Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Mathematics	148	MTH 148 06/09/2023-Functional Math for Elementary Teachers I
College	Division	Department
Math, Science and Engineering Tech	Math, Science and Engineering Tech	Math & Engineering Studies
Faculty Preparer		Nichole Klemmer
Date of Last Filed Assessment Report		

I. Review previous assessment reports submitted for this course and provide the following information.

1. Was this course previously assessed and if so, when?

   Yes

   Through Fall 2018.

2. Briefly describe the results of previous assessment report(s).

   Students were successful on all outcomes (96%, 87% and 92% success rates on outcomes 1-3).

3. Briefly describe the Action Plan/Intended Changes from the previous report(s), when and how changes were implemented.

   The intended changes included updating the language in some of the outcomes and adding additional outcomes. Those were updated in the syllabus revision in March of 2022.

II. Assessment Results per Student Learning Outcome

Outcome 1: Use common problem solving techniques from Pre-Kindergarten through sixth grade (PK-6).

- Assessment Plan
  - Assessment Tool: Outcome-related common test questions on the final exam
  - Assessment Date: Spring/Summer 2023

- Course section(s)/other population: All sections
- Number students to be assessed: All students
- How the assessment will be scored: The selected set of common questions from the final exam will be scored with a departmentally-developed four-point rubric.
- Standard of success to be used for this assessment: 75% or more of the students score a 3 or a 4 (out of 4 possible points- defined on the rubric).
- Who will score and analyze the data: MTH 148 course leader

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2023	2023, 2022	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
52	52

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

All students were assessed.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All students were assessed.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Outcome-related questions from the final exam were used to assess outcome 1. Each question was scored out of 1 point, using this rubric: 0: The student does not attempt the problem. .25: The student makes little progress toward accomplishing the goal of the problem because of lack of understanding or lack of effort.

.5: The student partially achieves the mathematical goal of the problem. A limited grasp of the main mathematical idea is demonstrated. Some of the work may be incomplete, misdirected or unclear.

.75: The student substantially achieves the mathematical goal. The main thrust of the mathematics behind it is understood, but there may be some minor misunderstanding of content or errors in computation.

1: The student fully achieves the mathematical goal. All work is complete and correct.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
The standard of success was adjusted according to the rubric to be 75% of students will score 75% or higher on the outcome-related questions. There were 7 questions on the final exam that assessed this outcome. 49/52 (94%) of students scored 75% or higher on this outcome. The standard of success was met for this outcome and tool.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students did very well with sequences. They also did well with story problems that were very similar to the ones we did in class, such as questions involving perimeter.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Although the standard of success was met, I was able to see that students struggled more with Venn Diagrams and story problems that required more critical thinking (especially ones that deviated from ones we did in class together). This isn't a surprise- students always struggle more with these areas. Going forward, I think it's important to continue to emphasize critical thinking and story problems throughout the entire semester. More specifically, giving students the opportunity to try these harder story problems during class and work with their peers to solve problems.

Outcome 2: Investigate number theory and number sense as it applies to grades PK-6 and perform computations in the real number system.

- Assessment Plan
    - Assessment Tool: Outcome-related common test questions on final exam
    - Assessment Date: Spring/Summer 2023
    - Course section(s)/other population: All sections
    - Number students to be assessed: All students
    - How the assessment will be scored: The selected set of common questions from the final exam will be scored with a departmentally-developed four-point rubric.
    - Standard of success to be used for this assessment: 75% or more of the students score a 3 or a 4 (out of 4 possible points- defined on the rubric).
    - Who will score and analyze the data: MTH 148 course leader

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2023	2023, 2022	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
52	52

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

All students were assessed.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All students were assessed.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Outcome-related questions from the final exam were used to assess outcome 2. Each question was scored out of 1 point, using this rubric:

0: The student does not attempt the problem.

.25: The student makes little progress toward accomplishing the goal of the problem because of lack of understanding or lack of effort.

