.EG07:5		
32				
33	N.MR.EG11:1	N.FL.EG12:2	N.FL.EG16:4	
34	N.FL.EG12:1	N.FL.EG16:1	M.PS.EG09:4	
35	N.MR.EG10:1	N.FL.EG12:3	N.FL.EG16:5	
36	N.FL.EG12:1	N.MR.EG13:4	N.FL.EG14:1	
37	N1:4	N.ME.EG01:2	N2:4	N.FL.EG14:1
38	N.FL.EG14:5	M.PS.EG06:1		

Table 4.13

Assessment Item DOK vs Consensus DOK (Item Number: Number of Reviewers [Average DOK])

MI Functional Independence Math Grade 4

Low DOK		Matched DOK		High DOK
1		3		6

N [3]:					
N1 [2]:	37:4[2.25]				
N.ME.EG01 [2]:	11:6[2]	12:1[2]	17:1[3]	21:1[2]	37:2[2]
N.ME.EG02 [2]:	10:2[2]	12:5[2]	17:1[3]		
N.ME.EG03 [2]:					
N.ME.EG04 [3]:	21:5[2.6]				
N.ME.EG05 [3]:	13:4[3]	20:6[3]	21:1[3]	22:6[2.83]	
N.ME.EG06 [2]:	4:2[2]				
N.ME.EG07 [3]:	31:1[3]				
N.ME.EG08 [2]:					
N.MR.EG09 [3]:	4:4[3]	5:6[2.5]			
N2 [3]:	37:4[2.25]				
N.MR.EG10 [3]:	10:3[3]	35:1[3]			
N.MR.EG11 [3]:	33:1[4]				
N.FL.EG12 [3]:	18:3[3]	33:2[2.5]	34:1[2]	35:3[2.67]	36:1[4]
N.MR.EG13 [3]:	36:4[3]				
N.FL.EG14 [3]:	36:1[3]	37:1[2]	38:5[3]		
N.FL.EG16 [3]:	18:4[3]	33:4[2.75]	34:1[3]	35:5[2.8]	
N.MR.EG17 [4]:					
M [3]:					
M1 [3]:					
M.PS.EG02 [3]:					
M.UN.EG03 [3]:	23:6[3.17]				
M.UN.EG04 [2]:					
M.UN.EG05 [2]:	24:6[2]	25:6[2]	26:6[2]	27:1[2]	
M.PS.EG06 [3]:	27:5[3.4]	38:1[2]			
M2 [3]:					
M.UN.EG07 [2]:	31:5[2]				
M.UN.EG08 [3]:	30:5[3.2]				
M.PS.EG09 [3]:	29:6[2.83]	30:1[2]	34:4[3]		
G [3]:					
G1 [3]:					
G.GS.EG01 [3]:	17:5[3]				
G.LO.EG02 [3]:	8:6[2.67]	9:6[2.83]			
G2 [3]:	1:1[2]				
G.SR.EG04 [3]:	1:5[2.8]	2:6[2.67]			

Table 4.13

Assessment Item DOK vs Consensus DOK (Item Number: Number of Reviewers [Average DOK])

MI Functional Independence Math Grade 4

D [3]:		
D1 [3]:		
D.RE.EG01 [4]:		
D.RE.EG02 [2]:	10:1[3]	14:6[2.67]
D.RE.EG03 [3]:	13:2[3]	17:1[3]

Table 5.1

Categorical Concurrence Between Standards and Assessment as Rated by Six Reviewers

MI Functional Independence Math Grade 5

Number of Assessment Items - 30

Standards			Level by Objective			Hits		Cat. Concurr.
Title	Goals #	Objs #	Level	# of objs by Level	% w/in std by Level	Mean	S.D.	
N - NUMBERS AND OPERATIONS	3	16	2 3 4	6 7 3	37 43 18	18	0.58	YES
M - MEASUREMENT	2	10	2 3 4	1 8 1	10 80 10	9.83	0.37	YES
G - GEOMETRY	1	2	3	2	100	2	0	NO
D - DATA ANALYSIS	1	3	2 3 5	1 1 1	33 33 33	0.17	0.83	NO
Total	7	31	2 3 4 5	8 18 4 1	25 58 12 3	30	0	

Table 5.2

Depth-of-Knowledge Consistency Between Standards and Assessment as Rated by Six Reviewers

MI Functional Independence Math Grade 5

Number of Assessment Items - 30

Standards			Hits		Level of Item w.r.t. Standard						DOK Consistency
					% Under		% At		% Above		
Title	Goals #	Objs #	M	S.D.	M	S.D.	M	S.D.	M	S.D.	
N - NUMBERS AND OPERATIONS	3	16	18	0.58	10	26	73	41	17	35	YES
M - MEASUREMENT	2	10	9.83	0.37	23	40	74	42	2	15	YES
G - GEOMETRY	1	2	2	0	33	47	67	47	0	0	YES
D - DATA ANALYSIS	1	3	0.17	0.83	0	0	0	0	100	0	YES
Total	7	31	30	0	18	36	72	42	10	28	

Table 5.3

Range-of-Knowledge Correspondence and Balance of Representation Between Standards and Assessment as Rated by Six Reviewers
MI Functional Independence Math Grade 5
Number of Assessment Items - 30

Standards			Hits		Range of Objectives				Rng. of Know.	Balance Index				Bal. of Represent.
					# Objs Hit		% of Total			% Hits in Std/Ttl Hits		Index		
Title	Goals #	Objs #	Mean	S.D.	Mean	S.D.	Mean	S.D.		Mean	S.D.	Mean	S.D.	
N - NUMBERS AND OPERATIONS	3	16	18	0.58	8.67	0.94	54	6	YES	60	2	0.79	0.03	YES
M - MEASUREMENT	2	10	9.83	0.37	7.33	0.75	73	7	YES	33	1	0.81	0.04	YES
G - GEOMETRY	1	2	2	0	2	0	100	0	YES	7	0	1	0	YES
D - DATA ANALYSIS	1	3	0.17	0.83	0.17	0.83	6	28	NO	1	3	0.17	0.83	NO
Total	7	31	30	0	4.54	3.09	58	21		25	22	0.69	0.10	

Table 5.4

*Summary of Attainment of Acceptable Alignment Level on Four Content Focus Criteria
as Rated by Six Reviewers*

MI Functional Independence Math Grade 5

Number of Assessment Items - 30

Standards	Alignment Criteria			
	Categorical Concurrence	Depth-of- Knowledge Consistency	Range of Knowledge	Balance of Representation
N - NUMBERS AND OPERATIONS	YES	YES	YES	YES
M - MEASUREMENT	YES	YES	YES	YES
G - GEOMETRY	NO	YES	YES	YES
D - DATA ANALYSIS	NO	YES	NO	NO

Table 5.6
Depth-of-Knowledge Levels by Item and Reviewers
Intraclass Correlation
MI Functional Independence Math Grade 5

Item	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6
1	3	3	3	3	2	3
2	3	2	2	3	2	3
3						
4						
5	3	3	3	2	3	3
6	3	2	3	3	3	3
7	3	3	3	3	3	3
8	2	2	3	2	3	3
9	3	2	3	3	3	3
10	2	2	3	3	2	3
11						
12	3	2	2	2	2	3
13	3	3	3	3	3	3
14	3	3	3	3	3	3
15	3	3	3	3	3	3
16						
17	2	3	3	3	3	3
18	2	3	3	3	3	3
19	3	3	3	4	3	3
20	3	3	3	5	3	3
21						
22	2	2	2	2	2	2
23	2	2	2	2	2	2
24	2	2	2	2	2	2
25	2	2	2	3	2	2
26	2	2	2	3	2	2
27	3	3	3	3	3	3
28	3	3	3	3	2	3
29	3	3	3	3	3	3
30						
31						
32	3	3	3	3	3	3
33	4	4	4	4	3	3
34	3	3	3	3	2	3
35	3	3	3	3	3	3
36						
37	4	4	4	4	3	3
38	4	4	4	5	4	3

Table 5.6
Depth-of-Knowledge Levels by Item and Reviewers
Intraclass Correlation
MI Functional Independence Math Grade 5

Intraclass Correlation: 0.9002

Pairwise Comparison: 0.7333

Table 5.8
DOK Levels and Objectives Coded by Each Reviewer
MI Functional Independence Math Grade 5

Item	DOK 0	PObj 0	DOK 1	PObj 1	DOK 2	PObj 2	DOK 3	PObj 3	DOK 4	PObj 4	S1Ob j4	S2Ob j4	DOK 5	PObj 5	S1Ob j5	S2Ob j5
1	3	N.MR.EG09	3	N.MR.EG09	3	N.MR.EG09	3	N.MR.EG09	2	N.MR.EG09			3	N.MR.EG09		
2	3	N.ME.EG04	2	N.ME.EG02	2	N.ME.EG02	3	N.ME.EG01	2	N.ME.EG03			3	N.ME.EG03		
3																
4																
5	3	M.UN.EG02	3	M.UN.EG02	3	M.UN.EG02	2	M.UN.EG02	3	M.UN.EG01			3	M.UN.EG02		
6	3	M.PS.EG06	2	M.PS.EG06	3	M.PS.EG06	3	M.PS.EG06	3	N.FL.EG11			3	M.PS.EG06		
7	3	M.UN.EG03	3	M.UN.EG03	3	M.UN.EG03	3	M.UN.EG03	3	M.UN.EG03			3	M.UN.EG03		
8	2	M.UN.EG02	2	M.UN.EG02	3	M.UN.EG01	2	M.UN.EG01	3	M.UN.EG01			3	M.UN.EG01		
9	3	G.LO.EG02	2	G.LO.EG02	3	G.LO.EG02	3	G.LO.EG02	3	G.LO.EG02			3	G.LO.EG02		
10	2	G.GS.EG01	2	G.GS.EG01	3	G.GS.EG01	3	G.GS.EG01	2	G.GS.EG01			3	G.GS.EG01		
11																
12	3	M.UN.EG07	2	M.UN.EG07	2	M.UN.EG07	2	M.PS.EG09	2	M.UN.EG07			3	M.UN.EG07		
13	3	M.UN.EG08	3	M.UN.EG08	3	M.UN.EG08	3	M.PS.EG10	3	M.UN.EG08			3	M.UN.EG08		
14	3	M.PS.EG09	3	M.PS.EG09	3	M.PS.EG09	3	M.PS.EG10	3	M.PS.EG09			3	M.UN.EG08		
15	3	M.PS.EG10	3	M.PS.EG10	3	M.PS.EG10	3	M.PS.EG10	3	M.PS.EG10			3	M.PS.EG10		
16																

Table 5.8
DOK Levels and Objectives Coded by Each Reviewer
MI Functional Independence Math Grade 5

Item	DOK 0	PObj 0	DOK 1	PObj 1	DOK 2	PObj 2	DOK 3	PObj 3	DOK 4	PObj 4	S1Obj 4	S2Obj 4	DOK 5	PObj 5	S1Obj 5	S2Obj 5
17	2	M.UN.EG05	3	M.PS.EG06	3	M.PS.EG06	3	M.PS.EG06	3	M.PS.EG06			3	M.UN.EG05		
18	2	M.UN.EG05	3	M.PS.EG06	3	M.PS.EG06	3	M.PS.EG06	3	M.PS.EG06			3	M.UN.EG05		
19	3	N.ME.EG05	3	N.ME.EG05	3	N.ME.EG05	4	D.RE.EG03	3	N.ME.EG05			3	N.ME.EG05		
20	3	N.MR.EG09	3	N.MR.EG09	3	N.MR.EG09	5	N.ME.EG01	3	N.MR.EG09			3	N.MR.EG09		
21																
22	2	N.ME.EG03	2	N.ME.EG03	2	N.ME.EG03	2	N.ME.EG01	2	N.ME.EG01			2	N.ME.EG03		
23	2	N.ME.EG01	2	N.ME.EG03	2	N.ME.EG01	2	N.ME.EG01	2	N.ME.EG01			2	N.ME.EG03		
24	2	N.ME.EG03	2	N.ME.EG03	2	N.ME.EG03	2	N.ME.EG01	2	N.ME.EG03			2	N.ME.EG03		
25	2	N.ME.EG01	2	N.ME.EG01	2	N.ME.EG01	3	N.ME.EG01	2	N.ME.EG01			2	N.ME.EG02		
26	2	N.ME.EG01	2	N.ME.EG01	2	N.ME.EG01	3	N.ME.EG01	2	N.ME.EG01			2	N.ME.EG02		
27	3	N.ME.EG04	3	N.ME.EG04	3	N.ME.EG04	3	N.ME.EG04	3	N.ME.EG04			3	N.ME.EG04		
28	3	N.FL.EG11	3	N.FL.EG11	3	N.FL.EG11	3	N.FL.EG11	2	N.FL.EG11			3	N.FL.EG11		
29	3	N.MR.EG09	3	N.MR.EG09	3	N.MR.EG09	3	N.MR.EG09	3	N.MR.EG09			3	N.ME.EG06		
30																
31																

Table 5.8
DOK Levels and Objectives Coded by Each Reviewer
MI Functional Independence Math Grade 5

Item	DOK 0	PObj 0	DOK 1	PObj 1	DOK 2	PObj 2	DOK 3	PObj 3	DOK 4	PObj 4	S1Obj4	S2Obj4	DOK 5	PObj 5	S1Obj5	S2Obj5
32	3	N.FL. EG11	3	N.FL. EG11	3	N.FL. EG11	3	N.MR .EG1 6	3	N.MR .EG1 3			3	N.MR .EG1 3		
33	4	N.FL. EG15	4	N.FL. EG15	4	N.FL. EG15	4	N.FL. EG15	3	N.FL. EG15			3	N.FL. EG15		
34	3	N.FL. EG11	3	N.FL. EG11	3	N.FL. EG11	3	N.FL. EG11	2	N.FL. EG11			3	N.FL. EG11		
35	3	N.FL. EG12	3	N.FL. EG12	3	N.FL. EG12	3	N.FL. EG12	3	N.FL. EG12			3	N.FL. EG12		
36																
37	4	N.FL. EG15	4	N.FL. EG15	4	N.FL. EG15	4	N.FL. EG15	3	N.FL. EG15			3	N.FL. EG15		
38	4	N.FL. EG11	4	N.FL. EG11	4	N.FL. EG11	5	N.MR .EG1 6	4	N.MR .EG1 3			3	N.MR .EG1 3		

Objective Pairwise Comparison: 0.7022
Standard Pairwise Comparison: 0.9778

Table 5.9
Objectives Coded to Each Item by Reviewers
MI Functional Independence Math Grade 5

Low		Medium		High
0		4.736842		6

1	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09
2	N.M E.E G01	N.M E.E G02	N.M E.E G02	N.M E.E G03	N.M E.E G03	N.M E.E G04
3						
4						
5	M.U N.E G01	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02
6	N.F L.E G11	M.P S.E G06	M.P S.E G06	M.P S.E G06	M.P S.E G06	M.P S.E G06
7	M.U N.E G03	M.U N.E G03	M.U N.E G03	M.U N.E G03	M.U N.E G03	M.U N.E G03
8	M.U N.E G01	M.U N.E G01	M.U N.E G01	M.U N.E G01	M.U N.E G02	M.U N.E G02
9	G.L O.E G02	G.L O.E G02	G.L O.E G02	G.L O.E G02	G.L O.E G02	G.L O.E G02
10	G.G S.E G01	G.G S.E G01	G.G S.E G01	G.G S.E G01	G.G S.E G01	G.G S.E G01
11						
12	M.U N.E G07	M.U N.E G07	M.U N.E G07	M.U N.E G07	M.U N.E G07	M.P S.E G09
13	M.U N.E G08	M.U N.E G08	M.U N.E G08	M.U N.E G08	M.U N.E G08	M.P S.E G10
14	M.U N.E G08	M.P S.E G09	M.P S.E G09	M.P S.E G09	M.P S.E G09	M.P S.E G10
15	M.P S.E G10	M.P S.E G10	M.P S.E G10	M.P S.E G10	M.P S.E G10	M.P S.E G10
16						

Table 5.9
Objectives Coded to Each Item by Reviewers
MI Functional Independence Math Grade 5

17	M.U N.E G05	M.U N.E G05	M.P S.E G06	M.P S.E G06	M.P S.E G06	M.P S.E G06
18	M.U N.E G05	M.U N.E G05	M.P S.E G06	M.P S.E G06	M.P S.E G06	M.P S.E G06
19	N.M E.E G05	N.M E.E G05	N.M E.E G05	N.M E.E G05	N.M E.E G05	D.R E.E G03
20	N.M E.E G01	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09
21						
22	N.M E.E G01	N.M E.E G01	N.M E.E G03	N.M E.E G03	N.M E.E G03	N.M E.E G03
23	N.M E.E G01	N.M E.E G01	N.M E.E G01	N.M E.E G01	N.M E.E G03	N.M E.E G03
24	N.M E.E G01	N.M E.E G03	N.M E.E G03	N.M E.E G03	N.M E.E G03	N.M E.E G03
25	N.M E.E G01	N.M E.E G01	N.M E.E G01	N.M E.E G01	N.M E.E G01	N.M E.E G02
26	N.M E.E G01	N.M E.E G01	N.M E.E G01	N.M E.E G01	N.M E.E G01	N.M E.E G02
27	N.M E.E G04	N.M E.E G04	N.M E.E G04	N.M E.E G04	N.M E.E G04	N.M E.E G04
28	N.F L.E G11	N.F L.E G11	N.F L.E G11	N.F L.E G11	N.F L.E G11	N.F L.E G11
29	N.M E.E G06	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09
30						
31						
32	N.F L.E G11	N.F L.E G11	N.F L.E G11	N.M R.E G13	N.M R.E G13	N.M R.E G16

Table 5.9
Objectives Coded to Each Item by Reviewers
MI Functional Independence Math Grade 5

33	N.F	N.F	N.F	N.F	N.F	N.F
	L.E	L.E	L.E	L.E	L.E	L.E
	G15	G15	G15	G15	G15	G15
34	N.F	N.F	N.F	N.F	N.F	N.F
	L.E	L.E	L.E	L.E	L.E	L.E
	G11	G11	G11	G11	G11	G11
35	N.F	N.F	N.F	N.F	N.F	N.F
	L.E	L.E	L.E	L.E	L.E	L.E
	G12	G12	G12	G12	G12	G12
36						
37	N.F	N.F	N.F	N.F	N.F	N.F
	L.E	L.E	L.E	L.E	L.E	L.E
	G15	G15	G15	G15	G15	G15
38	N.F	N.F	N.F	N.M	N.M	N.M
	L.E	L.E	L.E	R.E	R.E	R.E
	G11	G11	G11	G13	G13	G16

Table 5.10
Items Coded by Reviewers to Each Objective
MI Functional Independence Math Grade 5

Low		Medium		High
0		4.186047		19

N																			
N1																			
N.M E.E G01	2	20	22	22	23	23	23	23	24	25	25	25	25	25	26	26	26	26	26
N.M E.E G02	2	2	25	26															
N.M E.E G03	2	2	22	22	22	22	23	23	24	24	24	24	24						
N.M E.E G04	2	27	27	27	27	27	27												
N.M E.E G05	19	19	19	19	19														
N.M E.E G06	29																		
N.M E.E G07																			
N.M E.E G08																			
N.M R.E G09	1	1	1	1	1	1	20	20	20	20	20	29	29	29	29	29			
N2																			
N.M R.E G10																			
N.F L.E G11	6	28	28	28	28	28	28	32	32	32	34	34	34	34	34	34	38	38	38
N.F L.E G12	35	35	35	35	35	35													

Table 5.10
Items Coded by Reviewers to Each Objective
MI Functional Independence Math Grade 5

N.M R.E G13	32	32	38	38										
N.M R.E G14														
N3														
N.F L.E G15	33	33	33	33	33	33	37	37	37	37	37	37		
N.M R.E G16	32	38												
M														
M1														
M.U N.E G01	5	8	8	8	8									
M.U N.E G02	5	5	5	5	5	8	8							
M.U N.E G03	7	7	7	7	7	7								
M.P S.E G04														
M.U N.E G05	17	17	18	18										
M.P S.E G06	6	6	6	6	6	17	17	17	17	18	18	18	18	
M2														
M.U N.E G07	12	12	12	12	12									
M.U N.E G08	13	13	13	13	13	14								
M.P S.E G09	12	14	14	14	14									

Table 5.10
Items Coded by Reviewers to Each Objective
MI Functional Independence Math Grade 5

M.P S.E G10	13	14	15	15	15	15	15	15
G								
G1								
G.G S.E G01	10	10	10	10	10	10		
G.L O.E G02	9	9	9	9	9	9		
D								
D1								
D.R E.E G01								
D.R E.E G02								
D.R E.E G03	19							

Table 5.11

Number of Reviewers Coding an Item by Objective (Item Number: Number of Reviewers)
 MI Functional Independence Math Grade 5