.5: The student partially achieves the mathematical goal of the problem. A limited grasp of the main mathematical idea is demonstrated. Some of the work may be incomplete, misdirected or unclear.

75: The student substantially achieves the mathematical goal. The main thrust of the mathematics behind it is understood, but there may be some minor misunderstanding of content or errors in computation.

1: The student fully achieves the mathematical goal. All work is complete and correct.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
There were 11 questions on the final exam that assessed this outcome. 50/52 (96%) of students scored a 75% or higher on this outcome. The standard of success was met for this outcome and tool.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students did very well with addition, subtraction and multiplication. They also did well with base 10 block diagrams and red/black chip models.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Although the standard of success was met with this outcome, there are areas where students were a bit weaker, particularly long division and fractions. Like the first outcome, this is not a surprise and is consistent with past assessments. We plan on incorporating more of these topics throughout ALL homework assignments so they can practice these concepts throughout the entire course rather than only in an isolated unit.

Outcome 3: Use algebra to describe patterns, relations, and functions, and to model and solve problems.

- Assessment Plan
    - Assessment Tool: Outcome-related common test questions on the final exam
    - Assessment Date: Spring/Summer 2023
    - Course section(s)/other population: All sections
    - Number students to be assessed: All students
    - How the assessment will be scored: The selected set of common questions from the final exam will be scored with a departmentally-developed four-point rubric.
    - Standard of success to be used for this assessment: 75% or more of the students score a 3 or a 4 (out of 4 possible points- defined on the rubric).
    - Who will score and analyze the data: MTH 148 course leader

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2023	2023, 2022	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
52	52

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

All students were assessed.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All students were assessed.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Outcome-related questions from the final exam were used to assess outcome 3. Each question was scored out of 1 point, using this rubric:

0: The student does not attempt the problem.

.25: The student makes little progress toward accomplishing the goal of the problem because of lack of understanding or lack of effort.

.5: The student partially achieves the mathematical goal of the problem. A limited grasp of the main mathematical idea is demonstrated. Some of the work may be incomplete, misdirected or unclear. .

75: The student substantially achieves the mathematical goal. The main thrust of the mathematics behind it is understood, but there may be some minor misunderstanding of content or errors in computation.

1: The student fully achieves the mathematical goal. All work is complete and correct.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
There were four questions on the final exam that assessed this outcome. 46/52 (88%) of students scored a 75% or higher on this outcome. The standard of success was met for this outcome and tool.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Overall, students did well solving equations and inequalities, with very minor mistakes.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

I think it'd be wise to focus more on using algebraic equations to model real-world situations. Students had the most trouble with this question and it's probably the most relevant question in terms of preparing them to be elementary school teachers. We've been discussing the possibility of removing some algebra content so we can go deeper in this area.

Outcome 4: Practice high leverage core teaching practices and examine how they can be helpful in teaching grades PK-6.

- Assessment Plan
    - Assessment Tool: Teaching demonstration project and analysis assignments on Blackboard
    - Assessment Date: Spring/Summer 2023
    - Course section(s)/other population: All sections
    - Number students to be assessed: All students
    - How the assessment will be scored: The project and analysis assignments will be graded using a departmentally-developed rubric.
    - Standard of success to be used for this assessment: 75% or more of the students score a 3 or a 4 (out of 4 possible points- defined on the rubric).
    - Who will score and analyze the data: MTH 148 course leader

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2023	2023, 2022	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
52	52

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

All students were assessed.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All students were assessed.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

A teaching demonstration project and three analysis assignments on Blackboard were used to assess this outcome. Each project/assignment was scored on a scaled from 0-1 using this rubric:

0: The student did not complete this assignment

.25: The student did very little to demonstrate that they understand the high leverage core teaching practices.

.5: The student partially demonstrated that they understand the high leverage core teaching practices.

75: The student substantially demonstrated that they understand the high leverage core teaching practices.