Low		Medium		High
1		3		6

N							
N1							
N.ME.EG01	2:1	20:1	22:2	23:4	24:1	25:5	26:5
N.ME.EG02	2:2	25:1	26:1				
N.ME.EG03	2:2	22:4	23:2	24:5			
N.ME.EG04	2:1	27:6					
N.ME.EG05	19:5						
N.ME.EG06	29:1						
N.ME.EG07							
N.ME.EG08							
N.MR.EG09	1:6	20:5	29:5				
N2							
N.MR.EG10							
N.FL.EG11	6:1	28:6	32:3	34:6	38:3		
N.FL.EG12	35:6						
N.MR.EG13	32:2	38:2					
N.MR.EG14							
N3							
N.FL.EG15	33:6	37:6					
N.MR.EG16	32:1	38:1					
M							
M1							
M.UN.EG01	5:1	8:4					
M.UN.EG02	5:5	8:2					
M.UN.EG03	7:6						
M.PS.EG04							
M.UN.EG05	17:2	18:2					
M.PS.EG06	6:5	17:4	18:4				
M2							
M.UN.EG07	12:5						
M.UN.EG08	13:5	14:1					
M.PS.EG09	12:1	14:4					
M.PS.EG10	13:1	14:1	15:6				
G							
G1							
G.GS.EG01	10:6						
G.LO.EG02	9:6						
D							

Table 5.11

Number of Reviewers Coding an Item by Objective (Item Number: Number of Reviewers)
MI Functional Independence Math Grade 5

D1	
D.RE.EG01	
D.RE.EG02	
D.RE.EG03	19:1

Table 5.12

Number of Reviewers Coding an Objective by Item (Objective: Number of Reviewers)
 MI Functional Independence Math Grade 5

Low		Medium		High
1		3		6

1	N.MR.EG09:6			
2	N.ME.EG01:1	N.ME.EG02:2	N.ME.EG03:2	N.ME.EG04:1
3				
4				
5	M.UN.EG01:1	M.UN.EG02:5		
6	N.FL.EG11:1	M.PS.EG06:5		
7	M.UN.EG03:6			
8	M.UN.EG01:4	M.UN.EG02:2		
9	G.LO.EG02:6			
10	G.GS.EG01:6			
11				
12	M.UN.EG07:5	M.PS.EG09:1		
13	M.UN.EG08:5	M.PS.EG10:1		
14	M.UN.EG08:1	M.PS.EG09:4	M.PS.EG10:1	
15	M.PS.EG10:6			
16				
17	M.UN.EG05:2	M.PS.EG06:4		
18	M.UN.EG05:2	M.PS.EG06:4		
19	N.ME.EG05:5	D.RE.EG03:1		
20	N.ME.EG01:1	N.MR.EG09:5		
21				
22	N.ME.EG01:2	N.ME.EG03:4		
23	N.ME.EG01:4	N.ME.EG03:2		
24	N.ME.EG01:1	N.ME.EG03:5		
25	N.ME.EG01:5	N.ME.EG02:1		
26	N.ME.EG01:5	N.ME.EG02:1		
27	N.ME.EG04:6			
28	N.FL.EG11:6			
29	N.ME.EG06:1	N.MR.EG09:5		
30				
31				
32	N.FL.EG11:3	N.MR.EG13:2	N.MR.EG16:1	
33	N.FL.EG15:6			
34	N.FL.EG11:6			
35	N.FL.EG12:6			
36				
37	N.FL.EG15:6			
38	N.FL.EG11:3	N.MR.EG13:2	N.MR.EG16:1	

Table 5.13

Assessment Item DOK vs Consensus DOK (Item Number: Number of Reviewers [Average DOK])

MI Functional Independence Math Grade 5

Low DOK		Matched DOK		High DOK
1		3		6

N [3]:							
N1 [2]:							
N.ME.EG01 [2]:	2:1[3]	20:1[5]	22:2[2]	23:4[2]	24:1[2]	25:5[2.2]	26:5[2.2]
N.ME.EG02 [2]:	2:2[2]	25:1[2]	26:1[2]				
N.ME.EG03 [2]:	2:2[2.5]	22:4[2]	23:2[2]	24:5[2]			
N.ME.EG04 [3]:	2:1[3]	27:6[3]					
N.ME.EG05 [3]:	19:5[3]						
N.ME.EG06 [2]:	29:1[3]						
N.ME.EG07 [3]:							
N.ME.EG08 [2]:							
N.MR.EG09 [3]:	1:6[2.83]	20:5[3]	29:5[3]				
N2 [3]:							
N.MR.EG10 [3]:							
N.FL.EG11 [3]:	6:1[3]	28:6[2.83]	32:3[3]	34:6[2.83]	38:3[4]		
N.FL.EG12 [2]:	35:6[3]						
N.MR.EG13 [4]:	32:2[3]	38:2[3.5]					
N.MR.EG14 [3]:							
N3 [4]:							
N.FL.EG15 [4]:	33:6[3.67]	37:6[3.67]					
N.MR.EG16 [4]:	32:1[3]	38:1[5]					
M [3]:							

Table 5.13

Assessment Item DOK vs Consensus DOK (Item Number: Number of Reviewers [Average DOK])

MI Functional Independence Math Grade 5

M1 [3]:			
M.UN.EG01 [4]:	5:1[3]	8:4[2.75]	
M.UN.EG02 [3]:	5:5[2.8]	8:2[2]	
M.UN.EG03 [3]:	7:6[3]		
M.PS.EG04 [3]:			
M.UN.EG05 [2]:	17:2[2.5]	18:2[2.5]	
M.PS.EG06 [3]:	6:5[2.8]	17:4[3]	18:4[3]
M2 [3]:			
M.UN.EG07 [3]:	12:5[2.4]		
M.UN.EG08 [3]:	13:5[3]	14:1[3]	
M.PS.EG09 [3]:	12:1[2]	14:4[3]	
M.PS.EG10 [3]:	13:1[3]	14:1[3]	15:6[3]
G [3]:			
G1 [3]:			
G.GS.EG01 [3]:	10:6[2.5]		
G.LO.EG02 [3]:	9:6[2.83]		
D [3]:			
D1 [3]:			
D.RE.EG01 [5]:			
D.RE.EG02 [2]:			
D.RE.EG03 [3]:	19:1[4]		

Table 6.1

Categorical Concurrence Between Standards and Assessment as Rated by Six Reviewers

MI Functional Independence Math Grade 6

Number of Assessment Items - 35

Standards			Level by Objective			Hits		Cat. Concurr.
Title	Goals #	Objs #	Level	# of objs by Level	% w/in std by Level	Mean	S.D.	
N - NUMBERS AND OPERATIONS	3	15	2 3 4	1 12 2	6 80 13	19.83	0.37	YES
M - MEASUREMENT	2	12	2 3	4 8	33 66	11.83	0.37	YES
G - GEOMETRY	1	2	3	2	100	2	0	NO
D - DATA ANALYSIS	1	3	3 4 5	1 1 1	33 33 33	1	0	NO
Total	7	32	2 3 4 5	5 23 3 1	15 71 9 3	34.67	0.47	

Table 6.2

Depth-of-Knowledge Consistency Between Standards and Assessment as Rated by Six Reviewers

MI Functional Independence Math Grade 6

Number of Assessment Items - 35

Standards			Hits		Level of Item w.r.t. Standard						DOK Consistency
					% Under		% At		% Above		
Title	Goals #	Objs #	M	S.D.	M	S.D.	M	S.D.	M	S.D.	
N - NUMBERS AND OPERATIONS	3	15	19.83	0.37	42	46	44	46	14	33	YES
M - MEASUREMENT	2	12	11.83	0.37	14	34	53	49	34	46	YES
G - GEOMETRY	1	2	2	0	17	37	83	37	0	0	YES
D - DATA ANALYSIS	1	3	1	0	17	37	17	37	67	47	YES
Total	7	32	34.67	0.47	27	43	50	48	23	41	

Table 6.3

Range-of-Knowledge Correspondence and Balance of Representation Between Standards and Assessment as Rated by Six Reviewers
MI Functional Independence Math Grade 6
Number of Assessment Items - 35

Standards			Hits		Range of Objectives				Rng. of Know.	Balance Index				Bal. of Represent.
					# Objs Hit		% of Total			% Hits in Std/Ttl Hits		Index		
Title	Goals #	Objs #	Mean	S.D.	Mean	S.D.	Mean	S.D.		Mean	S.D.	Mean	S.D.	
N - NUMBERS AND OPERATIONS	3	15	19.83	0.37	8	0.82	53	5	YES	57	1	0.69	0.01	WEAK
M - MEASUREMENT	2	12	11.83	0.37	7.33	0.75	61	6	YES	34	1	0.74	0.03	YES
G - GEOMETRY	1	2	2	0	2	0	100	0	YES	6	0	1	0	YES
D - DATA ANALYSIS	1	3	1	0	1	0	33	0	NO	3	0	1	0	YES
Total	7	32	34.67	0.47	4.58	3.16	62	25		25	22	0.86	0.15	

Table 6.4

*Summary of Attainment of Acceptable Alignment Level on Four Content Focus Criteria
as Rated by Six Reviewers*

MI Functional Independence Math Grade 6

Number of Assessment Items - 35

Standards	Alignment Criteria			
	Categorical Concurrence	Depth-of- Knowledge Consistency	Range of Knowledge	Balance of Representation
N - NUMBERS AND OPERATIONS	YES	YES	YES	WEAK
M - MEASUREMENT	YES	YES	YES	YES
G - GEOMETRY	NO	YES	YES	YES
D - DATA ANALYSIS	NO	YES	NO	YES

Table 6.6
Depth-of-Knowledge Levels by Item and Reviewers
Intraclass Correlation
MI Functional Independence Math Grade 6

Item	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6
1	3	3	3	3	3	3
2	3	3	3	3	3	3
3	3	3	3	3	3	3
4						
5	3	3	3	3	3	3
6	3	3	3	4	3	3
7	3	3	3	3	3	3
8	3	3	3	3	3	3
9	3	3	3	3	3	3
10	3	3	3	2	3	3
11	3	3	3	2	3	3
12						
13						
14	3	2	3	2	3	3
15	3	3	3	2	3	3
16	3	3	3	3	3	3
17	3	3	3	3	3	3
18						
19	3	3	3	3	3	3
20	3	3	3	3	3	3
21	2	2	2	3	2	3
22						
23	3	3	3	3	3	3
24	2	2	2	2	2	2
25	4	4	4	3	4	4
26						
27						
28	3	2	2	2	2	3
29	3	3	3	3	2	3
30	3	3	3	3	2	3
31	3	3	3	3	4	3
32	3	3	3	3	2	3
33	3	3	3	3	3	2
34	3	3	3	3	3	3
35	3	3	3	3	3	3
36	3	3	3	3	3	4
37	3	3	3	3	3	3
38	3	3	3	3	3	3
39	3	3	3	3	3	3
40						

Table 6.6
Depth-of-Knowledge Levels by Item and Reviewers
Intraclass Correlation
MI Functional Independence Math Grade 6

Item	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6
41						
42						
43	3	3	3	4	3	4
44	4	4	4	5	3	3
45	3	3	3	3	3	3

Intraclass Correlation: 0.8489

Pairwise Comparison: 0.8133

Table 6.8
DOK Levels and Objectives Coded by Each Reviewer
MI Functional Independence Math Grade 6

Item	DOK 0	PObj0	DOK 1	PObj1	DOK 2	PObj2	DOK 3	PObj3	DOK 4	PObj4	S1Obj 4	S2Obj 4	DOK 5	PObj5	S1Obj 5	S2Obj 5
1	3	N.MR.EG09	3	N.MR.EG09	3	N.MR.EG09	3	N.MR.EG09	3	N.MR.EG09			3	N.MR.EG09		
2	3	N.MR.EG09	3	N.MR.EG09	3	N.MR.EG09	3	N.MR.EG09	3	N.MR.EG09			3	N.MR.EG09		
3	3	N.MR.EG09	3	N.MR.EG09	3	N.MR.EG09	3	N.MR.EG09	3	N.MR.EG09			3	N.MR.EG09		
4																
5	3	N.MR.EG09	3	N.MR.EG09	3	N.MR.EG09	3	N.MR.EG09	3	N.MR.EG09			3	N.MR.EG09		
6	3	M.UN.EG02	3	M.UN.EG02	3	M.UN.EG02	4	M.UN.EG01	3	M.UN.EG01			3	M.UN.EG01		
7	3	M.UN.EG02	3	M.UN.EG02	3	M.UN.EG02	3	M.UN.EG02	3	M.UN.EG02			3	M.UN.EG02		
8	3	M.UN.EG02	3	M.UN.EG02	3	M.UN.EG02	3	M.UN.EG02	3	M.UN.EG02			3	M.UN.EG02		
9	3	M.UN.EG02	3	M.UN.EG02	3	M.UN.EG02	3	M.UN.EG02	3	M.UN.EG02			3	M.UN.EG02		
10	3	G.GS.EG01	3	G.GS.EG01	3	G.GS.EG01	2	G.GS.EG01	3	G.GS.EG01			3	G.GS.EG01		
11	3	G.LO.EG02	3	G.LO.EG02	3	G.LO.EG02	2	G.LO.EG02	3	G.LO.EG02			3	G.LO.EG02		
12																
13																
14	3	M.UN.EG09	2	M.UN.EG09	3	M.UN.EG09	2	M.UN.EG09	3	M.UN.EG09			3	M.UN.EG09		
15	3	M.UN.EG10	3	M.UN.EG10	3	M.UN.EG10	2	M.UN.EG10	3	M.UN.EG10			3	M.UN.EG10		
16	3	M.PS.EG12	3	M.PS.EG12	3	M.PS.EG12	3	M.PS.EG12	3	M.PS.EG12			3	M.PS.EG12		
17	3	M.PS.EG12	3	M.PS.EG12	3	M.PS.EG12	3	M.PS.EG12	3	M.PS.EG12			3	M.PS.EG12		
18																
19	3	M.UN.EG04	3	M.UN.EG04	3	M.UN.EG04	3	M.UN.EG04	3	M.UN.EG04			3	M.UN.EG04		
20	3	M.PS.EG08	3	M.PS.EG08	3	M.PS.EG08	3	M.PS.EG08	3	M.PS.EG08			3	M.PS.EG08		
21	2	M.UN.EG07	2	M.PS.EG08	2	M.UN.EG07	3	M.UN.EG07	2	M.UN.EG07			3	M.UN.EG07		
22																
23	3	N.MR.EG15	3	N.FL.EG12	3	N.MR.EG15	3	N.MR.EG15	3	N.MR.EG15			3	N.MR.EG15		
24	2	N.ME.EG06	2	N.MR.EG15	2	N.ME.EG06	2	N.ME.EG06	2	N.ME.EG06			2	N.ME.EG06		

Table 6.8
DOK Levels and Objectives Coded by Each Reviewer
MI Functional Independence Math Grade 6

Item	DOK 0	PObj0	DOK 1	PObj1	DOK 2	PObj2	DOK 3	PObj3	DOK 4	PObj4	S1Obj 4	S2Obj 4	DOK 5	PObj5	S1Obj 5	S2Obj 5
25	4	D.RE.EG0 1	4	D.RE.EG0 1	4	D.RE.EG0 1	3	D.RE.EG0 1	4	D.RE.EG0 2			4	D.RE.EG0 1		
26																
27																
28	3	N.ME.EG0 2	2	N.ME.EG0 1	2	N.ME.EG0 1	2	N.ME.EG0 1	2	N.ME.EG0 1			3	N.ME.EG0 1		
29	3	N.FL.EG1 2	3	N.FL.EG1 2	3	N.FL.EG1 2	3	N.MR.EG1 5	2	N.FL.EG1 2			3	N.MR.EG1 5		
30	3	N.ME.EG0 2	3	N.MR.EG1 5	3	N.MR.EG1 5	3	N.MR.EG1 5	2	N.MR.EG1 5			3	N.MR.EG1 5		
31	3	N.ME.EG0 2	3	N.ME.EG0 2	3	N.ME.EG0 2	3	N.ME.EG0 2	4	N.ME.EG0 2			3	M.UN.EG0 2		
32	3	N.MR.EG1 5	3	N.MR.EG1 5	3	N.MR.EG1 5	3	N.MR.EG1 5	2	N.MR.EG1 5			3	N.MR.EG1 5		
33	3	N.ME.EG0 3	3	N.ME.EG0 3	3	N.ME.EG0 3	3	N.ME.EG0 1	3	N.ME.EG0 3			2	N.ME.EG0 1		
34	3	N.ME.EG0 2	3	N.ME.EG0 2	3	N.ME.EG0 2	3	N.MR.EG1 5	3	N.ME.EG0 2			3	N.MR.EG1 5		
35	3	N.MR.EG1 0	3	N.MR.EG1 0	3	N.MR.EG1 0	3	N.MR.EG0 9	3	N.MR.EG1 0			3	N.MR.EG1 0		
36	3	N.FL.EG1 1	3	N.FL.EG1 1	3	N.FL.EG1 1	3	N.FL.EG1 1	3	N.FL.EG1 1			4	N.FL.EG1 1		
37	3	N.FL.EG1 2	3	N.FL.EG1 2	3	N.FL.EG1 2	3	N.FL.EG1 2	3	N.FL.EG1 2			3	N.FL.EG1 2		
38	3	N.FL.EG1 2	3	N.FL.EG1 2	3	N.FL.EG1 2	3	N.FL.EG1 2	3	N.FL.EG1 2			3	N.FL.EG1 2		
39	3	N.FL.EG1 2	3	N.FL.EG1 2	3	N.FL.EG1 2	3	N.FL.EG1 2	3	N.FL.EG1 2			3	N.FL.EG1 2		
40																
41																
42																
43	3	M.PS.EG1 2	3	M.PS.EG1 2	3	M.PS.EG1 2	4	M.PS.EG1 2	3	N.MR.EG0 9			4			
44	4	N.MR.EG1 5	4	N.MR.EG1 5	4	N.MR.EG1 5	5	N.MR.EG1 5	3				3	N.MR.EG1 5		
45	3	N.FL.EG1 2	3	N.FL.EG1 2	3	N.FL.EG1 2	3	N.MR.EG1 5	3	N.FL.EG1 2			3	N.FL.EG1 2		

Objective Pairwise Comparison: 0.8408

Standard Pairwise Comparison: 0.9825

Table 6.9
Objectives Coded to Each Item by Reviewers
MI Functional Independence Math Grade 6

Low		Medium		High
0		4.622222		6

1	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09
2	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09
3	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09
4						
5	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09
6	M.U N.E G01	M.U N.E G01	M.U N.E G01	M.U N.E G02	M.U N.E G02	M.U N.E G02
7	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02
8	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02
9	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02
10	G.G S.E G01	G.G S.E G01	G.G S.E G01	G.G S.E G01	G.G S.E G01	G.G S.E G01
11	G.L O.E G02	G.L O.E G02	G.L O.E G02	G.L O.E G02	G.L O.E G02	G.L O.E G02
12						
13						
14	M.U N.E G09	M.U N.E G09	M.U N.E G09	M.U N.E G09	M.U N.E G09	M.U N.E G09
15	M.U N.E G10	M.U N.E G10	M.U N.E G10	M.U N.E G10	M.U N.E G10	M.U N.E G10

Table 6.9
Objectives Coded to Each Item by Reviewers
MI Functional Independence Math Grade 6

16	M.P S.E G12	M.P S.E G12	M.P S.E G12	M.P S.E G12	M.P S.E G12	M.P S.E G12
17	M.P S.E G12	M.P S.E G12	M.P S.E G12	M.P S.E G12	M.P S.E G12	M.P S.E G12
18						
19	M.U N.E G04	M.U N.E G04	M.U N.E G04	M.U N.E G04	M.U N.E G04	M.U N.E G04
20	M.P S.E G08	M.P S.E G08	M.P S.E G08	M.P S.E G08	M.P S.E G08	M.P S.E G08
21	M.U N.E G07	M.U N.E G07	M.U N.E G07	M.U N.E G07	M.U N.E G07	M.P S.E G08
22						
23	N.F L.E G12	N.M R.E G15	N.M R.E G15	N.M R.E G15	N.M R.E G15	N.M R.E G15
24	N.M E.E G06	N.M E.E G06	N.M E.E G06	N.M E.E G06	N.M E.E G06	N.M R.E G15
25	D.R E.E G01	D.R E.E G01	D.R E.E G01	D.R E.E G01	D.R E.E G01	D.R E.E G02
26						
27						
28	N.M E.E G01	N.M E.E G01	N.M E.E G01	N.M E.E G01	N.M E.E G01	N.M E.E G02
29	N.F L.E G12	N.F L.E G12	N.F L.E G12	N.F L.E G12	N.M R.E G15	N.M R.E G15
30	N.M E.E G02	N.M R.E G15	N.M R.E G15	N.M R.E G15	N.M R.E G15	N.M R.E G15
31	N.M E.E G02	N.M E.E G02	N.M E.E G02	N.M E.E G02	N.M E.E G02	M.U N.E G02
32	N.M R.E G15	N.M R.E G15	N.M R.E G15	N.M R.E G15	N.M R.E G15	N.M R.E G15

Table 6.9
Objectives Coded to Each Item by Reviewers
MI Functional Independence Math Grade 6

33	N.M E.E G01	N.M E.E G01	N.M E.E G03	N.M E.E G03	N.M E.E G03	N.M E.E G03
34	N.M E.E G02	N.M E.E G02	N.M E.E G02	N.M E.E G02	N.M R.E G15	N.M R.E G15
35	N.M R.E G09	N.M R.E G10	N.M R.E G10	N.M R.E G10	N.M R.E G10	N.M R.E G10
36	N.F L.E G11	N.F L.E G11	N.F L.E G11	N.F L.E G11	N.F L.E G11	N.F L.E G11
37	N.F L.E G12	N.F L.E G12	N.F L.E G12	N.F L.E G12	N.F L.E G12	N.F L.E G12
38	N.F L.E G12	N.F L.E G12	N.F L.E G12	N.F L.E G12	N.F L.E G12	N.F L.E G12
39	N.F L.E G12	N.F L.E G12	N.F L.E G12	N.F L.E G12	N.F L.E G12	N.F L.E G12
40						
41						
42						
43	N.M R.E G09	M.P S.E G12	M.P S.E G12	M.P S.E G12	M.P S.E G12	
44	N.M R.E G15	N.M R.E G15	N.M R.E G15	N.M R.E G15	N.M R.E G15	
45	N.F L.E G12	N.F L.E G12	N.F L.E G12	N.F L.E G12	N.F L.E G12	N.M R.E G15

Table 6.10
Items Coded by Reviewers to Each Objective
MI Functional Independence Math Grade 6

Low		Medium		High
0		4.727273		28

N																				
N1																				
N.M E.E G01	28	28	28	28	28	33	33													
N.M E.E G02	28	30	31	31	31	31	31	34	34	34	34									
N.M E.E G03	33	33	33	33																
N.M E.E G04																				
N.M E.E G05																				
N.M E.E G06	24	24	24	24	24															
N.M E.E G07																				
N.M E.E G08																				
N.M R.E G09	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3	5	5
	5	5	5	5	35	43														
N.M R.E G10	35	35	35	35	35															
N2																				
N.F L.E G11	36	36	36	36	36	36														
N.F L.E G12	23	29	29	29	29	37	37	37	37	37	37	38	38	38	38	38	38	39	39	39

Table 6.10
Items Coded by Reviewers to Each Objective
MI Functional Independence Math Grade 6

	39	39	39	45	45	45	45	45											
N.M R.E G13																			
N3																			
N.F L.E G14																			
N.M R.E G15	23	23	23	23	23	24	29	29	30	30	30	30	30	32	32	32	32	32	34
	34	44	44	44	44	44	45												
M																			
M1																			
M.U N.E G01	6	6	6																
M.U N.E G02	6	6	6	7	7	7	7	7	7	8	8	8	8	8	8	9	9	9	9
	9	31																	
M.P S.E G03																			
M.U N.E G04	19	19	19	19	19	19													
M.U N.E G05																			
M.P S.E G06																			
M.U N.E G07	21	21	21	21	21														
M.P S.E G08	20	20	20	20	20	20	21												
M2																			
M.U N.E G09	14	14	14	14	14	14													

Table 6.10
Items Coded by Reviewers to Each Objective
MI Functional Independence Math Grade 6

M.U N.E G10	15	15	15	15	15	15											
M.P S.E G11																	
M.P S.E G12	16	16	16	16	16	16	17	17	17	17	17	17	43	43	43	43	
G																	
G1																	
G.G S.E G01	10	10	10	10	10	10											
G.L O.E G02	11	11	11	11	11	11											
D																	
D1																	
D.R E.E G01	25	25	25	25	25												
D.R E.E G02	25																
D.R E.E G03																	

Table 6.11

Number of Reviewers Coding an Item by Objective (Item Number: Number of Reviewers)
 MI Functional Independence Math Grade 6

Low		Medium		High
1		3		6

N										
N1										
N.ME.EG01	28:5	33:2								
N.ME.EG02	28:1	30:1	31:5	34:4						
N.ME.EG03	33:4									
N.ME.EG04										
N.ME.EG05										
N.ME.EG06	24:5									
N.ME.EG07										
N.ME.EG08										
N.MR.EG09	1:6	2:6	3:6	5:6	35:1	43:1				
N.MR.EG10	35:5									
N2										
N.FL.EG11	36:6									
N.FL.EG12	23:1	29:4	37:6	38:6	39:6	45:5				
N.MR.EG13										
N3										
N.FL.EG14										
N.MR.EG15	23:5	24:1	29:2	30:5	32:6	34:2	44:5	45:1		
M										
M1										
M.UN.EG01	6:3									
M.UN.EG02	6:3	7:6	8:6	9:6	31:1					
M.PS.EG03										
M.UN.EG04	19:6									
M.UN.EG05										
M.PS.EG06										
M.UN.EG07	21:5									
M.PS.EG08	20:6	21:1								
M2										
M.UN.EG09	14:6									
M.UN.EG10	15:6									
M.PS.EG11										
M.PS.EG12	16:6	17:6	43:4							
G										
G1										
G.GS.EG01	10:6									
G.LO.EG02	11:6									

Table 6.11

Number of Reviewers Coding an Item by Objective (Item Number: Number of Reviewers)

MI Functional Independence Math Grade 6

D	
D1	
D.RE.EG01	25:5
D.RE.EG02	25:1
D.RE.EG03	

Table 6.12

Number of Reviewers Coding an Objective by Item (Objective: Number of Reviewers)
 MI Functional Independence Math Grade 6

Low		Medium		High
1		3		6

1	N.MR.EG09:6	
2	N.MR.EG09:6	
3	N.MR.EG09:6	
4		
5	N.MR.EG09:6	
6	M.UN.EG01:3	M.UN.EG02:3
7	M.UN.EG02:6	
8	M.UN.EG02:6	
9	M.UN.EG02:6	
10	G.GS.EG01:6	
11	G.LO.EG02:6	
12		
13		
14	M.UN.EG09:6	
15	M.UN.EG10:6	
16	M.PS.EG12:6	
17	M.PS.EG12:6	
18		
19	M.UN.EG04:6	
20	M.PS.EG08:6	
21	M.UN.EG07:5	M.PS.EG08:1
22		
23	N.FL.EG12:1	N.MR.EG15:5
24	N.ME.EG06:5	N.MR.EG15:1
25	D.RE.EG01:5	D.RE.EG02:1
26		
27		
28	N.ME.EG01:5	N.ME.EG02:1
29	N.FL.EG12:4	N.MR.EG15:2
30	N.ME.EG02:1	N.MR.EG15:5
31	N.ME.EG02:5	M.UN.EG02:1
32	N.MR.EG15:6	
33	N.ME.EG01:2	N.ME.EG03:4
34	N.ME.EG02:4	N.MR.EG15:2
35	N.MR.EG09:1	N.MR.EG10:5
36	N.FL.EG11:6	
37	N.FL.EG12:6	
38	N.FL.EG12:6	

Table 6.12

Number of Reviewers Coding an Objective by Item (Objective: Number of Reviewers)
MI Functional Independence Math Grade 6

39	N.FL.EG12:6	
40		
41		
42		
43	N.MR.EG09:1	M.PS.EG12:4
44	N.MR.EG15:5	
45	N.FL.EG12:5	N.MR.EG15:1

Assessment Item DOK vs Consensus DOK (Item Number: Number of Reviewers [Average DOK])

Low DOK		Matched DOK		High DOK
1		3		6

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Table 6.13

Assessment Item DOK vs Consensus DOK (Item Number: Number of Reviewers [Average DOK])

MI Functional Independence Math Grade 6

M.UN.EG 01 [2]:	6:3[3.33]				
M.UN.EG 02 [2]:	6:3[3]	7:6[3]	8:6[3]	9:6[3]	31:1[3]
M.PS.EG0 3 [2]:					
M.UN.EG 04 [3]:	19:6[3]				
M.UN.EG 05 [3]:					
M.PS.EG0 6 [3]:					
M.UN.EG 07 [3]:	21:5[2.4]				
M.PS.EG0 8 [2]:	20:6[3]	21:1[2]			
M2 [3]:					
M.UN.EG 09 [3]:	14:6[2.6 7]				
M.UN.EG 10 [3]:	15:6[2.8 3]				
M.PS.EG1 1 [3]:					
M.PS.EG1 2 [3]:	16:6[3]	17:6[3]	43:4[3.2 5]		
G [3]:					
G1 [3]:					
G.GS.EG0 1 [3]:	10:6[2.8 3]				
G.LO.EG0 2 [3]:	11:6[2.8 3]				
D [4]:					
D1 [4]:					
D.RE.EG0 1 [3]:	25:5[3.8]				
D.RE.EG0 2 [5]:	25:1[4]				
D.RE.EG0 3 [4]:					

Table 7.1

Categorical Concurrence Between Standards and Assessment as Rated by Six Reviewers

MI Functional Independence Math Grade 7

Number of Assessment Items - 35

Standards			Level by Objective			Hits		Cat. Concurr.
Title	Goals #	Objs #	Level	# of objs by Level	% w/in std by Level	Mean	S.D.	
N - NUMBERS AND OPERATIONS	3	15.33	2 3 4	2 7 6	13 46 40	17.83	0.69	YES
M - MEASUREMENT	2	10	2 3 4	1 8 1	10 80 10	9.33	1.25	YES
G - GEOMETRY	2	3	3 4	2 1	66 33	3	0	NO
D - DATA ANALYSIS	1	4	3 4 5	1 2 1	25 50 25	4.17	0.69	NO
Total	8	32.33	2 3 4 5	3 18 10 1	9 56 31 3	34.33	1.49	

Table 7.2

Depth-of-Knowledge Consistency Between Standards and Assessment as Rated by Six Reviewers

MI Functional Independence Math Grade 7

Number of Assessment Items - 35

Standards			Hits		Level of Item w.r.t. Standard						DOK Consistency
					% Under		% At		% Above		
Title	Goals #	Objs #	M	S.D.	M	S.D.	M	S.D.	M	S.D.	
N - NUMBERS AND OPERATIONS	3	15.33	17.83	0.69	2	8	80	32	18	32	YES
M - MEASUREMENT	2	10	9.33	1.25	3	16	79	37	18	35	YES
G - GEOMETRY	2	3	3	0	8	28	92	28	0	0	YES
D - DATA ANALYSIS	1	4	4.17	0.69	24	35	76	35	0	0	YES
Total	8	32.33	34.33	1.49	4	18	81	34	15	31	

Table 7.3

Range-of-Knowledge Correspondence and Balance of Representation Between Standards and Assessment as Rated by Six Reviewers
MI Functional Independence Math Grade 7
Number of Assessment Items - 35

Standards			Hits		Range of Objectives				Rng. of Know.	Balance Index				Bal. of Represent.
					# Objs Hit		% of Total			% Hits in Std/Ttl Hits		Index		
Title	Goals #	Objs #	Mean	S.D.	Mean	S.D.	Mean	S.D.		Mean	S.D.	Mean	S.D.	
N - NUMBERS AND OPERATIONS	3	15.33	17.83	0.69	9	0.58	59	3	YES	52	3	0.77	0.02	YES
M - MEASUREMENT	2	10	9.33	1.25	6.5	0.5	65	5	YES	27	3	0.79	0.05	YES
G - GEOMETRY	2	3	3	0	2	0	67	0	YES	9	0	0.83	0	YES
D - DATA ANALYSIS	1	4	4.17	0.69	1.17	0.37	29	9	NO	12	2	0.97	0.06	YES
Total	8	32.33	34.33	1.49	4.67	3.25	55	16		25	17	0.84	0.09	

Table 7.4

Summary of Attainment of Acceptable Alignment Level on Four Content Focus Criteria as Rated by Six Reviewers

MI Functional Independence Math Grade 7

Number of Assessment Items - 35

Standards	Alignment Criteria			
	Categorical Concurrence	Depth-of-Knowledge Consistency	Range of Knowledge	Balance of Representation
N - NUMBERS AND OPERATIONS	YES	YES	YES	YES
M - MEASUREMENT	YES	YES	YES	YES
G - GEOMETRY	NO	YES	YES	YES
D - DATA ANALYSIS	NO	YES	NO	YES

Table 7.6
Depth-of-Knowledge Levels by Item and Reviewers
Intraclass Correlation
MI Functional Independence Math Grade 7

Item	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6
1	3	3	3	3	3	3
2	2	3	3	3	3	3
3	3	3	3	3	3	3
4						
5						
6	3	3	3	3	3	3
7	3	3	3	2	3	3
8	2	2	2	2	2	3
9	3	3	3	2	3	3
10	3	3	3	3	4	4
11	3	3	3	3	3	3
12	4	4	4	4	4	3
13	3	3	3	3	4	3
14						
15	3	3	3	4	3	4
16	3	4	4	4	4	4
17	3	3	3	3	3	4
18	3	3	3	3	3	3
19	3	2	2	3	2	2
20	3	4	4	4	3	4
21	4	3	3	4	3	3
22						
23	4	4	4	4	3	4
24	4	4	4	4	4	4
25	4	4	4	4	4	4
26						
27						
28	3	3	3	3	3	3
29	3	3	3	3	3	3
30	4	3	3	3	3	3
31	3	3	3	3	3	3
32	4	4	4	4	3	4
33	4	4	4	4	3	4
34						
35	3	3	4	3	4	4
36	4	4	4	3	3	4
37	4	4	4	4	4	4
38	3	3	3	4	3	3
39						
40						

Table 7.6
Depth-of-Knowledge Levels by Item and Reviewers
Intraclass Correlation
MI Functional Independence Math Grade 7

Item	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6
41						
42	3	3	3	3	3	3
43	4	4	4	4	4	4
44	3	3	3	4	3	3
45	4	4	4	4	3	4

Intraclass Correlation: 0.9087

Pairwise Comparison: 0.7486

Table 7.8
DOK Levels and Objectives Coded by Each Reviewer
MI Functional Independence Math Grade 7

Item	DOK 0	PObj 0	DOK 1	PObj 1	DOK 2	PObj 2	DOK 3	PObj 3	DOK 4	PObj 4	S1Obj 4	S2Obj 4	DOK 5	PObj 5	S1Obj 5	S2Obj 5
1	3	N.MR.EG05	3	N.MR.EG05	3	N.MR.EG05	3	N.FL.EG07	3	N.MR.EG05			3	N.MR.EG05		
2	2	N.MR.EG05	3	N.MR.EG05	3	N.MR.EG05	3	N.MR.EG05	3	N.MR.EG05			3	N.MR.EG05		
3	3	N.MR.EG05	3	N.MR.EG05	3	N.MR.EG05	3	N.MR.EG05	3	N.MR.EG05			3	N.MR.EG05		
4																
5																
6	3	M.UN.EG02	3	M.UN.EG02	3	M.UN.EG02	3	M.UN.EG02	3	M.UN.EG02			3	M.UN.EG02		
7	3	N.ME.EG02	3	M.UN.EG02	3	N.ME.EG02	2	N.ME.EG02	3				3	N.ME.EG02		
8	2	M.UN.EG07	2	M.UN.EG07	2	M.UN.EG07	2	M.UN.EG07	2	M.UN.EG07			3	M.UN.EG07		
9	3	M.UN.EG08	3	M.UN.EG08	3	M.UN.EG08	2	M.UN.EG08	3	M.UN.EG08			3	M.UN.EG08		
10	3	N.FL.EG07	3	N.FL.EG07	3	N.FL.EG07	3	D.RE.EG04	4	N.MR.EG15			4	D.RE.EG04		
11	3	G.LO.EG01	3	G.LO.EG01	3	G.LO.EG01	3	G.LO.EG01	3	G.LO.EG01			3	G.LO.EG01		
12	4	G.LO.EG03	4	G.LO.EG03	4	G.LO.EG03	4	G.LO.EG03	4	G.LO.EG03			3	G.LO.EG03		
13	3	G.LO.EG01	3	G.LO.EG01	3	G.LO.EG01	3	G.LO.EG01	4	G.LO.EG03			3	G.LO.EG01		
14																
15	3	M.UN.EG03	3	M.UN.EG03	3	M.UN.EG03	4	D.RE.EG04	3	N.FL.EG07			4	N.ME.EG03		
16	3	M.UN.EG04	4	M.UN.EG01	4	M.UN.EG04	4	M.UN.EG04	4	M.UN.EG01			4	M.UN.EG04		

Table 7.8
DOK Levels and Objectives Coded by Each Reviewer
MI Functional Independence Math Grade 7

Item	DOK 0	PObj 0	DOK 1	PObj 1	DOK 2	PObj 2	DOK 3	PObj 3	DOK 4	PObj 4	S1Ob j4	S2Ob j4	DOK 5	PObj 5	S1Ob j5	S2Ob j5
17	3	M.UN .EG0 3	3	M.UN .EG0 3	3	M.UN .EG0 3	3	N.ME .EG0 4	3	N.ME .EG0 4			4	M.UN .EG0 3		
18	3	M.PS .EG0 9	3	M.PS .EG0 9	3	N.MR .EG0 9	3	M.PS .EG0 9	3	M.PS .EG0 9			3	M.PS .EG0 9		
19	3	N.ME .EG0 2	2	N.ME .EG0 2	2	N.ME .EG0 2	3	N.ME .EG0 1	2	N.ME .EG0 2			2	N.ME .EG0 2		
20	3	N	4	N.MR .EG1 3	4	N.MR .EG1 3	4	N3	3				4	N.MR .EG1 3		
21	4	N.ME .EG0 4	3	N.ME .EG0 4	3	N.ME .EG0 4	4	N.ME .EG0 4	3				3	N.ME .EG0 4		
22																
23	4	D.RE. EG04	4	D.RE. EG04	4	D.RE. EG04	4	D.RE. EG04	3	D.RE. EG04			4	D.RE. EG04		
24	4	D.RE. EG04	4	D.RE. EG04	4	D.RE. EG04	4	D.RE. EG04	4	D.RE. EG04			4	D.RE. EG04		
25	4	D.RE. EG04	4	D.RE. EG04	4	D.RE. EG04	4	D.RE. EG04	4	D.RE. EG02			4	D.RE. EG04		
26																
27																
28	3	N.MR .EG1 6	3	N.MR .EG1 6	3	N.MR .EG1 6	3	N.MR .EG1 6	3				3	N.MR .EG1 6		
29	3	N.FL. EG07	3	N.FL. EG07	3	N.FL. EG07	3	N.FL. EG07	3	N.FL. EG07			3	N.FL. EG07		
30	4	N.MR .EG0 8	3	N.MR .EG0 8	3	N.MR .EG0 8	3	N.MR .EG0 8	3	N.MR .EG0 8			3	N.MR .EG0 8		
31	3	N.FL. EG07	3	N.FL. EG07	3	N.FL. EG07	3	N.MR .EG0 8	3	N.MR .EG0 8			3	N.FL. EG07		
32	4	N.FL. EG14	4	N.FL. EG14	4	N.FL. EG14	4	N.FL. EG14	3	N.MR .EG0 5			4	N.FL. EG14		

Table 7.8
DOK Levels and Objectives Coded by Each Reviewer
MI Functional Independence Math Grade 7

Item	DOK 0	PObj 0	DOK 1	PObj 1	DOK 2	PObj 2	DOK 3	PObj 3	DOK 4	PObj 4	S1Ob j4	S2Ob j4	DOK 5	PObj 5	S1Ob j5	S2Ob j5
33	4	N.MR.EG09	4	N.MR.EG09	4	N.MR.EG09	4	N.MR.EG09	3	N.MR.EG05			4	N.MR.EG16		
34																
35	3	N.MR.EG08	3	N.MR.EG08	4	N.MR.EG08	3	N.MR.EG08	4	N.MR.EG13			4	N.MR.EG16		
36	4	N.MR.EG16	4	N.MR.EG16	4	N.MR.EG16	3	N.MR.EG08	3	N.FL.EG07			4	N.MR.EG16		
37	4	N.MR.EG16	4	N.MR.EG16	4	N.MR.EG16	4	N.MR.EG16	4	N.MR.EG16			4	M.PS.EG09		
38	3	N.MR.EG16	3	N.MR.EG16	3	N.MR.EG16	4	N.MR.EG16	3	N.MR.EG16			3	M.PS.EG09		
39																
40																
41																
42	3	M.PS.EG12	3	M.PS.EG12	3	M.PS.EG12	3	M.PS.EG12	3	M.PS.EG12			3	M.PS.EG12		
43	4	D.RE.EG04	4	D.RE.EG04	4	D.RE.EG04	4	M.PS.EG12	4	N.MR.EG15			4	D.RE.EG04		
44	3	M.PS.EG12	3	M.PS.EG12	3	M.PS.EG12	4	M.PS.EG12	3	M.PS.EG12			3	M.PS.EG12		
45	4	M.PS.EG12	4	M.PS.EG12	4	M.PS.EG12	4	M.PS.EG12	3	N.MR.EG16			4	N.MR.EG16		