1: The student fully demonstrated that they understand the high leverage core teaching practices.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
52/52 (100%) of students scored a 75% or higher on this outcome. The standard of success was met for this outcome and tool.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students did really well on their projects and demonstrated that they have a high commitment to the high leverage core teaching practices. They did better in this outcome than any of the others.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Students did well with what we gave them. I think we can make the analysis assignments better by expanding them and providing more opportunities for the students to critique work and lead discussions.

III. Course Summary and Intended Changes Based on Assessment Results

1. Based on the previous report's Intended Change(s) identified in Section I above, please discuss how effective the changes were in improving student learning.

The newly added outcomes and change in outcome language made it easier for us instructors to include the important content and therefore give the students a better learning opportunity.

2. Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

This course is doing a great job at meeting the needs of students. The assessment process didn't bring to light anything that surprised me but it did allow me the time and space to think about this class and reflect on areas we could improve in (such as the high leverage core teaching practices).

3. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

I have a meeting planned with the instructors that teach this course so we can discuss the assessment report and plan for any changes we wish to make.

4. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Course Assignments	Expand analysis assignments and provide students with more opportunities for students to critique work and lead discussions.	Provide additional support for students in this area.	2024
Course Materials (e.g. textbooks, handouts, on-line ancillaries)	Give students additional time in class to try harder story problems requiring more critical thinking. Additional emphasis, material or practice related	These aspects of the course are often difficult for students, and these areas were characterized by weaker performance for students in the current assessment. Additional emphasis, material	2024

	to the following areas: OC#1: Venn diagrams, story problems requiring more critical thinking OC#2: long division, fractions OC#3: Algebraic equations to model real-world situations (remove some algebra content to address this more deeply)	or practice will support student learning.	

5. Is there anything that you would like to mention that was not already captured?

No

III. Attached Files

MTH 148 Assessment Data

Faculty/Preparer:	Nichole Klemmer	**Date:**	06/09/2023
Department Chair:	Nichole Klemmer	**Date:**	06/12/2023
Dean:	Tracy Schwab	**Date:**	06/12/2023
Assessment Committee Chair:	Jessica Hale	**Date:**	10/26/2023

Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Mathematics	148	MTH 148 07/25/2017-Functional Math for Elementary Teachers I
Division	Department	Faculty Preparer
Math, Science and Engineering Tech	Mathematics	Nichole Klemmer
Date of Last Filed Assessment Report		07/16/2013

I. Review previous assessment reports submitted for this course and provide the following information.

1. Was this course previously assessed and if so, when?

   No

2. Briefly describe the results of previous assessment report(s).

   3.

4. Briefly describe the Action Plan/Intended Changes from the previous report(s), when and how changes were implemented.

   5.

II. Assessment Results per Student Learning Outcome

Outcome 1: Solve problems using Polya's 4-step method and utilizing common techniques from the elementary grades.

- Assessment Plan
  - Assessment Tool: Common test questions
  - Assessment Date: Fall 2015
  - Course section(s)/other population: All section
  - Number students to be assessed: all students
  - How the assessment will be scored: Departmentally-created rubric

- Standard of success to be used for this assessment: 75% or more of the students score a 3 or a 4 (out of 4 possible points- defined on the rubric).
- Who will score and analyze the data: MTH 148 course leader

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2017, 2018		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
90	90

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

All students were assessed.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sudents were assessed.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The final exam was used to assess all outcomes. I used the following rubric, created by the math department, to grade each question on a scale of 0-4: 0: (0%) The student does not attempt the problem. 1: (40%) The student makes little progress toward accomplishing the goal of the problem because of lack of understanding or lack of effort. 2: (60%) The student partially achieves the mathematical goal of the problem. A limited grasp of the main mathematical idea is demonstrated. Some of the work may be incomplete, misdirected or unclear. 3: (80%) The student substantially achieves the mathematical goal. The main thrust of the mathematics behind it is understood, but there may be some minor misunderstanding of content or errors in computation.

4: (100%) The student fully achieves the mathematical goal. All work is complete and correct.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
96% of students scored a 3 (substantially acheives the mathematical goal) or 4 (fully acheives the mathematical goal) on final exam questions associated with outcome 1. The standard of success was met for this outcome.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

This outcome had the highest success rate, at 96%. This suprised me since students freqently express dislike and frustration with story problems. All of the 4% of students who did not meet the benchmark of success for this outcome attempted each problem and received partial credit, showing that they at least understood how to do some of the problem. Problem solving in general is an area of strength for the vast majority of our MTH 148 students.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

My plan for continuous improvement is to continue varying the types of story problems that students work on in class and on the final exam. Sometimes it is hard to discern whether a student truly has exceptional story problem skills or if they have just memorized the certain types of story problems, so varying these types of problems can help.

Outcome 2: Perform calculations and analyze student calculations in the whole, integer and rational number system using traditional and non-traditional algorithms. Apply the concepts of place value and regrouping to these tasks.

- Assessment Plan
    - Assessment Tool: Common test questions
    - Assessment Date: Fall 2015
    - Course section(s)/other population: All sections
    - Number students to be assessed: All students

- How the assessment will be scored: Departmentally-created rubric
- Standard of success to be used for this assessment: 75% or more of the students score a 3 or a 4 (out of 4 possible points- defined on the rubric).
- Who will score and analyze the data: MTH 148 Course Leader

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2018, 2017		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
90	90

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

All students were assessed.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sudents were assessed.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The final exam was used to assess all outcomes. I used the following rubric, created by the math department, to grade each question on a scale of 0-4: 0: (0%) The student does not attempt the problem. 1: (40%) The student makes little progress toward accomplishing the goal of the problem because of lack of understanding or lack of effort. 2: (60%) The student partially achieves the mathematical goal of the problem. A limited grasp of the main mathematical idea is demonstrated. Some of the work may be incomplete, misdirected or unclear.

3: (80%) The student substantially achieves the mathematical goal. The main thrust of the mathematics behind it is understood, but there may be some minor misunderstanding of content or errors in computation. 4: (100%) The student fully achieves the mathematical goal. All work is complete and correct.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
87% of students scored a 3 (student substantially achieves the mathematical goal) or 4 (student fully acheives the mathematical goal) on final exam questions associated with outcome 2. The standard of success was met for this outcome.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Adding, subtracting, and multiplying whole numbers were areas of strength in student achievement.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

This outcome had the lowest success rate of the three outcomes, at 87%. Performing long division, and adding/subtracting integers and fractions were areas of weakness. Almost all of the points lost for this outcome were in these areas. One idea that I had to help with these areas is to give students gateway assessments throughout the entire semester. Students would be required to keep taking these no-calculator computation gateway assessments until they got a passing score. This would give me more feedback so that I could identify students who need help, earlier in the semester, and it would encourage students to keep working on these concepts until they reach proficiency.

Outcome 3: Identify, illustrate, and apply various models, approaches and properties of the operations of addition, subtraction, multiplication and division of whole numbers, fractions, decimals, percents and integers.

- Assessment Plan

- Assessment Tool: Common test questions
- Assessment Date: Fall 2015
- Course section(s)/other population: All sections
- Number students to be assessed: All students
- How the assessment will be scored: Departmentally-created rubric
- Standard of success to be used for this assessment: 75% or more of the students score a 3 or a 4 (out of 4 possible points- defined on the rubric).
- Who will score and analyze the data: MTH 148 Course Leader

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2018, 2017		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
90	90

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

All students were assessed.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sudents were assessed.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The final exam was used to assess all outcomes. I used the following rubric, created by the math department, to grade each question on a scale of 0-4: 0: (0%) The student does not attempt the problem. 1: (40%) The student makes little progress toward accomplishing the goal of the problem because of lack of understanding or lack of effort.

2: (60%) The student partially achieves the mathematical goal of the problem. A limited grasp of the main mathematical idea is demonstrated. Some of the work may be incomplete, misdirected or unclear.