Objective Pairwise Comparison: 0.7188
Standard Pairwise Comparison: 0.8752

Table 7.9
Objectives Coded to Each Item by Reviewers
MI Functional Independence Math Grade 7

Low		Medium		High
0		4.577778		6

1	N.M R.E G05	N.M R.E G05	N.M R.E G05	N.M R.E G05	N.M R.E G05	N.F L.E G07
2	N.M R.E G05	N.M R.E G05	N.M R.E G05	N.M R.E G05	N.M R.E G05	N.M R.E G05
3	N.M R.E G05	N.M R.E G05	N.M R.E G05	N.M R.E G05	N.M R.E G05	N.M R.E G05
4						
5						
6	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02
7	N.M E.E G02	N.M E.E G02	N.M E.E G02	N.M E.E G02	M.U N.E G02	
8	M.U N.E G07	M.U N.E G07	M.U N.E G07	M.U N.E G07	M.U N.E G07	M.U N.E G07
9	M.U N.E G08	M.U N.E G08	M.U N.E G08	M.U N.E G08	M.U N.E G08	M.U N.E G08
10	N.F L.E G07	N.F L.E G07	N.F L.E G07	N.M R.E G15	D.R E.E G04	D.R E.E G04
11	G.L O.E G01	G.L O.E G01	G.L O.E G01	G.L O.E G01	G.L O.E G01	G.L O.E G01
12	G.L O.E G03	G.L O.E G03	G.L O.E G03	G.L O.E G03	G.L O.E G03	G.L O.E G03
13	G.L O.E G01	G.L O.E G01	G.L O.E G01	G.L O.E G01	G.L O.E G01	G.L O.E G03
14						
15	N.M E.E G03	N.F L.E G07	M.U N.E G03	M.U N.E G03	M.U N.E G03	D.R E.E G04

Table 7.9
Objectives Coded to Each Item by Reviewers
MI Functional Independence Math Grade 7

16	M.U N.E G01	M.U N.E G01	M.U N.E G04	M.U N.E G04	M.U N.E G04	M.U N.E G04
17	N.M E.E G04	N.M E.E G04	M.U N.E G03	M.U N.E G03	M.U N.E G03	M.U N.E G03
18	N.M R.E G09	M.P S.E G09	M.P S.E G09	M.P S.E G09	M.P S.E G09	M.P S.E G09
19	N.M E.E G01	N.M E.E G02	N.M E.E G02	N.M E.E G02	N.M E.E G02	N.M E.E G02
20	N	N.M R.E G13	N.M R.E G13	N.M R.E G13	N3	
21	N.M E.E G04	N.M E.E G04	N.M E.E G04	N.M E.E G04	N.M E.E G04	
22						
23	D.R E.E G04	D.R E.E G04	D.R E.E G04	D.R E.E G04	D.R E.E G04	D.R E.E G04
24	D.R E.E G04	D.R E.E G04	D.R E.E G04	D.R E.E G04	D.R E.E G04	D.R E.E G04
25	D.R E.E G02	D.R E.E G04	D.R E.E G04	D.R E.E G04	D.R E.E G04	D.R E.E G04
26						
27						
28	N.M R.E G16	N.M R.E G16	N.M R.E G16	N.M R.E G16	N.M R.E G16	
29	N.F L.E G07	N.F L.E G07	N.F L.E G07	N.F L.E G07	N.F L.E G07	N.F L.E G07
30	N.M R.E G08	N.M R.E G08	N.M R.E G08	N.M R.E G08	N.M R.E G08	N.M R.E G08
31	N.F L.E G07	N.F L.E G07	N.F L.E G07	N.F L.E G07	N.M R.E G08	N.M R.E G08

Table 7.9
Objectives Coded to Each Item by Reviewers
MI Functional Independence Math Grade 7

32	N.M R.E G05	N.F L.E G14	N.F L.E G14	N.F L.E G14	N.F L.E G14	N.F L.E G14
33	N.M R.E G05	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G09	N.M R.E G16
34						
35	N.M R.E G08	N.M R.E G08	N.M R.E G08	N.M R.E G08	N.M R.E G13	N.M R.E G16
36	N.F L.E G07	N.M R.E G08	N.M R.E G16	N.M R.E G16	N.M R.E G16	N.M R.E G16
37	N.M R.E G16	N.M R.E G16	N.M R.E G16	N.M R.E G16	N.M R.E G16	M.P S.E G09
38	N.M R.E G16	N.M R.E G16	N.M R.E G16	N.M R.E G16	N.M R.E G16	M.P S.E G09
39						
40						
41						
42	M.P S.E G12	M.P S.E G12	M.P S.E G12	M.P S.E G12	M.P S.E G12	M.P S.E G12
43	N.M R.E G15	M.P S.E G12	D.R E.E G04	D.R E.E G04	D.R E.E G04	D.R E.E G04
44	M.P S.E G12	M.P S.E G12	M.P S.E G12	M.P S.E G12	M.P S.E G12	M.P S.E G12
45	N.M R.E G16	N.M R.E G16	M.P S.E G12	M.P S.E G12	M.P S.E G12	M.P S.E G12

Table 7.10
Items Coded by Reviewers to Each Objective
MI Functional Independence Math Grade 7

Low		Medium		High
0		4.577778		24

N	20																		
N1																			
N.M E.E G01	19																		
N.M E.E G02	7	7	7	7	19	19	19	19	19										
N.M E.E G03	15																		
N.M E.E G04	17	17	21	21	21	21	21												
N.M R.E G05	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3	32	33
N.M R.E G06																			
N2																			
N.F L.E G07	1	10	10	10	15	29	29	29	29	29	29	31	31	31	31	36			
N.M R.E G08	30	30	30	30	30	30	31	31	35	35	35	35	36						
N.M R.E G09	18	33	33	33	33														
N.F L.E G10																			
N.M E.E G11																			
N.M R.E G13	20	20	20	35															
N3	20																		

Table 7.10
Items Coded by Reviewers to Each Objective
MI Functional Independence Math Grade 7

N.F L.E G14	32	32	32	32	32														
N.M R.E G15	10	43																	
N.M R.E G16	28	28	28	28	28	33	35	36	36	36	36	37	37	37	37	37	38	38	38
	38	45	45																
M																			
M1																			
M.U N.E G01	16	16																	
M.U N.E G02	6	6	6	6	6	6	7												
M.U N.E G03	15	15	15	17	17	17	17												
M.U N.E G04	16	16	16	16															
M.U N.E G07	8	8	8	8	8	8													
M.U N.E G08	9	9	9	9	9	9													
M.P S.E G09	18	18	18	18	18	37	38												
M2																			
M.U N.E G10																			
M.P S.E G11																			
M.P S.E G12	42	42	42	42	42	42	43	44	44	44	44	44	44	44	45	45	45	45	
G																			

Table 7.10
Items Coded by Reviewers to Each Objective
MI Functional Independence Math Grade 7

G1																				
G.L O.E G01	11	11	11	11	11	11	13	13	13	13	13									
G2																				
G.L O.E G02																				
G.L O.E G03	12	12	12	12	12	12	13													
D																				
D1																				
D.R E.E G01																				
D.R E.E G02	25																			
D.R E.E G03																				
D.R E.E G04	10	10	15	23	23	23	23	23	23	24	24	24	24	24	24	25	25	25	25	25
	43	43	43	43																

Table 7.11

Number of Reviewers Coding an Item by Objective (Item Number: Number of Reviewers)
 MI Functional Independence Math Grade 7

Low		Medium		High
1		3		6

N	20:1					
N1						
N.ME.EG01	19:1					
N.ME.EG02	7:4	19:5				
N.ME.EG03	15:1					
N.ME.EG04	17:2	21:5				
N.MR.EG05	1:5	2:6	3:6	32:1	33:1	
N.MR.EG06						
N2						
N.FL.EG07	1:1	10:3	15:1	29:6	31:4	36:1
N.MR.EG08	30:6	31:2	35:4	36:1		
N.MR.EG09	18:1	33:4				
N.FL.EG10						
N.ME.EG11						
N.MR.EG13	20:3	35:1				
N3	20:1					
N.FL.EG14	32:5					
N.MR.EG15	10:1	43:1				
N.MR.EG16	28:5	33:1	35:1	36:4	37:5	38:5 45:2
M						
M1						
M.UN.EG01	16:2					
M.UN.EG02	6:6	7:1				
M.UN.EG03	15:3	17:4				
M.UN.EG04	16:4					
M.UN.EG07	8:6					
M.UN.EG08	9:6					
M.PS.EG09	18:5	37:1	38:1			
M2						
M.UN.EG10						
M.PS.EG11						
M.PS.EG12	42:6	43:1	44:6	45:4		
G						
G1						
G.LO.EG01	11:6	13:5				
G2						
G.LO.EG02						
G.LO.EG03	12:6	13:1				

Table 7.11

Number of Reviewers Coding an Item by Objective (Item Number: Number of Reviewers)
MI Functional Independence Math Grade 7

D						
D1						
D.RE.EG01						
D.RE.EG02	25:1					
D.RE.EG03						
D.RE.EG04	10:2	15:1	23:6	24:6	25:5	43:4

Table 7.12

Number of Reviewers Coding an Objective by Item (Objective: Number of Reviewers)
 MI Functional Independence Math Grade 7

Low		Medium		High
1		3		6

1	N.MR.EG05:5	N.FL.EG07:1		
2	N.MR.EG05:6			
3	N.MR.EG05:6			
4				
5				
6	M.UN.EG02:6			
7	N.ME.EG02:4	M.UN.EG02:1		
8	M.UN.EG07:6			
9	M.UN.EG08:6			
10	N.FL.EG07:3	N.MR.EG15:1	D.RE.EG04:2	
11	G.LO.EG01:6			
12	G.LO.EG03:6			
13	G.LO.EG01:5	G.LO.EG03:1		
14				
15	N.ME.EG03:1	N.FL.EG07:1	M.UN.EG03:3	D.RE.EG04:1
16	M.UN.EG01:2	M.UN.EG04:4		
17	N.ME.EG04:2	M.UN.EG03:4		
18	N.MR.EG09:1	M.PS.EG09:5		
19	N.ME.EG01:1	N.ME.EG02:5		
20	N:1	N.MR.EG13:3	N3:1	
21	N.ME.EG04:5			
22				
23	D.RE.EG04:6			
24	D.RE.EG04:6			
25	D.RE.EG02:1	D.RE.EG04:5		
26				
27				
28	N.MR.EG16:5			
29	N.FL.EG07:6			
30	N.MR.EG08:6			
31	N.FL.EG07:4	N.MR.EG08:2		
32	N.MR.EG05:1	N.FL.EG14:5		
33	N.MR.EG05:1	N.MR.EG09:4	N.MR.EG16:1	
34				
35	N.MR.EG08:4	N.MR.EG13:1	N.MR.EG16:1	
36	N.FL.EG07:1	N.MR.EG08:1	N.MR.EG16:4	
37	N.MR.EG16:5	M.PS.EG09:1		
38	N.MR.EG16:5	M.PS.EG09:1		

Table 7.12

Number of Reviewers Coding an Objective by Item (Objective: Number of Reviewers)
MI Functional Independence Math Grade 7

39	
40	
41	
42	M.PS.EG12:6
43	N.MR.EG15:1 M.PS.EG12:1 D.RE.EG04:4
44	M.PS.EG12:6
45	N.MR.EG16:2 M.PS.EG12:4

Table 7.13

Assessment Item DOK vs Consensus DOK (Item Number: Number of Reviewers [Average DOK])

MI Functional Independence Math Grade 7

Low DOK		Matched DOK		High DOK
1		3		6

N [3]:	20:1[3]					
N1 [3]:						
N.ME.EG01 [2]:	19:1[3]					
N.ME.EG02 [2]:	7:4[2.75]	19:5[2.2]				
N.ME.EG03 [3]:	15:1[4]					
N.ME.EG04 [3]:	17:2[3]	21:5[3.4]				
N.MR.EG05 [3]:	1:5[3]	2:6[2.83]	3:6[3]	32:1[3]	33:1[3]	
N.MR.EG06 [3]:						
N2 [4]:						
N.FL.EG07 [3]:	1:1[3]	10:3[3]	15:1[3]	29:6[3]	31:4[3]	36:1[3]
N.MR.EG08 [3]:	30:6[3.17]	31:2[3]	35:4[3.25]	36:1[3]		
N.MR.EG09 [4]:	18:1[3]	33:4[4]				
N.FL.EG10 [4]:						
N.ME.EG11 [4]:						
N.MR.EG13 [4]:	20:3[4]	35:1[4]				
N3 [4]:	20:1[4]					
N.FL.EG14 [4]:	32:5[4]					
N.MR.EG15 [4]:	10:1[4]	43:1[4]				
N.MR.EG16 [3]:	28:5[3]	33:1[4]	35:1[4]	36:4[4]	37:5[4]	38:5[3.2] 45:2[3.5]
M [3]:						
M1 [3]:						

Table 7.13

Assessment Item DOK vs Consensus DOK (Item Number: Number of Reviewers [Average DOK])

MI Functional Independence Math Grade 7

M.UN.EG01 [4]:	16:2[4]					
M.UN.EG02 [3]:	6:6[3]	7:1[3]				
M.UN.EG03 [3]:	15:3[3]	17:4[3.25]				
M.UN.EG04 [3]:	16:4[3.75]					
M.UN.EG07 [2]:	8:6[2.17]					
M.UN.EG08 [3]:	9:6[2.83]					
M.PS.EG09 [3]:	18:5[3]	37:1[4]	38:1[3]			
M2 [3]:						
M.UN.EG10 [3]:						
M.PS.EG11 [3]:						
M.PS.EG12 [3]:	42:6[3]	43:1[4]	44:6[3.17]	45:4[4]		
G [3]:						
G1 [3]:						
G.LO.EG01 [3]:	11:6[3]	13:5[3]				
G2 [4]:						
G.LO.EG02 [3]:						
G.LO.EG03 [4]:	12:6[3.83]	13:1[4]				
D [4]:						
D1 [4]:						
D.RE.EG01 [3]:						
D.RE.EG02 [5]:	25:1[4]					
D.RE.EG03 [4]:						
D.RE.EG04 [4]:	10:2[3.5]	15:1[4]	23:6[3.83]	24:6[4]	25:5[4]	43:4[4]

Table 8.1

Categorical Concurrence Between Standards and Assessment as Rated by Six Reviewers

MI Functional Independence Math Grade 8

Number of Assessment Items - 35

Standards			Level by Objective			Hits		Cat. Concurr.
Title	Goals #	Objs #	Level	# of objs by Level	% w/in std by Level	Mean	S.D.	
N - NUMBERS AND OPERATIONS	4	24.67	2 3 4	2 11 11	8 45 45	17.33	2.13	YES
A - ALGEBRA	1	2	4	2	100	0.33	1.67	NO
M - MEASUREMENT	2	14.5	3 4	9 4	69 30	12.67	0.94	YES
G - GEOMETRY	2	3	3 4	2 1	66 33	2	0	NO
D - DATA ANALYSIS	1	4	3 4 5	1 2 1	25 50 25	2.17	0.37	NO
Total	10	48.17	2 3 4 5	2 23 20 1	4 50 43 2	34.5	1.12	

Table 8.2

Depth-of-Knowledge Consistency Between Standards and Assessment as Rated by Six Reviewers

MI Functional Independence Math Grade 8

Number of Assessment Items - 35

Standards			Hits		Level of Item w.r.t. Standard						DOK Consistency
					% Under		% At		% Above		
Title	Goals #	Objs #	M	S.D.	M	S.D.	M	S.D.	M	S.D.	
N - NUMBERS AND OPERATIONS	4	24.67	17.33	2.13	10	30	82	36	8	24	YES
A - ALGEBRA	1	2	0.33	1.67	0	0	100	0	0	0	YES
M - MEASUREMENT	2	14.5	12.67	0.94	19	39	62	46	18	37	YES
G - GEOMETRY	2	3	2	0	33	47	50	50	17	37	YES
D - DATA ANALYSIS	1	4	2.17	0.37	39	18	61	18	0	0	YES
Total	10	48.17	34.5	1.12	16	35	72	42	12	30	

Table 8.3

Range-of-Knowledge Correspondence and Balance of Representation Between Standards and Assessment as Rated by Six Reviewers
MI Functional Independence Math Grade 8
Number of Assessment Items - 35

Standards			Hits		Range of Objectives				Rng. of Know.	Balance Index				Bal. of Represent.
					# Objs Hit		% of Total			% Hits in Std/Ttl Hits		Index		
Title	Goals #	Objs #	Mean	S.D.	Mean	S.D.	Mean	S.D.		Mean	S.D.	Mean	S.D.	
N - NUMBERS AND OPERATIONS	4	24.67	17.33	2.13	8.67	1.25	35	5	NO	50	5	0.78	0.01	YES
A - ALGEBRA	1	2	0.33	1.67	0.33	1.67	17	83	NO	1	5	0.17	0.83	NO
M - MEASUREMENT	2	14.5	12.67	0.94	6.5	0.76	45	3	WEAK	37	4	0.81	0.03	YES
G - GEOMETRY	2	3	2	0	1	0	33	0	NO	6	0	1	0	YES
D - DATA ANALYSIS	1	4	2.17	0.37	1	0	25	0	NO	6	1	1	0	YES
Total	10	48.17	34.5	1.12	3.5	3.42	31	15		20	20	0.75	0.10	

Table 8.4

*Summary of Attainment of Acceptable Alignment Level on Four Content Focus Criteria
as Rated by Six Reviewers*

MI Functional Independence Math Grade 8

Number of Assessment Items - 35

Standards	Alignment Criteria			
	Categorical Concurrence	Depth-of- Knowledge Consistency	Range of Knowledge	Balance of Representation
N - NUMBERS AND OPERATIONS	YES	YES	NO	YES
A - ALGEBRA	NO	YES	NO	NO
M - MEASUREMENT	YES	YES	WEAK	YES
G - GEOMETRY	NO	YES	NO	YES
D - DATA ANALYSIS	NO	YES	NO	YES

Table 8.6
Depth-of-Knowledge Levels by Item and Reviewers
Intraclass Correlation
MI Functional Independence Math Grade 8

Item	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6
1	3	3	3	3	3	4
2	3	3	3	3	3	4
3	3	3	3	3	3	4
4						
5	2	2	2	3	2	2
6	3	3	3	4	3	3
7	3	3	3	3	3	3
8						
9						
10	4	3	3	3	3	3
11	4	3	3	3	3	3
12	3	3	3	3	3	3
13	3	3	3	3	4	3
14	4	3	3	3	4	3
15						
16	4	4	4	2	4	3
17	4	3	3	3	3	3
18	4	3	3	3	3	3
19						
20	3	3	3	3	3	3
21	3	4	4	4	4	3
22	3	4	4	4	4	3
23	4	4	4	3	4	4
24	3	3	3	4	4	3
25						
26	3	3	3	4	3	3
27						
28	3	3	3	3	3	3
29	3	3	3	4	3	3
30	3	3	3	3	3	3
31	3	3	3	3	3	3
32	3	3	3	3	4	3
33						
34						
35	3	3	4	4	4	3
36	3	4	3	4	4	3
37	3	4	3	4	4	3
38	3	4	3	4	4	3
39	4	4	4	4	4	4
40						

Table 8.6
Depth-of-Knowledge Levels by Item and Reviewers
Intraclass Correlation
MI Functional Independence Math Grade 8

Item	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6
41	3	3	3	3	3	3
42	3	3	3	4	3	3
43	3	4	4	3	3	4
44	4	3	4	4	3	4
45	4	4	4	4	4	4

Intraclass Correlation: 0.759

Pairwise Comparison: 0.6781

Table 8.8
DOK Levels and Objectives Coded by Each Reviewer
MI Functional Independence Math Grade 8