3: (80%) The student substantially achieves the mathematical goal. The main thrust of the mathematics behind it is understood, but there may be some minor misunderstanding of content or errors in computation.

4: (100%) The student fully achieves the mathematical goal. All work is complete and correct.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
92% of students scored a 3 (student substantially achieves the mathematical goal) or 4 (student fully achieves the mathematical goal) on final exam questions associated with outcome 3. The standard of success was met for this outcome.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

An area of strength for this outcome is identifying and applying the commutative, associative and distributive properties.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

My plan for improvement in this area is to modify the outcome language in the course syllabus. The description of this outcome as it stands is ambiguous and I'd like it to be more clear. I'd also like to identify some additional objectives that are specifically matched with this outcome to help guide our teaching and assessment. We currently teach several concepts that are related to this outcome but are not listed as course objectives.

III. Course Summary and Intended Changes Based on Assessment Results

1. Based on the previous report's Intended Change(s) identified in Section I above, please discuss how effective the changes were in improving student learning.

2.

3. Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

I think this course is doing a great job at meeting the needs of students. Students were sucessful in all outcomes which alligns with the results that I see in class on a day-to-day basis. The only thing that surprised me about the assessment was that the highest result was in outcome 1 (story problems). I am pleased that students are successful in that area and it shows that sutdents are growing throughout the semester because when they first get in the class, many students are terrified of story problems.

4. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

I will share the results of this assessment at our department meeting.

5. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Outcome Language	I plan on changing the outcome language for outcome 3. I also plan on adding an additional outcome related to algebra.	The language of outcome 3 is ambiguous and there is overlap with outcome 2. For example, outcome 2 asks that students use traditional and non-traditional algorithms to perform calculations. Many of these non-traditional algorithms involve identifying, illustrating, and applying various models, which is the language in outcome 3. For many of the problems on the	2019

		final exam assessment, I had a hard time determining whether the concepts fell under outcome 2 or 3 because of this overlap. I'm planning on adding an algebra outcome becuase it is currently a significant part of the course and algebra is not mentioned in any of the outcomes.	
Objectives	i plan on adding additional objectives.	Currently, there are only 6 course objectives. There is important content that we cover in MTH 148 that is not currently represented in any of the course objectives (including algebra, least common multiple, greatest common factor, using proportions to solve problems...etc.).	2019

6. Is there anything that you would like to mention that was not already captured?

7.

III. Attached Files

Assessment Data

Faculty/Preparer:	Nichole Klemmer	**Date:**	12/13/2018
Department Chair:	Lisa Manoukian	**Date:**	01/24/2019
Dean:	Kristin Good	**Date:**	01/28/2019
Assessment Committee Chair:	Shawn Deron	**Date:**	02/25/2019

Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Mathematics	148	MTH 148 03/15/2013-Functional Math for Elementary Teachers I
Division	Department	Faculty Preparer
Math, Science and Health	Mathematics	Nichole Klemmer
Date of Last Filed Assessment Report		

I. Assessment Results per Student Learning Outcome

Outcome 1: Students will solve problems using Polya?s 4-step method and utilizing common techniques from the elementary grades.

- Assessment Plan
    - Assessment Tool: Common questions in an evaluation setting.
    - Assessment Date: Fall 2009
    - Course section(s)/other population: At least 2 sections taught by different instructors; randomly selected
    - Number students to be assessed: 25-60
    - How the assessment will be scored:
    - Standard of success to be used for this assessment:
    - Who will score and analyze the data:

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2012		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
40	37

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

There were 40 students enrolled in the course but only 37 took the final exam.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All populations were represented in the assessment because all MTH 148 final exams were used in the course assessment.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The departmental final exam was given to all MTH 148 students. There was one question on the final used to assess outcome 1. The department rubric was used to score each question on a scale from 0 to 4.