Item	DOK0	PObj0	DOK1	PObj1	DOK2	PObj2	DOK3	PObj3	DOK4	PObj4	DOK5	PObj5
1	3	N.MR.EG06	3	N.MR.EG06	3	N.MR.EG06	3	N.MR.EG06	3	N.MR.EG06	4	N.MR.EG06
2	3	N.MR.EG06	3	N.ME.EG05	3	N.MR.EG06	3	N.MR.EG06	3	N.MR.EG06	4	N.MR.EG06
3	3	N.MR.EG06	3	N.ME.EG05	3	N.MR.EG06	3	N.MR.EG06	3	N.MR.EG06	4	N.MR.EG06
4												
5	2	N.ME.EG01	2	N.ME.EG01	2	N.ME.EG01	3	N.ME.EG03	2	N.ME.EG01	2	N.ME.EG01
6	3	N.ME.EG02	3	N.FL.EG09	3	N.FL.EG09	4	N.MR.EG24	3	M.UN.EG02	3	N.FL.EG09
7	3	M.UN.EG02	3	M.UN.EG01	3	M.UN.EG02	3	M.UN.EG02	3	M.UN.EG02	3	M.UN.EG02
8												
9												
10	4	M.UN.EG01	3	M.UN.EG01	3	M.UN.EG01	3	M.UN.EG01	3	M.UN.EG02	3	M.UN.EG01
11	4	M.UN.EG02	3	M.UN.EG02	3	M.UN.EG01	3	M.UN.EG02	3	M.UN.EG02	3	N.ME.EG02
12	3	M.UN.EG02	3	M.UN.EG02	3	M.UN.EG01	3	M.UN.EG02	3	M.UN.EG02	3	N.ME.EG02
13	3	M.UN.EG01	3	M.UN.EG01	3	M.UN.EG01	3	M.UN.EG01	4	M.UN.EG01	3	M.UN.EG01
14	4	M.UN.EG02	3	M.UN.EG02	3	M.UN.EG02	3	M.UN.EG02	4	M.UN.EG02	3	M.UN.EG02
15												
16	4	M1	4	M1	4	M1	2	M1	4	M.UN.EG01	3	M1
17	4	G.LO.EG01	3	G.LO.EG01	3	G.LO.EG03	3	G.LO.EG01	3	G.LO.EG01	3	G.LO.EG03
18	4	G.LO.EG01	3	G.LO.EG01	3	G.LO.EG03	3	G.LO.EG01	3	G.LO.EG01	3	G.LO.EG03
19												
20	3	M.UN.EG04	3	M.UN.EG04	3	M.UN.EG04	3	M.UN.EG04	3	M.UN.EG04	3	M.UN.EG04
21	3	M.UN.EG10	4	M.UN.EG10	4	M.UN.EG10	4	M.UN.EG10	4	M.UN.EG10	3	M.PS.EG12
22	3	M.UN.EG10	4	M.UN.EG10	4	M.UN.EG10	4	M.UN.EG10	4	M.UN.EG10	3	M.PS.EG12
23	4	D.RE.EG04	4	D.RE.EG04	4	D.RE.EG04	3	D.RE.EG04	4	D.RE.EG04	4	D.RE.EG04
24	3	D.RE.EG04	3	D.RE.EG04	3	D.RE.EG04	4	D.RE.EG04	4	D.RE.EG04	3	D.RE.EG04
25												
26	3	N.FL.EG09	3	N.FL.EG09	3	N.FL.EG09	4	D.RE.EG04	3	N.FL.EG09	3	N.FL.EG09
27												
28	3	N.FL.EG13	3	N.FL.EG13	3	N.FL.EG13	3	N.FL.EG09	3	N.FL.EG13	3	N.FL.EG13
29	3	N.FL.EG13	3	N.FL.EG13	3	N.FL.EG13	4	N.FL.EG11	3	N.FL.EG13	3	N.FL.EG13
30	3	N.FL.EG09	3	N.FL.EG09	3	N.FL.EG09	3	N.FL.EG09	3	N.FL.EG09	3	N.FL.EG09
31	3	M.PS.EG15	3	M.PS.EG15	3	M.PS.EG15	3	M.PS.EG15	3	M.PS.EG15	3	M.PS.EG15
32	3	M.PS.EG15	3	M.PS.EG15	3	M.PS.EG15	3	M.PS.EG15	4	M.PS.EG15	3	M.PS.EG15
33												
34												
35	3	N3	3	N.ME.EG15	4	N3	4	N.ME.EG15	4	N.ME.EG15	3	N.ME.EG15
36	3	N.ME.EG15	4	N.ME.EG15	3	N.ME.EG15	4	N.ME.EG15	4	N.ME.EG15	3	N.ME.EG15
37	3	N.ME.EG15	4	N.ME.EG15	3	N.ME.EG15	4	N3	4	N.ME.EG15	3	N.ME.EG15
38	3	N.ME.EG15	4	N.ME.EG15	3	N.ME.EG15	4	N.ME.EG15	4		3	N.ME.EG15
39	4	N.MR.EG21	4	N.MR.EG21	4	N.MR.EG21	4	N3	4	N.MR.EG21	4	N.MR.EG21
40												
41	3	N.MR.EG25	3	N.MR.EG25	3	N.MR.EG25	3	N.MR.EG25	3		3	N.MR.EG25
42	3	N.MR.EG25	3	N.MR.EG25	3	N.MR.EG25	4	N2	3		3	N.MR.EG25
43	3	N.FL.EG13	4	M2	4	M2	3	M2	3	N.FL.EG13	4	M2

Table 8.8
DOK Levels and Objectives Coded by Each Reviewer
MI Functional Independence Math Grade 8

Item	DOK0	PObj0	DOK1	PObj1	DOK2	PObj2	DOK3	PObj3	DOK4	PObj4	DOK5	PObj5
44	4	N.MR.EG25	3	N.MR.EG25	4	N.MR.EG25	4	A.FO.EG01	3	N.FL.EG13	4	N.MR.EG25
45	4	N.MR.EG10	4	N.MR.EG10	4	N.MR.EG10	4	A.FO.EG02	4	M.UN.EG01	4	N.MR.EG10

Objective Pairwise Comparison: 0.7078

Standard Pairwise Comparison: 0.9176

Table 8.9
Objectives Coded to Each Item by Reviewers
MI Functional Independence Math Grade 8

Low		Medium		High
0		4.6		6

1	N.M R.E G06	N.M R.E G06	N.M R.E G06	N.M R.E G06	N.M R.E G06	N.M R.E G06
2	N.M E.E G05	N.M R.E G06	N.M R.E G06	N.M R.E G06	N.M R.E G06	N.M R.E G06
3	N.M E.E G05	N.M R.E G06	N.M R.E G06	N.M R.E G06	N.M R.E G06	N.M R.E G06
4						
5	N.M E.E G01	N.M E.E G01	N.M E.E G01	N.M E.E G01	N.M E.E G01	N.M E.E G03
6	N.M E.E G02	N.F L.E G09	N.F L.E G09	N.F L.E G09	N.M R.E G24	M.U N.E G02
7	M.U N.E G01	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02
8						
9						
10	M.U N.E G01	M.U N.E G01	M.U N.E G01	M.U N.E G01	M.U N.E G01	M.U N.E G02
11	N.M E.E G02	M.U N.E G01	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02
12	N.M E.E G02	M.U N.E G01	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02
13	M.U N.E G01	M.U N.E G01	M.U N.E G01	M.U N.E G01	M.U N.E G01	M.U N.E G01
14	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02	M.U N.E G02
15						
16	M1	M1	M1	M1	M1	M.U N.E G01

Table 8.9
Objectives Coded to Each Item by Reviewers
MI Functional Independence Math Grade 8

17	G.L O.E G01	G.L O.E G01	G.L O.E G01	G.L O.E G01	G.L O.E G03	G.L O.E G03
18	G.L O.E G01	G.L O.E G01	G.L O.E G01	G.L O.E G01	G.L O.E G03	G.L O.E G03
19						
20	M.U N.E G04	M.U N.E G04	M.U N.E G04	M.U N.E G04	M.U N.E G04	M.U N.E G04
21	M.U N.E G10	M.U N.E G10	M.U N.E G10	M.U N.E G10	M.U N.E G10	M.P S.E G12
22	M.U N.E G10	M.U N.E G10	M.U N.E G10	M.U N.E G10	M.U N.E G10	M.P S.E G12
23	D.R E.E G04	D.R E.E G04	D.R E.E G04	D.R E.E G04	D.R E.E G04	D.R E.E G04
24	D.R E.E G04	D.R E.E G04	D.R E.E G04	D.R E.E G04	D.R E.E G04	D.R E.E G04
25						
26	N.F L.E G09	N.F L.E G09	N.F L.E G09	N.F L.E G09	N.F L.E G09	D.R E.E G04
27						
28	N.F L.E G09	N.F L.E G13	N.F L.E G13	N.F L.E G13	N.F L.E G13	N.F L.E G13
29	N.F L.E G11	N.F L.E G13	N.F L.E G13	N.F L.E G13	N.F L.E G13	N.F L.E G13
30	N.F L.E G09	N.F L.E G09	N.F L.E G09	N.F L.E G09	N.F L.E G09	N.F L.E G09
31	M.P S.E G15	M.P S.E G15	M.P S.E G15	M.P S.E G15	M.P S.E G15	M.P S.E G15
32	M.P S.E G15	M.P S.E G15	M.P S.E G15	M.P S.E G15	M.P S.E G15	M.P S.E G15
33						
34						

Table 8.9
Objectives Coded to Each Item by Reviewers
MI Functional Independence Math Grade 8

35	N3	N3	N.M E.E G15	N.M E.E G15	N.M E.E G15	N.M E.E G15
36	N.M E.E G15	N.M E.E G15	N.M E.E G15	N.M E.E G15	N.M E.E G15	N.M E.E G15
37	N3	N.M E.E G15	N.M E.E G15	N.M E.E G15	N.M E.E G15	N.M E.E G15
38	N.M E.E G15	N.M E.E G15	N.M E.E G15	N.M E.E G15	N.M E.E G15	
39	N3	N.M R.E G21	N.M R.E G21	N.M R.E G21	N.M R.E G21	N.M R.E G21
40						
41	N.M R.E G25	N.M R.E G25	N.M R.E G25	N.M R.E G25	N.M R.E G25	
42	N2	N.M R.E G25	N.M R.E G25	N.M R.E G25	N.M R.E G25	
43	N.F L.E G13	N.F L.E G13	M2	M2	M2	M2
44	N.F L.E G13	N.M R.E G25	N.M R.E G25	N.M R.E G25	N.M R.E G25	A.F O.E G01
45	N.M R.E G10	N.M R.E G10	N.M R.E G10	N.M R.E G10	A.F O.E G02	M.U N.E G01

Table 8.10
Items Coded by Reviewers to Each Objective
MI Functional Independence Math Grade 8

Low		Medium		High
0		3.33871		21

N																
N1																
N.M E.E G01	5	5	5	5	5											
N.M E.E G02	6	11	12													
N.M E.E G03	5															
N.M E.E G04																
N.M E.E G05	2	3														
N.M R.E G06	1	1	1	1	1	1	2	2	2	2	2	3	3	3	3	3
N.M R.E G07																
N2	42															
N.F L.E G09	6	6	6	26	26	26	26	26	28	30	30	30	30	30	30	30
N.M R.E G10	45	45	45	45												
N.F L.E G11	29															
N.M R.E G12																
N.F L.E G13	28	28	28	28	28	29	29	29	29	29	43	43	44			

Table 8.10
Items Coded by Reviewers to Each Objective
MI Functional Independence Math Grade 8

N.M R.E G14																			
N3	35	35	37	39															
N.M E.E G15	35	35	35	35	36	36	36	36	36	36	37	37	37	37	37	38	38	38	38
N.M E.E G16																			
N.M R.E G17																			
N.M R.E G18																			
N.M E.E G19																			
N.M E.E G20																			
N.M R.E G21	39	39	39	39	39														
N.M E.E G22																			
N4																			
N.F L.E G23																			
N.M R.E G24	6																		
N.M R.E G25	41	41	41	41	41	42	42	42	42	44	44	44	44						
A																			
A1																			
A.F O.E G01	44																		

Table 8.10
Items Coded by Reviewers to Each Objective
MI Functional Independence Math Grade 8

A.F O.E G02	45																			
M																				
M1	16	16	16	16	16															
M.U N.E G01	7	10	10	10	10	10	11	12	13	13	13	13	13	13	16	45				
M.U N.E G02	6	7	7	7	7	7	10	11	11	11	11	12	12	12	12	14	14	14	14	14
	14																			
M.U N.E G03																				
M.U N.E G04	20	20	20	20	20	20														
M.U N.E G07																				
M.U N.E G08																				
M.U N.E G09																				
M.U N.E G10	21	21	21	21	21	22	22	22	22	22										
M.U N.E G11																				
M.P S.E G12	21	22																		
M2	43	43	43	43																
M.U N.E G13																				
M.P S.E G14																				

Table 8.10
Items Coded by Reviewers to Each Objective
MI Functional Independence Math Grade 8

M.P S.E G15	31	31	31	31	31	31	32	32	32	32	32	32	
G													
G1													
G.L O.E G01	17	17	17	17	18	18	18	18					
G2													
G.L O.E G02													
G.L O.E G03	17	17	18	18									
D													
D1													
D.R E.E G01													
D.R E.E G02													
D.R E.E G03													
D.R E.E G04	23	23	23	23	23	23	24	24	24	24	24	24	26

Table 8.11

Number of Reviewers Coding an Item by Objective (Item Number: Number of Reviewers)
 MI Functional Independence Math Grade 8

Low		Medium		High
1		3		6

N							
N1							
N.ME.EG01	5:5						
N.ME.EG02	6:1	11:1	12:1				
N.ME.EG03	5:1						
N.ME.EG04							
N.ME.EG05	2:1	3:1					
N.MR.EG06	1:6	2:5	3:5				
N.MR.EG07							
N2	42:1						
N.FL.EG09	6:3	26:5	28:1	30:6			
N.MR.EG10	45:4						
N.FL.EG11	29:1						
N.MR.EG12							
N.FL.EG13	28:5	29:5	43:2	44:1			
N.MR.EG14							
N3	35:2	37:1	39:1				
N.ME.EG15	35:4	36:6	37:5	38:5			
N.ME.EG16							
N.MR.EG17							
N.MR.EG18							
N.ME.EG19							
N.ME.EG20							
N.MR.EG21	39:5						
N.ME.EG22							
N4							
N.FL.EG23							
N.MR.EG24	6:1						
N.MR.EG25	41:5	42:4	44:4				
A							
A1							
A.FO.EG01	44:1						
A.FO.EG02	45:1						
M							
M1	16:5						
M.UN.EG01	7:1	10:5	11:1	12:1	13:6	16:1	45:1
M.UN.EG02	6:1	7:5	10:1	11:4	12:4	14:6	
M.UN.EG03							

Table 8.11

Number of Reviewers Coding an Item by Objective (Item Number: Number of Reviewers)
MI Functional Independence Math Grade 8

M.UN.EG04	20:6	
M.UN.EG07		
M.UN.EG08		
M.UN.EG09		
M.UN.EG10	21:5	22:5
M.UN.EG11		
M.PS.EG12	21:1	22:1
M2	43:4	
M.UN.EG13		
M.PS.EG14		
M.PS.EG15	31:6	32:6
G		
G1		
G.LO.EG01	17:4	18:4
G2		
G.LO.EG02		
G.LO.EG03	17:2	18:2
D		
D1		
D.RE.EG01		
D.RE.EG02		
D.RE.EG03		
D.RE.EG04	23:6	24:6 26:1

Table 8.12

Number of Reviewers Coding an Objective by Item (Objective: Number of Reviewers)
 MI Functional Independence Math Grade 8

Low		Medium		High
1		3		6
1	N.MR.EG06:6			
2	N.ME.EG05:1	N.MR.EG06:5		
3	N.ME.EG05:1	N.MR.EG06:5		
4				
5	N.ME.EG01:5	N.ME.EG03:1		
6	N.ME.EG02:1	N.FL.EG09:3	N.MR.EG24:1	M.UN.EG02:1
7	M.UN.EG01:1	M.UN.EG02:5		
8				
9				
10	M.UN.EG01:5	M.UN.EG02:1		
11	N.ME.EG02:1	M.UN.EG01:1	M.UN.EG02:4	
12	N.ME.EG02:1	M.UN.EG01:1	M.UN.EG02:4	
13	M.UN.EG01:6			
14	M.UN.EG02:6			
15				
16	M1:5	M.UN.EG01:1		
17	G.LO.EG01:4	G.LO.EG03:2		
18	G.LO.EG01:4	G.LO.EG03:2		
19				
20	M.UN.EG04:6			
21	M.UN.EG10:5	M.PS.EG12:1		
22	M.UN.EG10:5	M.PS.EG12:1		
23	D.RE.EG04:6			
24	D.RE.EG04:6			
25				
26	N.FL.EG09:5	D.RE.EG04:1		
27				
28	N.FL.EG09:1	N.FL.EG13:5		
29	N.FL.EG11:1	N.FL.EG13:5		
30	N.FL.EG09:6			
31	M.PS.EG15:6			
32	M.PS.EG15:6			
33				
34				
35	N3:2	N.ME.EG15:4		
36	N.ME.EG15:6			
37	N3:1	N.ME.EG15:5		
38	N.ME.EG15:5			

Table 8.12

Number of Reviewers Coding an Objective by Item (Objective: Number of Reviewers)
MI Functional Independence Math Grade 8

39	N3:1	N.MR.EG21:5	
40			
41	N.MR.EG25:5		
42	N2:1	N.MR.EG25:4	
43	N.FL.EG13:2	M2:4	
44	N.FL.EG13:1	N.MR.EG25:4	A.FO.EG01:1
45	N.MR.EG10:4	A.FO.EG02:1	M.UN.EG01:1

Table 8.13

Assessment Item DOK vs Consensus DOK (Item Number: Number of Reviewers [Average DOK])

MI Functional Independence Math Grade 8

Low DOK		Matched DOK		High DOK
1		3		6

N [3]:				
N1 [3]:				
N.ME.EG0 1 [2]:	5:5[2]			
N.ME.EG0 2 [2]:	6:1[3]	11:1[3]	12:1[3]	
N.ME.EG0 3 [3]:	5:1[3]			
N.ME.EG0 4 [3]:				
N.ME.EG0 5 [4]:	2:1[3]	3:1[3]		
N.MR.EG0 6 [3]:	1:6[3.17]	2:5[3.2]	3:5[3.2]	
N.MR.EG0 7 [3]:				
N2 [4]:	42:1[4]			
N.FL.EG09 [3]:	6:3[3]	26:5[3]	28:1[3]	30:6[3]
N.MR.EG1 0 [4]:	45:4[4]			
N.FL.EG11 [4]:	29:1[4]			
N.MR.EG1 2 [4]:				
N.FL.EG13 [3]:	28:5[3]	29:5[3]	43:2[3]	44:1[3]
N.MR.EG1 4 [4]:				
N3 [4]:	35:2[3.5]	37:1[4]	39:1[4]	
N.ME.EG1 5 [4]:	35:4[3.5]	36:6[3.5]	37:5[3.4]	38:5[3.4]
N.ME.EG1 6 [3]:				
N.MR.EG1 7 [4]:				

Table 8.13

Assessment Item DOK vs Consensus DOK (Item Number: Number of Reviewers [Average DOK])

MI Functional Independence Math Grade 8

N.MR.EG1 8 [3]:							
N.ME.EG1 9 [3]:							
N.ME.EG2 0 [3]:							
N.MR.EG2 1 [4]:	39:5[4]						
N.ME.EG2 2 [4]:							
N4 [4]:							
N.FL.EG23 [4]:							
N.MR.EG2 4 [4]:	6:1[4]						
N.MR.EG2 5 [3]:	41:5[3]	42:4[3]	44:4[3.75]				
A [4]:							
A1 [4]:							
A.FO.EG01 [4]:	44:1[4]						
A.FO.EG02 [4]:	45:1[4]						
M [3]:							
M1 [3]:	16:5[3.4]						
M.UN.EG0 1 [4]:	7:1[3]	10:5[3.2]	11:1[3]	12:1[3]	13:6[3.17]	16:1[4]	45:1[4]
M.UN.EG0 2 [3]:	6:1[3]	7:5[3]	10:1[3]	11:4[3.25]	12:4[3]	14:6[3.33]	
M.UN.EG0 3 [3]:							
M.UN.EG0 4 [3]:	20:6[3]						
M.UN.EG0 7 [3]:							
M.UN.EG0 8 [3]:							
M.UN.EG0 9 [4]:							
M.UN.EG1 0 [4]:	21:5[3.8]	22:5[3.8]					

Table 8.13

Assessment Item DOK vs Consensus DOK (Item Number: Number of Reviewers [Average DOK])

MI Functional Independence Math Grade 8

M.UN.EG1 1 [3]:			
M.PS.EG12 [4]:	21:1[3]	22:1[3]	
M2 [3]:	43:4[3.75]		
M.UN.EG1 3 [3]:			
M.PS.EG14 [3]:			
M.PS.EG15 [3]:	31:6[3]	32:6[3.17]	
G [3]:			
G1 [3]:			
G.LO.EG01 [3]:	17:4[3.25]	18:4[3.25]	
G2 [4]:			
G.LO.EG02 [3]:			
G.LO.EG03 [4]:	17:2[3]	18:2[3]	
D [4]:			
D1 [4]:			
D.RE.EG01 [3]:			
D.RE.EG02 [5]:			
D.RE.EG03 [4]:			
D.RE.EG04 [4]:	23:6[3.83]	24:6[3.33]	26:1[4]

Table 11.1

Categorical Concurrence Between Standards and Assessment as Rated by Six Reviewers

MI Functional Independence Math Grade 11

Number of Assessment Items - 40

Standards			Level by Objective			Hits		Cat. Concurr.
Title	Goals #	Objs #	Level	# of objs by Level	% w/in std by Level	Mean	S.D.	
F - PATTERNS AND RELATIONSHIPS	1	3	3 4	2 1	66 33	6.5	0.76	YES
G - GEOMETRY AND MEASUREMENT	3	18	3 4	14 4	77 22	15.67	3.77	YES
D - DATA ANALYSIS	1	6	3 4 5	2 2 2	33 33 33	1.5	0.5	NO
N - NUMBER SENSE AND NUMERATION	4	21	2 3 4	2 7 12	9 33 57	13.33	3.77	YES
A - NUMERICAL AND ALGEBRAIC OPERATIONS AND ANALYTICAL ...	1	3	4	3	100	3	0	NO
Total	10	51	2 3 4 5	2 25 22 2	3 49 43 3	40	0	

Table 11.2

Depth-of-Knowledge Consistency Between Standards and Assessment as Rated by Six Reviewers

MI Functional Independence Math Grade 11

Number of Assessment Items - 40

Standards			Hits		Level of Item w.r.t. Standard						DOK Consistency
					% Under		% At		% Above		
Title	Goals #	Objs #	M	S.D.	M	S.D.	M	S.D.	M	S.D.	
F - PATTERNS AND RELATIONSHIPS	1	3	6.5	0.76	19	28	75	33	6	23	YES
G - GEOMETRY AND MEASUREMENT	3	18	15.67	3.77	11	27	79	37	9	29	YES
D - DATA ANALYSIS	1	6	1.5	0.5	20	40	50	45	30	40	YES
N - NUMBER SENSE AND NUMERATION	4	21	13.33	3.77	23	40	53	47	24	41	YES
A - NUMERICAL AND ALGEBRAIC OPERATIONS AND ANALYTICAL ...	1	3	3	0	35	48	65	48	0	0	YES
Total	10	51	40	0	20	37	66	44	14	34	

Table 11.3

Range-of-Knowledge Correspondence and Balance of Representation Between Standards and Assessment as Rated by Six Reviewers
MI Functional Independence Math Grade 11
Number of Assessment Items - 40

Standards			Hits		Range of Objectives				Rng. of Know.	Balance Index				Bal. of Represent.
					# Objs Hit		% of Total			% Hits in Std/Ttl Hits		Index		
Title	Goals #	Objs #	Mean	S.D.	Mean	S.D.	Mean	S.D.		Mean	S.D.	Mean	S.D.	
F - PATTERNS AND RELATIONSHIPS	1	3	6.5	0.76	3	0	100	0	YES	16	2	0.80	0.06	YES
G - GEOMETRY AND MEASUREMENT	3	18	15.67	3.77	8.83	1.86	49	10	WEAK	39	9	0.78	0.02	YES
D - DATA ANALYSIS	1	6	1.5	0.5	0.83	0.17	14	3	NO	4	1	0.83	0.17	YES
N - NUMBER SENSE AND NUMERATION	4	21	13.33	3.77	9.83	2.19	47	10	WEAK	33	9	0.84	0.07	YES
A - NUMERICAL AND ALGEBRAIC OPERATIONS AND ANALYTICAL ...	1	3	3	0	2.83	0.37	94	12	YES	8	0	0.97	0.06	YES
Total	10	51	40	0	5.07	3.76	61	32		20	15	0.85	0.10	

Table 11.4

*Summary of Attainment of Acceptable Alignment Level on Four Content Focus Criteria
as Rated by Six Reviewers*

MI Functional Independence Math Grade 11

Number of Assessment Items - 40

Standards	Alignment Criteria			
	Categorical Concurrence	Depth-of- Knowledge Consistency	Range of Knowledge	Balance of Representation
F - PATTERNS AND RELATIONSHIPS	YES	YES	YES	YES
G - GEOMETRY AND MEASUREMENT	YES	YES	WEAK	YES
D - DATA ANALYSIS	NO	YES	NO	YES
N - NUMBER SENSE AND NUMERATION	YES	YES	WEAK	YES
A - NUMERICAL AND ALGEBRAIC OPERATIONS AND ANALYTICAL ...	NO	YES	YES	YES

Table 11.6
Depth-of-Knowledge Levels by Item and Reviewers
Intraclass Correlation
MI Functional Independence Math Grade 11

Item	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6
1	3	3	3	3	3	3
2	3	3	3	3	3	3
3	3	3	3	4	3	3
4	3	3	3	3	3	4
5						
6	3	3	3	3	3	3
7	3	3	3	3	3	3
8	3	3	3	2	3	3
9	3	3	3	3	3	3
10	4	4	4	4	4	4
11	3	3	3	3	3	3
12	3	3	3	3	3	4
13	3	3	3	3	3	4
14	3	3	3	3	3	3
15	4	4	4	4	4	4
16	3	3	3	4	3	3
17	4	4	4	4	3	3
18						
19						
20	4	4	4	3	3	4
21	4	4	4	3	3	3
22	4	4	4	3	3	3
23	4	4	4	3	3	3
24	4	3	3	3	3	3
25	4	3	3	3	4	4
26						
27						
28						
29	3	3	3	3	3	3
30	3	4	4	3	3	3
31	3	3	3	2	3	3
32						
33	3	4	4	3	3	3
34	4	4	4	4	3	4
35	4	4	4	4	3	4
36	3	3	3	3	3	3
37	4	3	4	3	3	4
38	4	4	4	4	4	4
39	4	4	4	4	4	4
40	3	3	3	3	3	4

Table 11.6
Depth-of-Knowledge Levels by Item and Reviewers
Intraclass Correlation
MI Functional Independence Math Grade 11

Item	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6
41	4	4	4	3	4	3
42						
43	4	4	4	3	3	4
44	3	3	3	3	3	3
45	4	4	4	3	4	3
46						
47	3	3	3	4	3	4
48						
49	4	3	4	4	4	4
50	4	3	4	4	4	4

Intraclass Correlation: 0.8301

Pairwise Comparison: 0.71

Table 11.8
DOK Levels and Objectives Coded by Each Reviewer
MI Functional Independence Math Grade 11

Item	DOK0	PObj0	DOK1	PObj1	DOK2	PObj2	DOK3	PObj3	DOK4	PObj4	DOK5	PObj5
1	3	F.11.EB01	3	F.11.EB01	3	F.11.EB01	3	F.11.EB01	3	F.11.EB01	3	F.11.EB01
2	3	F.11.EB01	3	F.11.EB03	3	F.11.EB01	3	F.11.EB01	3	F.11.EB01	3	F.11.EB01
3	3	F.11.EB03	3	F.11.EB03	3	F.11.EB03	4	F.11.EB03	3	F.11.EB01	3	F.11.EB01
4	3	F.11.EB02	3	F.11.EB02	3	F.11.EB02	3	F.11.EB02	3	F.11.EB02	4	F.11.EB02
5												
6	3	G.11.EB02	3	G.11.EB02	3	G.11.EB02	3	G.11.EB02	3	G.11.EB02	3	G.11.EB02
7	3	G.11.EB01	3	G.11.EB01	3	G.11.EB01	3	G.11.EB01	3	G.11.EB01	3	G.11.EB01
8	3	G.11.EB02	3	G.11.EB02	3	G.11.EB02	2	F.11.EB02	3	G.11.EB02	3	G.11.EB02
9	3	G.11.EB03	3	G.11.EB03	3	G.11.EB03	3	G.11.EB03	3	G.11.EB03	3	G.11.EB03
10	4	F.11.EB03	4	F.11.EB03	4	F.11.EB03	4	F.11.EB03	4	F.11.EB03	4	F.11.EB03
11	3	G.11.EB12	3	G.11.EB12	3	N.11.EB21	3	G.11.EB12	3	G.11.EB12	3	G.11.EB12
12	3	F.11.EB03	3	F.11.EB03	3	F.11.EB03	3	F.11.EB03	3	F.11.EB03	4	F.11.EB03
13	3	G.11.EB14	3	G.11.EB14	3	G.11.EB14	3	G.11.EB14	3	G.11.EB14	4	G.11.EB14
14	3	G.11.EB12	3	G.11.EB12	3	G.11.EB12	3	G.11.EB12	3	G.11.EB12	3	G.11.EB12
15	4	G.11.EB14	4	G.11.EB14	4	G.11.EB14	4	G.11.EB14	4	G.11.EB14	4	G.11.EB14
16	3	G.11.EB16	3	G.11.EB16	3	G.11.EB16	4	G.11.EB17	3	G.11.EB16	3	G.11.EB16
17	4	G.11.EB17	4	G.11.EB17	4	G.11.EB17	4	G.11.EB17	3	G.11.EB17	3	G.11.EB17
18												
19												
20	4	G.11.EB20	4	G.11.EB20	4	G.11.EB20	3	G.11.EB20	3	G.11.EB20	4	G.11.EB20
21	4	G.11.EB20	4	G.11.EB20	4	G.11.EB20	3	G.11.EB20	3	G.11.EB20	3	G.11.EB20
22	4	G.11.EB20	4	G.11.EB20	4	G.11.EB20	3	G.11.EB20	3	G.11.EB20	3	G.11.EB20
23	4	G.11.EB20	4	G.11.EB20	4	G.11.EB20	3	G.11.EB20	3	G.11.EB20	3	G.11.EB20
24	4	D.11.EB01	3	D.11.EB01	3	D.11.EB01	3	N.11.EB01	3	D.11.EB03	3	D.11.EB01
25	4	D.11.EB01	3	D.11.EB01	3	D.11.EB01	3	F.11.EB03	4	F.11.EB03	4	D.11.EB01
26												
27												
28												
29	3	N.11.EB04	3	N.11.EB04	3	N.11.EB04	3	N.11.EB04	3	G.11.EB04	3	N.11.EB04
30	3	N.11.EB04	4	N.11.EB04	4	N.11.EB04	3	G.11.EB04	3	G.11.EB04	3	N.11.EB04
31	3	N.11.EB01	3	N.11.EB01	3	N.11.EB01	2	N.11.EB01	3	N.11.EB01	3	N.11.EB01
32												
33	3	N.11.EB04	4	N.11.EB04	4	N.11.EB04	3	N.11.EB04	3	G.11.EB04	3	N.11.EB04
34	4	N.11.EB10	4	N.11.EB10	4	N.11.EB10	4	N.11.EB10	3	G.11.EB10	4	N.11.EB10
35	4	N.11.EB12	4	N.11.EB12	4	N.11.EB12	4	N.11.EB12	3	G.11.EB11	4	N.11.EB12
36	3	N.11.EB13	3	N.11.EB13	3	N.11.EB13	3	N.11.EB13	3	G.11.EB13	3	N.11.EB13
37	4	N.11.EB12	3	N.11.EB12	4	N.11.EB12	3	N.11.EB12	3	G.11.EB12	4	N.11.EB12
38	4	N.11.EB14	4	N.11.EB14	4	N.11.EB14	4	N.11.EB14	4	G.11.EB14	4	N.11.EB14

Table 11.8
DOK Levels and Objectives Coded by Each Reviewer
MI Functional Independence Math Grade 11

Item	DOK0	PObj0	DOK1	PObj1	DOK2	PObj2	DOK3	PObj3	DOK4	PObj4	DOK5	PObj5
39	4	N.11.EB19	4	N.11.EB19	4	N.11.EB19	4	N.11.EB19	4	G.11.EB19	4	N.11.EB19
40	3	N.11.EB16	3	N.11.EB16	3	N.11.EB16	3	N.11.EB16	3	G.11.EB16	4	N.11.EB16
41	4	N.11.EB18	4	N.11.EB18	4	N.11.EB18	3	N.11.EB18	4	N.11.EB18	3	G.11.EB17
42												
43	4	N.11.EB19	4	N.11.EB19	4	N.11.EB19	3	N.11.EB07	3	N.11.EB19	4	N.11.EB19
44	3	N.11.EB20	3	N.11.EB20	3	N.11.EB20	3	N.11.EB20	3	N.11.EB20	3	N.11.EB20
45	4	N.11.EB21	4	N.11.EB21	4	N.11.EB21	3	N.11.EB19	4	N.11.EB21	3	N.11.EB21
46												
47	3	A.11.EB01	3	A.11.EB01	3	A.11.EB01	4	A.11.EB01	3	A.11.EB01	4	A.11.EB01
48												
49	4	A.11.EB02	3	A.11.EB02	4	A.11.EB02	4	A.11.EB02	4	A.11.EB02	4	A.11.EB02
50	4	A.11.EB03	3	A.11.EB03	4	A.11.EB03	4	A.11.EB02	4	A.11.EB03	4	A.11.EB03

Objective Pairwise Comparison: 0.8033

Standard Pairwise Comparison: 0.865

Table 11.9
Objectives Coded to Each Item by Reviewers
MI Functional Independence Math Grade 11

Low		Medium		High
0		4.8		6

1	F.11 .EB 01	F.11 .EB 01	F.11 .EB 01	F.11 .EB 01	F.11 .EB 01	F.11 .EB 01
2	F.11 .EB 01	F.11 .EB 01	F.11 .EB 01	F.11 .EB 01	F.11 .EB 01	F.11 .EB 03
3	F.11 .EB 01	F.11 .EB 01	F.11 .EB 03	F.11 .EB 03	F.11 .EB 03	F.11 .EB 03
4	F.11 .EB 02	F.11 .EB 02	F.11 .EB 02	F.11 .EB 02	F.11 .EB 02	F.11 .EB 02
5						
6	G.11 .EB 02	G.11 .EB 02	G.11 .EB 02	G.11 .EB 02	G.11 .EB 02	G.11 .EB 02
7	G.11 .EB 01	G.11 .EB 01	G.11 .EB 01	G.11 .EB 01	G.11 .EB 01	G.11 .EB 01
8	F.11 .EB 02	G.11 .EB 02	G.11 .EB 02	G.11 .EB 02	G.11 .EB 02	G.11 .EB 02
9	G.11 .EB 03	G.11 .EB 03	G.11 .EB 03	G.11 .EB 03	G.11 .EB 03	G.11 .EB 03
10	F.11 .EB 03	F.11 .EB 03	F.11 .EB 03	F.11 .EB 03	F.11 .EB 03	F.11 .EB 03
11	G.11 .EB 12	G.11 .EB 12	G.11 .EB 12	G.11 .EB 12	G.11 .EB 12	N.11 .EB 21
12	F.11 .EB 03	F.11 .EB 03	F.11 .EB 03	F.11 .EB 03	F.11 .EB 03	F.11 .EB 03
13	G.11 .EB 14	G.11 .EB 14	G.11 .EB 14	G.11 .EB 14	G.11 .EB 14	G.11 .EB 14
14	G.11 .EB 12	G.11 .EB 12	G.11 .EB 12	G.11 .EB 12	G.11 .EB 12	G.11 .EB 12

Table 11.9
Objectives Coded to Each Item by Reviewers
MI Functional Independence Math Grade 11

15	G.11 .EB 14	G.11 .EB 14	G.11 .EB 14	G.11 .EB 14	G.11 .EB 14	G.11 .EB 14
16	G.11 .EB 16	G.11 .EB 16	G.11 .EB 16	G.11 .EB 16	G.11 .EB 16	G.11 .EB 17
17	G.11 .EB 17	G.11 .EB 17	G.11 .EB 17	G.11 .EB 17	G.11 .EB 17	G.11 .EB 17
18						
19						
20	G.11 .EB 20	G.11 .EB 20	G.11 .EB 20	G.11 .EB 20	G.11 .EB 20	G.11 .EB 20
21	G.11 .EB 20	G.11 .EB 20	G.11 .EB 20	G.11 .EB 20	G.11 .EB 20	G.11 .EB 20
22	G.11 .EB 20	G.11 .EB 20	G.11 .EB 20	G.11 .EB 20	G.11 .EB 20	G.11 .EB 20
23	G.11 .EB 20	G.11 .EB 20	G.11 .EB 20	G.11 .EB 20	G.11 .EB 20	G.11 .EB 20
24	D.11 .EB 01	D.11 .EB 01	D.11 .EB 01	D.11 .EB 01	D.11 .EB 03	N.11 .EB 01
25	F.11 .EB 03	F.11 .EB 03	D.11 .EB 01	D.11 .EB 01	D.11 .EB 01	D.11 .EB 01
26						
27						
28						
29	G.11 .EB 04	N.11 .EB 04	N.11 .EB 04	N.11 .EB 04	N.11 .EB 04	N.11 .EB 04
30	G.11 .EB 04	G.11 .EB 04	N.11 .EB 04	N.11 .EB 04	N.11 .EB 04	N.11 .EB 04
31	N.11 .EB 01	N.11 .EB 01	N.11 .EB 01	N.11 .EB 01	N.11 .EB 01	N.11 .EB 01
32						

Table 11.9
Objectives Coded to Each Item by Reviewers
MI Functional Independence Math Grade 11

33	G.11 .EB 04	N.11 .EB 04	N.11 .EB 04	N.11 .EB 04	N.11 .EB 04	N.11 .EB 04
34	G.11 .EB 10	N.11 .EB 10	N.11 .EB 10	N.11 .EB 10	N.11 .EB 10	N.11 .EB 10
35	G.11 .EB 11	N.11 .EB 12	N.11 .EB 12	N.11 .EB 12	N.11 .EB 12	N.11 .EB 12
36	G.11 .EB 13	N.11 .EB 13	N.11 .EB 13	N.11 .EB 13	N.11 .EB 13	N.11 .EB 13
37	G.11 .EB 12	N.11 .EB 12	N.11 .EB 12	N.11 .EB 12	N.11 .EB 12	N.11 .EB 12
38	G.11 .EB 14	N.11 .EB 14	N.11 .EB 14	N.11 .EB 14	N.11 .EB 14	N.11 .EB 14
39	G.11 .EB 19	N.11 .EB 19	N.11 .EB 19	N.11 .EB 19	N.11 .EB 19	N.11 .EB 19
40	G.11 .EB 16	N.11 .EB 16	N.11 .EB 16	N.11 .EB 16	N.11 .EB 16	N.11 .EB 16
41	G.11 .EB 17	N.11 .EB 18	N.11 .EB 18	N.11 .EB 18	N.11 .EB 18	N.11 .EB 18
42						
43	N.11 .EB 07	N.11 .EB 19	N.11 .EB 19	N.11 .EB 19	N.11 .EB 19	N.11 .EB 19
44	N.11 .EB 20	N.11 .EB 20	N.11 .EB 20	N.11 .EB 20	N.11 .EB 20	N.11 .EB 20
45	N.11 .EB 19	N.11 .EB 21	N.11 .EB 21	N.11 .EB 21	N.11 .EB 21	N.11 .EB 21
46						
47	A.11 .EB 01	A.11 .EB 01	A.11 .EB 01	A.11 .EB 01	A.11 .EB 01	A.11 .EB 01
48						

Table 11.9
Objectives Coded to Each Item by Reviewers
MI Functional Independence Math Grade 11

49	A.11 .EB 02	A.11 .EB 02	A.11 .EB 02	A.11 .EB 02	A.11 .EB 02	A.11 .EB 02
50	A.11 .EB 02	A.11 .EB 03	A.11 .EB 03	A.11 .EB 03	A.11 .EB 03	A.11 .EB 03

Table 11.10
Items Coded by Reviewers to Each Objective
MI Functional Independence Math Grade 11

Low		Medium		High
0		3.58209		24

F																			
F1																			
F.11 .EB 01	1	1	1	1	1	1	2	2	2	2	2	3	3						
F.11 .EB 02	4	4	4	4	4	4	8												
F.11 .EB 03	2	3	3	3	3	10	10	10	10	10	10	12	12	12	12	12	12	25	25
G																			
G1																			
G.11 .EB 01	7	7	7	7	7	7													
G.11 .EB 02	6	6	6	6	6	6	8	8	8	8	8								
G.11 .EB 03	9	9	9	9	9	9													
G.11 .EB 04	29	30	30	33															
G.11 .EB 05																			
G.11 .EB 08																			
G.11 .EB 09																			
G.11 .EB 10	34																		
G.11 .EB 11	35																		

Table 11.10
Items Coded by Reviewers to Each Objective
MI Functional Independence Math Grade 11

G.11 .EB 12	11	11	11	11	11	14	14	14	14	14	14	37											
G.11 .EB 13	36																						
G.11 .EB 14	13	13	13	13	13	13	15	15	15	15	15	15	38										
G2																							
G.11 .EB 15																							
G.11 .EB 16	16	16	16	16	16	40																	
G.11 .EB 17	16	17	17	17	17	17	17	41															
G.11 .EB 18																							
G3																							
G.11 .EB 19	39																						
G.11 .EB 20	20	20	20	20	20	20	21	21	21	21	21	21	22	22	22	22	22	22	23	23			
	23	23	23	23																			
D																							
D1																							
D.11 .EB 01	24	24	24	24	25	25	25	25															
D.11 .EB 03	24																						
D.11 .EB 04																							
D.11 .EB 05																							

Table 11.10
Items Coded by Reviewers to Each Objective
MI Functional Independence Math Grade 11

[illegible]

Table 11.10
Items Coded by Reviewers to Each Objective
MI Functional Independence Math Grade 11

N.11 .EB 12	35	35	35	35	35	37	37	37	37	37
N.11 .EB 13	36	36	36	36	36					
N.11 .EB 14	38	38	38	38	38					
N.11 .EB 15										
N.11 .EB 16	40	40	40	40	40					
N.11 .EB 17										
N.11 .EB 18	41	41	41	41	41					
N4										
N.11 .EB 19	39	39	39	39	39	43	43	43	43	45
N.11 .EB 20	44	44	44	44	44	44				
N.11 .EB 21	11	45	45	45	45	45				
A										
A1										
A.11 .EB 01	47	47	47	47	47	47				
A.11 .EB 02	49	49	49	49	49	49	50			
A.11 .EB 03	50	50	50	50	50					

Table 11.11

Number of Reviewers Coding an Item by Objective (Item Number: Number of Reviewers)
 MI Functional Independence Math Grade 11

Low		Medium		High
1		3		6

F					
F1					
F.11.EB01	1:6	2:5	3:2		
F.11.EB02	4:6	8:1			
F.11.EB03	2:1	3:4	10:6	12:6	25:2
G					
G1					
G.11.EB01	7:6				
G.11.EB02	6:6	8:5			
G.11.EB03	9:6				
G.11.EB04	29:1	30:2	33:1		
G.11.EB05					
G.11.EB08					
G.11.EB09					
G.11.EB10	34:1				
G.11.EB11	35:1				
G.11.EB12	11:5	14:6	37:1		
G.11.EB13	36:1				
G.11.EB14	13:6	15:6	38:1		
G2					
G.11.EB15					
G.11.EB16	16:5	40:1			
G.11.EB17	16:1	17:6	41:1		
G.11.EB18					
G3					
G.11.EB19	39:1				
G.11.EB20	20:6	21:6	22:6	23:6	
D					
D1					
D.11.EB01	24:4	25:4			
D.11.EB03	24:1				
D.11.EB04					
D.11.EB05					
D.11.EB06					
D.11.EB07					
N					
N1					
N.11.EB01	24:1	31:6			

Table 11.11

Number of Reviewers Coding an Item by Objective (Item Number: Number of Reviewers)
MI Functional Independence Math Grade 11

N.11.EB02			
N.11.EB03			
N.11.EB04	29:5	30:4	33:5
N.11.EB05			
N2			
N.11.EB06			
N.11.EB07	43:1		
N.11.EB08			
N.11.EB09			
N3			
N.11.EB10	34:5		
N.11.EB11			
N.11.EB12	35:5	37:5	
N.11.EB13	36:5		
N.11.EB14	38:5		
N.11.EB15			
N.11.EB16	40:5		
N.11.EB17			
N.11.EB18	41:5		
N4			
N.11.EB19	39:5	43:5	45:1
N.11.EB20	44:6		
N.11.EB21	11:1	45:5	
A			
A1			
A.11.EB01	47:6		
A.11.EB02	49:6	50:1	
A.11.EB03	50:5		

Table 11.12

Number of Reviewers Coding an Objective by Item (Objective: Number of Reviewers)
 MI Functional Independence Math Grade 11

Low		Medium		High
1		3		6

1	F.11.EB01:6		
2	F.11.EB01:5	F.11.EB03:1	
3	F.11.EB01:2	F.11.EB03:4	
4	F.11.EB02:6		
5			
6	G.11.EB02:6		
7	G.11.EB01:6		
8	F.11.EB02:1	G.11.EB02:5	
9	G.11.EB03:6		
10	F.11.EB03:6		
11	G.11.EB12:5	N.11.EB21:1	
12	F.11.EB03:6		
13	G.11.EB14:6		
14	G.11.EB12:6		
15	G.11.EB14:6		
16	G.11.EB16:5	G.11.EB17:1	
17	G.11.EB17:6		
18			
19			
20	G.11.EB20:6		
21	G.11.EB20:6		
22	G.11.EB20:6		
23	G.11.EB20:6		
24	D.11.EB01:4	D.11.EB03:1	N.11.EB01:1
25	F.11.EB03:2	D.11.EB01:4	
26			
27			
28			
29	G.11.EB04:1	N.11.EB04:5	
30	G.11.EB04:2	N.11.EB04:4	
31	N.11.EB01:6		
32			
33	G.11.EB04:1	N.11.EB04:5	
34	G.11.EB10:1	N.11.EB10:5	
35	G.11.EB11:1	N.11.EB12:5	
36	G.11.EB13:1	N.11.EB13:5	
37	G.11.EB12:1	N.11.EB12:5	
38	G.11.EB14:1	N.11.EB14:5	

Table 11.12

Number of Reviewers Coding an Objective by Item (Objective: Number of Reviewers)
MI Functional Independence Math Grade 11

39	G.11.EB19:1	N.11.EB19:5
40	G.11.EB16:1	N.11.EB16:5
41	G.11.EB17:1	N.11.EB18:5
42		
43	N.11.EB07:1	N.11.EB19:5
44	N.11.EB20:6	
45	N.11.EB19:1	N.11.EB21:5
46		
47	A.11.EB01:6	
48		
49	A.11.EB02:6	
50	A.11.EB02:1	A.11.EB03:5

Table 11.13

Assessment Item DOK vs Consensus DOK (Item Number: Number of Reviewers [Average DOK])

MI Functional Independence Math Grade 11

Low DOK		Matched DOK		High DOK
1		3		6

F [3]:					
F1 [3]:					
F.11.EB01 [3]:	1:6[3]	2:5[3]	3:2[3]		
F.11.EB02 [3]:	4:6[3.17]	8:1[2]			
F.11.EB03 [4]:	2:1[3]	3:4[3.25]	10:6[4]	12:6[3.17]	25:2[3.5]
G [3]:					
G1 [3]:					
G.11.EB01 [3]:	7:6[3]				
G.11.EB02 [3]:	6:6[3]	8:5[3]			
G.11.EB03 [3]:	9:6[3]				
G.11.EB04 [3]:	29:1[3]	30:2[3]	33:1[3]		
G.11.EB05 [3]:					
G.11.EB08 [3]:					
G.11.EB09 [3]:					
G.11.EB10 [4]:	34:1[3]				
G.11.EB11 [3]:	35:1[3]				
G.11.EB12 [3]:	11:5[3]	14:6[3]	37:1[3]		
G.11.EB13 [3]:	36:1[3]				
G.11.EB14 [4]:	13:6[3.17]	15:6[4]	38:1[4]		
G2 [3]:					
G.11.EB15 [3]:					
G.11.EB16 [3]:	16:5[3]	40:1[3]			
G.11.EB17 [3]:	16:1[4]	17:6[3.67]	41:1[3]		
G.11.EB18 [4]:					
G3 [4]:					
G.11.EB19 [3]:	39:1[4]				
G.11.EB20 [4]:	20:6[3.67]	21:6[3.5]	22:6[3.5]	23:6[3.5]	
D [4]:					
D1 [4]:					
D.11.EB01 [3]:	24:4[3.25]	25:4[3.5]			
D.11.EB03 [5]:	24:1[3]				
D.11.EB04 [3]:					
D.11.EB05 [4]:					
D.11.EB06 [5]:					
D.11.EB07 [4]:					
N [4]:					

Table 11.13

Assessment Item DOK vs Consensus DOK (Item Number: Number of Reviewers [Average DOK])

MI Functional Independence Math Grade 11

N1 [3]:			
N.11.EB01 [2]:	24:1[3]	31:6[2.83]	
N.11.EB02 [2]:			
N.11.EB03 [3]:			
N.11.EB04 [3]:	29:5[3]	30:4[3.5]	33:5[3.4]
N.11.EB05 [4]:			
N2 [4]:			
N.11.EB06 [3]:			
N.11.EB07 [4]:	43:1[3]		
N.11.EB08 [4]:			
N.11.EB09 [4]:			
N3 [4]:			
N.11.EB10 [4]:	34:5[4]		
N.11.EB11 [4]:			
N.11.EB12 [4]:	35:5[4]	37:5[3.6]	
N.11.EB13 [3]:	36:5[3]		
N.11.EB14 [4]:	38:5[4]		
N.11.EB15 [3]:			
N.11.EB16 [4]:	40:5[3.2]		
N.11.EB17 [4]:			
N.11.EB18 [3]:	41:5[3.8]		
N4 [4]:			
N.11.EB19 [4]:	39:5[4]	43:5[3.8]	45:1[3]
N.11.EB20 [4]:	44:6[3]		
N.11.EB21 [3]:	11:1[3]	45:5[3.8]	
A [4]:			
A1 [4]:			
A.11.EB01 [4]:	47:6[3.33]		
A.11.EB02 [4]:	49:6[3.83]	50:1[4]	
A.11.EB03 [4]:	50:5[3.8]		

Appendix C

Reviewers Notes and Source of Challenge Comments

Michigan Alternate Assessment, Grades 3-8 and 11 Mathematics

Brief Explanation of Data in the Alignment Tables by Column

Tables *grade.5*

Comments made by reviewers on items identified as having a Source-of-Challenge issue by item number.

Tables *grade.7*

All notes made by reviewers on items by item number.

Table 3.5
Source-of-Challenge Issues by Reviewer
MI Functional Independence Math Grade 3

Item Number	Comments by Reviewer
-------------	----------------------

Table 3.7
Notes by Reviewer
MI Functional Independence Math Grade 3

Item Number	Comments by Reviewer
1	This is a good and fair question. I like the format.
6	"nextb to" is not included in the list
14	"Flower pots" appears twice. This can be confusing to students. I suggest that the one in the pictograph be removed.
19	Should have are here for this population
21	You should have art here for this population
27	This item is too difficult for this population. It is not a pattern students would typically see in a "real life" situation.
28	See note for number 27
38	There needs to be some thought in how this question is asked....the first thing students will think of is bananas and apples....they are more likely to choose "A"
38	I have selected N.ME.E01 as the targeted expectation. However, I do not interpret the expectation to involve two quantities. Perhaps a better discriminator would be to include a graphic with 6 bananas and two apples.

Table 4.5
Source-of-Challenge Issues by Reviewer
MI Functional Independence Math Grade 4

Item Number	Comments by Reviewer
-------------	----------------------

Table 4.7
Notes by Reviewer
MI Functional Independence Math Grade 4

Item Number	Comments by Reviewer
1	This item does not specifically fit into the expectation, It really does not require an extension to the next object but more fill in what is missing
4	Caution!!! call it skip counting or put the blank on the end to extend the pattern
8	The problem should be altered to either end with the word square or, better yet, strike the words "of the square". Having the word square and the symbols seems confusing and is redundant.
10	This item needs a line between the balls and the other objects.
10	This is a terrible way to ask students this item. Object or ObjectS? Simply ask how many or more than, less than or equal to.
11	N.ME.EG01/02/03 are too similar and need to be made more clear on the differences between the 3.
11	The distinction between N.ME.03.EG.02 and N.ME.03.EG.03 and N.ME.03.EG.01 is not clear. N.ME.03.EG.03 is especially vague.
11	This item was difficult to code b/c of the visual representation.
12	N.ME.EG01/02/03 are too similar and need to be made more clear on the differences between the 3.
12	The distinction between N.ME.03.EG.02 and N.ME.03.EG.03 and N.ME.03.EG.01 is not clear.
12	N.ME.03.EG.03 is especially vague.
12	Having to discriminate the wheels of the tricycle from the rest of the graphic may be difficult.
13	Pie 1 has 3 apples and this could be confusing with Pie 3. Suggest labeling the pies Pie F, G, and H or something to that effect.
13	The word "graph" is misleading as this problem deals ore with the concept of fewest than data collection. Because there are no axes, it would perhaps better be referred to as a "chart."
	The labels of "Pie 1, Pie 2 and Pie 3" might be changed to X,Y,Z as to not be confused with the 3 apples in Pie 1.
13	This item i coded 3.5 b/c it seems to me this is not a graph but a chart. the group finally considered this item to be a chart and not a graph due to the type of labelling.
14	this i consider a pictograph...graphs have co-ordinates labelled
17	I don't feel as if this fits into this standard very well
18	Does not fit exactly into any expectation. Could be N.FL.03.EG12.
18	Needs to be clearly defined.
18	This item could fit in N.FL.EG12 except the standard says addition facts and solve subtraction.
18	Does involve regrouping in $8+2$, which is contrary to the standard. NFL EG12 would fit except that it only refers to subtraction.
18	this item has close relation to both expectation.

Table 4.7
Notes by Reviewer
MI Functional Independence Math Grade 4

Item Number	Comments by Reviewer
21	Much discussion on this item as well. There needs to be a clearer distinction between a graph and a chart. The graphic in this item is a chart and not a graph but in the stem it is referred to as a graph.
21	What is the difference between N.ME.03.EG.03? Both seem to be a concrete representation.
21	b/c of the answer choices is why i coded this item primarily .04
22	The Item should identify the pies as A, B and C rather than 1, 2 and 3 because there are three apples shown in the chart.
23	This is the "same" problem as one used on the 2nd grade test.
35	Again, unclear as to which EGLEC to place this problem in.
35	The item could fall in two areas.
35	Terrible item! Use the numbers in context
37	This item does not fit in any one standard. It could be placed in 3 different standards. We were unable to place it in a specific standard.
37	Deals with both representation AND addition. There is no standard that fits the specificity required for this problem. The standards overall need to be less vague.
37	there are pre-req skills in this problem that makes it difficult to process. There was no agreement to this item even after much conversation
38	The difference between NFL 14 and NFL 16 is hard to decipher. This again is a problem with the specificity of the standards. There are a number of problems where i found it very difficult to decide which standard to fit in. Having more specific standards would be more beneficial than re-writing the questions. the questions are good, but fit in more than one place because of the way the standards are described.
38	There was much discussion in our group regarding which expectation to choose to represent this item. It was a difficult choice.
38	this item is slightly ambiguous in definition from the expectations

Table 5.5
Source-of-Challenge Issues by Reviewer
MI Functional Independence Math Grade 5

Item Number	Comments by Reviewer
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Table 5.7
Notes by Reviewer
MI Functional Independence Math Grade 5

Item Number	Comments by Reviewer
22	N.Me.04.Eg01, 02 and 03 are too similar. Not enough specificity in the standards.
23	N.Me.04.Eg01, 02 and 03 are too similar. Not enough specificity in the standards.
24	N.Me.04.Eg01, 02 and 03 are too similar. Not enough specificity in the standards.
25	N.Me.04.Eg01, 02 and 03 are too similar. Not enough specificity in the standards.
26	N.Me.04.Eg01, 02 and 03 are too similar. Not enough specificity in the standards.
38	This would be a much better item if students were simply asked the number of students need to stand as opposed to asking what operation to choose. This is not a real-life skill and is never taught in this manner.

Table 6.5
Source-of-Challenge Issues by Reviewer
MI Functional Independence Math Grade 6

Item Number	Comments by Reviewer
44	I understand the purpose of adding "Beth" into the math item but it is not realistic that students (or anyone) would set this problem up in real life. Items should be more functional.

Table 6.7
Notes by Reviewer
MI Functional Independence Math Grade 6

Item Number	Comments by Reviewer
11	Because of the graphic, the correct answer should read the soda can, not just the can.
16	This problem is to low a level. The exzpectation identifies numbers with both dollars and cents not two numbers in cent values.
17	Again, the numbers should be more in line with those described in the expectation.
20	Does not fit any standard very well.
23	The child also needs to understand each picture is representative of a number. There should be an expectation (standard) measuring both representation AND addition, or the question should be clearer, which it is measuring.
24	Poorly fits any one standard
25	The plants should be identified as A, B, C, D, E, F, and G. The current problem is tricky because the number 5 appears on both axes. This does not have to be the case.
28	Does "concrete" mean traditional? if these were tallys rather than stars, it would have been coded 03.
29	This item was difficult to code because of the unclarity of the expectations of N.ME.04.EG01-03.
29	This is more of a decomposing problem than one that fits any of these grade level expectations. See other grade level expectations for clearer wording.
30	See note regarding item number 29. This again is more in the decomposing category than an addition or subtraction problem because there are multiple ways of representing 29. For example $28 + 1$ or $20 + 5$, ect. All of these are "decompositions" of 29 but are missing as answer choices.
31	Is this item intending to test the communative property? Why is addition part of the item? Is the student expected to understand the meaning of the plus sign and therefore count to find the answer? ect.
33	The graphic should show four "flats" instead of the graphic shown.
43	Is this intended to a multiplication problem?
43	This item is very difficult to code b/c there is not a clear expectation that it fits under
44	There is no answer for the question! The prompt should be "Which numbers are used to find out how many years older Jack is than Mark?". The question as worded has no answer. It would not be defendable in court!

Table 7.5
Source-of-Challenge Issues by Reviewer
MI Functional Independence Math Grade 7

Item Number	Comments by Reviewer
35	Does not really fit under this expectation. An expectation involving understanding problem solving needs to be added to the expectations.

Table 7.7
Notes by Reviewer
MI Functional Independence Math Grade 7

Item Number	Comments by Reviewer
5	Missing item
5	Exact same question as the grade below
7	this item seems to be asking the student to select an concrete example of an addition problem which results in an answer of 12. It doesn't seem to fit the expectations from that point of view.
10	Darken in the fill lines!
15	No regrouping required.
18	Need to know the order of the weekdays to answer this question. the standard only asks about addition/subtraction and not days of the week.
20	This item does not fit in any expectation. This is a fraction item. Needs to be moved to 8th grade test.
20	This problem has two answers. Both 3 and 4 pieces of pizza could meet the qualifications of being as many as possible and not more than half. Furthermore, it involves fractions but no expectation involves fractions.
20	This item would fit better on the the next grade's expectations for fractions.
21	This is too much of a stretch for the expectations as written!
23	Use the name for the days of the week not the words for numerals. Also use the word name instead of the number of the day in the prompt.
28	Belongs at a different grade level.
33	Sometimes Joe (or another male) should be making cookies.
35	The word expression is not included in the standards. This doesn't exactly fit in this standard.
35	The word "expression" is never used in the standards.
	Not actually solving anything though.
45	No x/ expectation for money.
45	This item does not exactly fit a standard.
45	No standards for multiplication and division of money.

Table 8.5
Source-of-Challenge Issues by Reviewer
MI Functional Independence Math Grade 8

Item Number	Comments by Reviewer
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Table 8.7
Notes by Reviewer
MI Functional Independence Math Grade 8

Item Number	Comments by Reviewer
4	Item is missing from test booklet.
16	The standard does not speak to estimation. M.UN.EG01 is as close to the actual item.
16	No standard for Estimating measurement
16	Does not fit EGLCE as written.
16	estimation is not found in the measurement expectations. There is no decent expectation to code this item to.
18	Don't diagrams of this type have the front at the bottom?
20	Measurement should be to the nearest quarter of an inch.
31	Expectation reads with regrouping, however this item does not require regrouping. Expectation needs to read including regrouping.
31	The standard says "with regrouping" however this problem does not require regrouping. Either the standard needs to be changed to read "may including regrouping" or the problem needs to be changed to use regrouping.
35	Does not fulfill under any expectation. Needs to be revised to fit an expectation.
35	No standard. Should 3/5 be a distractor?
36	This item is a huge stretch!!!
36	This only fits the "recognize" part of the standard. The standard should be more specific.
37	This only fits the "recognize" part of the standard. The standard should be more specific.
38	There is no mention in the expectation regarding word representation for a fraction. I am asked to put a square peg in a round hole.
39	Should there be an apostrophe (') on TVs at the bottom of the sign?
41	This expectation says to solve applied problems, this is not solving a problem simply choosing an operation. Does not really fit any expectation.
41	This standard does not exactly fit in N.MR.EG25. The student is not asked to solve the problem but what operation.
41	This question does not actually ask you to SOLVE, only to determine which operation to use. There is no standard to fit this.
41	This item does not require the student to solve, just pick the correct operation to solve the problem.
42	This expectation says to solve applied problems, this is not solving a problem simply choosing an operation. Does not really fit any expectation.
42	Again, this problem does not ask you to SOLVE.
42	codes to a lower grade level where student need to write number sentences or choose an operation.
43	No expectation for multiplication/division of money.

Table 8.7
Notes by Reviewer
MI Functional Independence Math Grade 8

Item Number	Comments by Reviewer
43	This item does not fit in the standard exactly. There should be a standard that addresses multiplication of money. There is not standard that addresses this item.
43	No standard for the multiplication and division of money. \$40 should be a distractor.
43	This item is dealing with money and needs to have an expectation that will fit. It is dealing with multiplication which is not found in the money section of expectations.
44	This item doesnt fit as well as it could with this expectation

Table 11.5
Source-of-Challenge Issues by Reviewer
MI Functional Independence Math Grade 11

Item Number	Comments by Reviewer
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Table 11.7

Notes by Reviewer

MI Functional Independence Math Grade 11

Item Number	Comments by Reviewer
9	No comparing!
30	This item includes money but there is no money comparison expectation.
34	This problem requires a fraction converted to a percent.
40	horrible item!!!!
40	This is not a good question. There are some many better items to test this standard.
40	Terrible item!
43	The standard N.EB19 is very close to the standard N.EB07.

Appendix D

Debrief Summary Notes

Michigan Alternate Assessment, Grades 3-8 and 11 Mathematics

A. For each standard, did the items cover the most important topics you expected by the standard? If not, what topics were not assessed that should have been?

- I felt that the topics were adequately covered.
- The items covered most of the topics. It did not address N.ME.EG01, G.SR.EG03 and D.RE.EG01. Some of the items that I put in N.ME.EG02 could have been placed in N.ME.EG01. Overall I thought the items cover the majority.
- Yes, the items covered most of the standards. I was missing N.ME.EGo1, however when reading the description I can see how it would be difficult to test this standard. The primary difference between 01 and 02 is the "count" part. Unless the child is asked to verbally count, it would be difficult to assess. Otherwise, 01 and 02 are fairly similar. Becasue of this, i had many, many items in N.ME.EG02. I had no items for Data Analysis.
- Yes
- Some of the items were more academic than special eduction teachers teach. For example, the items I have identified as G.SR.EGo4 could be rewritten. The pattern could be a graphic of a spoon, knife and fork or computer, computer printer with a blank provided to indicate the next item in the pattern. The items reviewed were "academic" patterns and did not enclude items from a special education program.
- Geomeetry may need to covered a bit more and there was really no data related questions on the test

B. For each standard, did the items cover the most important performance (DOK levels) you expected by the standard? If not, what performance was not assessed?

- The items were equally distributed between levels 2-3.
- Most of the items had a DOK level of 2 or 3. There were no items above 3. It would have been nice to see a couple of items pushing level 4. An item in D.RE.EG01 would most likely have been a level 4.
- Yes, the items matched up to the DOK levels extremely well!
- Yes
- For the most part, Yes. However, I thought the assessments for Items M.PS.EG01 and G.LO.EG02 to be slighted lacking. Also the problems for these expectations were all graphics to words or description to words. This could be reversed.
- every strand is covered except for data analysis

C. Were the standards written at an appropriate level of specificity and directed towards expectations appropriate for the grade level?

- The standards were written at an appropriate level of specificity and directed towards approproiate expectations.
- The standards were appropriate for the level. The items were in line with the

Table 3.15
Debriefing Summary
MI Functional Independence Math Grade 3

standards.

- Yes!
- Yes
- Yes
- I think this is one of the best tests i have seen as far a appropriateness

D. What is your general opinion of the alignment between the standards and assessment:

- i. Perfect Alignment (1) : 17%
- ii. Acceptable Alignment (4) : 67%
- iii. Needs slight improvement (1) : 17%

E. Comments

- I thought this was an excellent assessment. The standards and the items lined up well. The only complaint would be that there were no 4's or 5's.
- I think some thought needs to go into how the questions are asked....it is a good thing teachers can use manipulatives.
- I think I would caution about grouping the same expectations in the test because it can bring down its overall worth. It is better served in a mixed skill format

A. For each standard, did the items cover the most important topics you expected by the standard? If not, what topics were not assessed that should have been?

- Yes, all the important topics were covered. Although there were no items that covered the number line EGLEC. There were several expectations in the compute whole number topic that were not addressed as an item.
- The items covered the most important topics. I felt like the items were spread out over the standards fairly well. There were 9 standards that weren't covered. Some of these standards were a higher level and could have been a level 4.
- Yes. There were no items related to using a number line (N.ME.EG07/08). Many of the standards that were missing were rated as a DOK of 4, which makes them difficult to measure with a standardized assessment at grade 3. Comparing the length and weight of objects by comparing them to reference objects (MPSEG02) would have been easy to measure (or so it seems) yet there were no items measuring it.
- Yes
- Yes, better than the 2nd grade items.
- Yes, for the ones that were covered

B. For each standard, did the items cover the most important performance (DOK levels) you expected by the standard? If not, what performance was not assessed?

- Most often levels were in the medium range/level 2. There need to be more items in the stage 3 range and possibly a stage 4 range. These items were not addressed at all.
- The items were mostly 2's and 3's. It would have been good to see a couple of 4's in this assessment. N.MR.EG17 and D.RE.EG01 could have supported a level 4 question but these areas were not covered. The individual items could have been written more complex for the higher students.
- The majority of the items matched well to the DOK levels set up in the standards, which were set at 2-3 for the majority of items. The standards that were rated higher (4) did not have items to assess it. I felt as if some of the questions could have been more difficult, but they did align with the standards.
- Yes
- Yes
- yes, for the ones that were covered. There were four strands that had poor and/or no coverage.

C. Were the standards written at an appropriate level of specificity and directed towards expectations appropriate for the grade level?

- At times, I struggled with choosing between which EGLEG to place an item under. Some of the extended expectations are not clear as to what is expected.

Table 4.15
Debriefing Summary
MI Functional Independence Math Grade 4

Several are very similar and need to be made clearer.

- The standards were written at the appropriate level. I felt like the items were appropriate for the grade level.
- Sometimes. I struggled to discern the differences between some of the standards (NME03EG01/02/03 and NFL03EG12/NFL03EG16). Perhaps more specific descriptions could have been given.
- Item 35 was very confusing...for this population it needs to be revised
- Yes
- yes

D. What is your general opinion of the alignment between the standards and assessment:

- ii. Acceptable Alignment (4) : 67%
- iii. Needs slight improvement (2) : 33%

E. Comments

- This assessment was very appropriate for the grade level. Like the previous assessment a couple of higher level (4's) would have been nice to see.
- Not all expectations are assessed.
- I think that there could possibly be better coverage of strands. I also think that there were several items that needed to match specific expectations more clearly!!!

A. For each standard, did the items cover the most important topics you expected by the standard? If not, what topics were not assessed that should have been?

- Under topic one, the skip counting, ordinals, and number line items were not included. Especially the ordinal expectation, this topic is very important and needs to be addressed.
- The items did not cover 13 standards. Some standards were covered by more items than many others. N.ME.EG03, N.MR.EG09, and N.FL.EG11 were covered several times. Some of those items should have been used to cover other areas.
- There were NO data analysis questions.
- Yes
- At the expectation level, the test items lack coverage. By checking the summary table, I found only 14 expectations tested out of a total of 31 expectations for this grade level. Coverage by strand is also absent.
- Yes

B. For each standard, did the items cover the most important performance (DOK levels) you expected by the standard? If not, what performance was not assessed?

- The DOK's were well covered. I would like to see more stage 3-4 levels than stage 2 levels.
- The DOK levels were better on this test. I had 2 4's with most of the items being a level 3. It was good to see things pushed up.
- There were only one three questions rated as 4 and none any higher than that. There weren't any 1s either. The majority were 2s and 3s.
- Yes
- An analysis of the summary table indicates there is not an equal representation of the expectations. I found each expectation represented from zero to three times.
- I think that it did cover the important strands but there is very little coverage for data analysis, geometry and measurement

C. Were the standards written at an appropriate level of specificity and directed towards expectations appropriate for the grade level?

- Under numbers and operations, the first 3 expectations are very vague and need to be made clearer.
- The standards were very appropriate toward the grade level. I thought the items were appropriate and in a few items really challenged the kids.
- I had difficulty discerning among a few of the standards, specifically NME01, 02 and 03. "Explore" in 02 could be better defined. NFL12 seems quite easy for this age group and also similar to NFL 11.
- Yes -with the exception of item 38...see note
- The document shows different levels of granularity. Yes, the standards are specific enough, so are the domains (strands). However, many expectations require more clarity.

Table 5.15
Debriefing Summary
MI Functional Independence Math Grade 5

N.ME.EG01, N.ME.EG02, and N.ME.EG.03 are very similar at the expectation level. Assigning the items to one of these expectaions is often difficult.

- Yes

D. What is your general opinion of the alignment between the standards and assessment:

- ii. Acceptable Alignment (4) : 67%
- iii. Needs slight improvement (1) : 17%
- iv. Needs major improvement (1) : 17%

E. Comments

- The standard N.FL.04.EG12 seems to be a low level standard for this grade level. The standard above it (N.FL.04.EG11) would contain the EG12 standard. This standard seems out of place at this level.
- This needs a bit of improvement to be acceptable in alignment. There also needs to be better coverage.

A. For each standard, did the items cover the most important topics you expected by the standard? If not, what topics were not assessed that should have been?

- Expectations N.ME.05.EG04-08 were not represented in the items. This is place value and need to be addressed in the test. Most of the other topics were pretty well covered.
- The items did cover most of the topics but some were overloaded. N.FL.05.EG12 had too many items to that standard. Whereas items concerning place value were totally left out. It was good to see some items dealing with data analysis in this assessment. There were 13 standards that were not covered in this assessment and 19 that were. Some of the items from N.FL.12 should have been spread out to the other standards.
- No place value (N.ME.04/05/06/07/08) Overload on the NFL 12.
- Yes
- A decision needs to be made as to what level of specificity the test is testing. This statement is true for all grade levels. If the test tests the standards then test development should evenly distribute the problems over the standards. If the test is to test to the domain level then there should be an even distribution at that level or some agreed on percentage of distribution. The same applies if the test is to test to the expectation level. I find that this is not currently accomplished.
- Yes

B. For each standard, did the items cover the most important performance (DOK levels) you expected by the standard? If not, what performance was not assessed?

- The DOK levels are increasing slowly. There are not as many stage 2 items but most are stage 3 and there needs to be more stage 4.
- The levels were covered a little better in this assessment. I had a couple of 4's this time. But, I also had a couple of 2's with the majority of the items being level 3's.
- There were only two problems rated as a 4 and nothing above that. Many 3s.
- Yes
- Analysis of the summary table indicates that at the expectation level not all expectations are represented in the items. My table indicates that only 14 of 32 are represented. Analysis at the standard and domain levels show unequal representation.
- There was a little better coverage of the whole curriculum in this grade level versus some of the others that were reviewed.

C. Were the standards written at an appropriate level of specificity and directed towards expectations appropriate for the grade level?

- There were some concerns directed toward the pictographs vs charts as well as representation vs equivalency.
- The standards are appropriate for the grade. The standards were pretty clear and began to challenge some students.
- Some concern related to the pictographs and addition regarding which standard it should

Table 6.15
Debriefing Summary
MI Functional Independence Math Grade 6

fit in.

- Items at this level don't be consistent (developmental - built upon) previous learning. Also, I am very concerned that the item writers set items up to measure the ability to engage in abstract reasoning/critical thinking as opposed to measuring the ability to complete functional mathematics problems. FUNCTIONAL items could easily be written in place of those "confusing items." Note item #44
- I found the test items in this grade level form to less accurately align with the expectations. I felt many items were addressing expectation from previous grade levels that had been dropped. At this grade level I was required to put square pegs in round holes rather than round pegs in round holes. In other words I had to force the test item to the expectation rather than reflect my understanding of the wording of the expectation(s).
- There are some good problems in the this test

D. What is your general opinion of the alignment between the standards and assessment:

- ii. Acceptable Alignment (3) : 50%
- iii. Needs slight improvement (2) : 33%
- iv. Needs major improvement (1) : 17%

E. Comments

- It was noted in our discussions that expectation M.UN.06.EG07 - (telling time on a radial or digital clock to the nearest hour) has not changed since the 3rd grade expectations. It seems that although time is a difficult concept that introducing at least 1/2 hours/1/4 hours could be feasible.
- There are several problems that are not really aligned within the expectations. I even marked one uncodable.

A. For each standard, did the items cover the most important topics you expected by the standard? If not, what topics were not assessed that should have been?

- Almost all the topics were covered. However, there were no division problems on the test. There are not enough data analysis items on the test as well. The topic of money needs to be addressed as well.
- The items covered 13 out of 32 standards. There were two standards that were covered on 5 items each. Again, these should be spread out to some of the other items. Measuring lengths to the nearest half-inch using a ruler should have been included in at least one item.
- Each root standard (e.g., N, M, G, D) was covered, but the questions were clustered around one sub-standard. For example, rather than there being one question in D.RE.EG.01 and one in 02 and one in 03 and one in 04, there were four questions all in 04. It would have been better aligned had there been better distribution.
- Yes
- See other grade level remarks.
- Yes

B. For each standard, did the items cover the most important performance (DOK levels) you expected by the standard? If not, what performance was not assessed?

- The DOK levels were well balanced.
- The DOK levels for this assessment were much higher than previous assessments. There were several 4's and only one 2. This was a more challenging test. It is good to see the DOK levels being higher at the middle school level.
- DOK levels were higher, but I had only one 2. Almost all 3s and 4s.
- Yes
- I was glad to see more on geometry and data analysis in this particular grade level assessment.

C. Were the standards written at an appropriate level of specificity and directed towards expectations appropriate for the grade level?

- The standards for this level need to be improved upon and made more difficult. They aren't much different than the 5th grade.
- The standards were appropriate for this grade level. Again there are some problems with some of the wording of the standards. Words such as explore, create, and fluently are causing problems when assessing DOK levels. Some of the standards did not move up much from previous grade assessment. Especially with telling time to the nearest hour. This has been the same for the past 3 grade levels. There should be a move up to telling time to the half or quarter hour.
- The standards overall were appropriate, however some standards could have been made slightly more difficult. For example, telling time on a clock should be moving to half or quarter hours at this grade. For many questions, it was a stretch to fit the questions into a

Table 7.15
Debriefing Summary
MI Functional Independence Math Grade 7

standard. The "and" and semicolon use in the standards made it difficult to decide whether we needed to satisfy all the elements in the standard, or only some of them.

- There are some items missing - for example, there should be items for multiplying money.
- This grade level needs to show more increase in difficulty.
- There are some words in the expectations that should be changed such as understand, create and explore need to be deleted from the expectations, they are too abstract to assess in this type of format.

D. What is your general opinion of the alignment between the standards and assessment:

- ii. Acceptable Alignment (4) : 67%
- iii. Needs slight improvement (2) : 33%

E. Comments

- All in all this assessment was good. Just spreading out the items to include more standards.

Table 8.15
Debriefing Summary
MI Functional Independence Math Grade 8

A. For each standard, did the items cover the most important topics you expected by the standard? If not, what topics were not assessed that should have been?

- Topic 3 Fractions and decimals were not covered well at all. The items that were on the test did not cover the expectations very well. Most of them were a stretch to fit them into an expectation. The measurement topic was not addressed in this booklet. The money topic was poorly addressed as well.
- The items did not cover even half of the standards. There were 46 standards for this grade and only 15 were covered by the items. Three standards were covered over 5 times. Some of these items could have been moved to the untested items.
- No, there were many standards that were not assessed at all. For example, the fraction and decimals were assessed, however the questions did not match the standards.
- Not all. Multiplication of money times the hours when talking about time worked and money earned. Fraction items are weak - need to have item spec sheet when developing items (or better alignment with spec sheet).
- What grain level is this question aimed at? Standard, domain/strand, or benchmark/expectation? My analysis shows 16 expectations tested out of 44 for the grade level. What level of specificity is the test attempting to test? Standard, domain/strand, or benchmark/expectation? Once the decision as to what level the test is testing then the analysis of how well the items cover the intended testing outcome. I am familiar with the test development process. There is no current step in the process that attends to these issues. Therefore, how fair is it to evaluate this?
- Yes

B. For each standard, did the items cover the most important performance (DOK levels) you expected by the standard? If not, what performance was not assessed?

- The DOK levels were a higher for this grade level than previous. The level of DOK jumped tremendously from the previous grades.
- The standards seemed to have a higher DOK than previous assessments. There were several 4's in this assessment and in previous assessments there were only a couple. The items seemed to move up a notch over previous assessments.
- The standards on this assessment had much higher DOKs than the previous grade.
- I think MANY items at this level are much more complex AND difficult. Were the DOKs developed using a standardized tool (such as Brigance) to have some standardization in the areas such as Math, ELA etc?
- At this grade level there is a substantial rise in difficulty and complexity in the expectations. The previous grade level was "flatlined" followed by a substantial jump at this grade level. There are a lot of repetitive items. Many (4-6) items at this grade level were not accurate to my understanding of the expectation. Many concept and skills needed to answer the item correctly were not present in the expectation.
- There is either an absence or little coverage of geometry, money, decimals, and algebra.

C. Were the standards written at an appropriate level of specificity and directed towards expectations appropriate for the grade level?

- The standards for 7th grade were much more difficult than the previous grades. The jump to 7th grade was tremendous. The lower grades need to be revised to be more in line/ flow better into the 7th grade. Wording on these expectations were too vague. The reviewers all had different interpretations and could not agree on how to view the expectation.
- Most of the standards were appropriate for this grade level. There are several standards that made huge jumps from the previous grade. Also, several words are confusing and are hard to assess. Words such as create, fluently, and understand are difficult to assess in this type of assessment.
- The standards from the last grade had significantly lowered expectations than at this grade. There was a leap in both the amount and and complexity (DOK) of the standards as compared to the previous grade. Not sure if it is because there were so many more standards, but many, many standards were never assessed.
- Perhaps for students in the general education classroom....MANY of these items are at a level above what research shows is appropriate for this population. That does not mean that they could not perform many of these at SOME level but EGLCEs need to be better written (defined).
- The expectation wording needs to be refined and improved. Providing the "specs sheet along with the standards would be helpful.
- the standards are somewhat vague: the standards that use words like fluently, understand, create, explore need to be rewritten and clarified to gain a better understanding of what is meant or intended.

D. What is your general opinion of the alignment between the standards and assessment:

- ii. Acceptable Alignment (1) : 17%
- iii. Needs slight improvement (4) : 67%
- iv. Needs major improvement (1) : 17%

E. Comments

- Overall, this was a fairly good assessment. There are several standards that need to be changed. Some just needed redefining and clearing up.
- most of the problems were easy to code, the last five or six problems were not items that fitted very well.

A. For each standard, did the items cover the most important topics you expected by the standard? If not, what topics were not assessed that should have been?

- The measurement topic was not covered thoroughly as well as the data analysis and compute with whole numbers.
- The items covered about half of the standards. There are several standards that are the same or almost the same. The standards N.EB04, G.EB20 and F.EB03 were covered on numerous items. Some of the items should have have covered other standards.
- The items did not cover all the standards, however there were many, many standards this time. While some were no doubt missing, some standards were repeated twice, with there being a generic and then a more specific standard. The questions may have covered one of the standards, but not both.
- I felt that problems are aligned better than in previous levels however, the items are not well written. They require students to engage in math problems that are not in any meaningful context. THESE ITEMS SHOULD BE MORE FUNCTIONAL.
- The coverage at the expectations level is minimal. My analysis found 19 out of 51 expectations were represented. Therefore, many topics are neglected. What percentage of items is intended for each standard or strand? This will determine if the test covers the expectations at these levels.
- Yes

B. For each standard, did the items cover the most important performance (DOK levels) you expected by the standard? If not, what performance was not assessed?

- The DOK levels were well covered in both stages 3-4. There were more stage 4 items tin this level.
- The DOK levels were very good for this assessment. There were several 4's and and the rest were 3's. This was an improvement over other assessemnt. It is good to see the test push higher.
- I believe there needs to be more work to better asses DOK levels. Were these levels developed using a standardized tool or just a subjective assessment?
- The depth of knowledge matched well the expectations represented.
- Yes

C. Were the standards written at an appropriate level of specificity and directed towards expectations appropriate for the grade level?

- A lot of the standards were placed in more than one area. Some were not clear as to where to place the question.
- The standards were written at the appropriate level for this grade. The only problem with the standards was that some were the same or very close. Again we had the problem with the some words. The words know and fluently came up again. Fluently is very hard to determine.

- There were a handful of standards written twice. G:18 Round money to the nearest dollar, ten dollars or 100 dollars N:17 Round money to the nearest dollar or ten dollars N:07 Apply estimation in solving problems N:19 Apply estimation in solving problems involving addition, subtraction, multiplication and division N:09 Select appropriate numbers in order to solve problems N:20 Select appropriate numbers and operations to solve problems, write number sentences and solve.
- Standards ok but items need much more work.
- The alignment of items to expectations was better than some of the previous grade levels.
- This is the most coverage of expectations that we have seen to this point. It may not be enough.

D. What is your general opinion of the alignment between the standards and assessment:

- ii. Acceptable Alignment (3) : 50%
- iii. Needs slight improvement (3) : 50%

E. Comments

- Overall this was a good assessment.