The standard of success requires 75% or more of the students to get a 3 or a 4. A score of 4 indicates that a student fully achieves the mathematical goal. A score of 3 indicates that a student substantially understands the mathematical goal. The main thrust of the mathematics is understood but there may be minor errors in understanding or computation.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

The average score for students on outcome 1 was a 3.97/4 (approximately 97%). All of the students (100%) earned a score of 3 or 4 on this outcome, so the standard of success was met.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students were very strong in this area, as 100% of them scored a 3 or 4.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

The question that pertained to this outcome required students to complete a pattern both visually (with pictures) and numerically. Although they did exceptionally well on the question, I'm not sure that 100% of the students had a full grasp on Polya's four problem-solving steps. I plan on incorporating more problem-solving activities into the course and more problem-solving questions on the new final exam. One question probably isn't sufficient for assessing this outcome.

Outcome 2: Students will perform calculations and analyze student calculations in the whole, integer and rational number system using traditional and non-traditional algorithms. Students will correctly apply the concepts of place value and regrouping to these tasks.

- Assessment Plan
    - Assessment Tool: Common questions in an evaluation setting.
    - Assessment Date: Fall 2009
    - Course section(s)/other population: At least 2 sections taught by different instructors; randomly selected
    - Number students to be assessed: 25-60
    - How the assessment will be scored:
    - Standard of success to be used for this assessment:
    - Who will score and analyze the data:

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2012		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
40	37

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

There were 40 students enrolled in the course but only 37 took the final exam.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All populations were represented in the assessment because all MTH 148 final exams were used in the course assessment.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The departmental final exam was given to all MTH 148 students. The department rubric was used to score each question on a scale from 0 to 4. There were 5 questions on the final that were scored to assess outcome 2. The standard of success requires 75% or more of the students to get a 3 or a 4. A score of 4 indicates that a student fully achieves the mathematical goal. A score of 3 indicates that a student substantially understands the mathematical goal. The main thrust of the mathematics is understood but there may be minor errors in understanding or computation.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
The average score for students on outcome 2 was a 3.35/4 (approximately 84%). The majority of students, 87% of them, earned a score of 3 or 4 on this outcome, so the standard of success was met.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students were very strong in their understanding of calculations of whole numbers, integers, and rational numbers, as the 87% average suggests.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Even though the success rate was pretty high, students could improve on their long division skills, particularly with decimals. If students made a mistake on this outcome, it was almost always with long division.

Outcome 3: Students will identify, illustrate, and apply various models, approaches and properties of the operations of addition, subtraction, multiplication and division of whole numbers, fractions, decimals, percents and integers.

- Assessment Plan

- Assessment Tool: Common questions in an evaluation setting.
- Assessment Date: Fall 2009
- Course section(s)/other population: At least 2 sections taught by different instructors; randomly selected
- Number students to be assessed: 25-60
- How the assessment will be scored:
- Standard of success to be used for this assessment:
- Who will score and analyze the data:

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2012		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
40	37

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

There were 40 students enrolled in the course but only 37 took the final exam.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All populations were represented in the assessment because all MTH 148 final exams were used in the course assessment.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The departmental final exam was given to all MTH 148 students. The department rubric was used to score each question on a scale from 0 to 4. There were 3 questions on the final that were scored to assess outcome 3. The standard of success requires 75% or more of the students to get a 3 or a 4. A score of 4 indicates that a student fully achieves the mathematical goal. A score of 3 indicates that a student substantially understands the mathematical goal. The

main thrust of the mathematics is understood but there may be minor errors in understanding or computation.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
The average score for students on outcome 3 was a 3.35/4 (approximately 84%). The majority of students, 87% of them, earned a score of 3 or 4 on this outcome, so the standard of success was met.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students were very strong in their understanding of how to identify, apply, and illustrate different models for calculations of of whole numbers, fractions, percents, and integers, as the average of 87% suggests.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

If students lost points on questions pertaining to outcome 3, it was almost always because they did not show any work for their answer (which was specifically asked for in the question). Because these questions are truly assessing whether or not a student understands the process of how to do calculations, they did not receive a 3 or a 4 if they did not show sufficient work. That being said, there was still a high success rate. I will continue to stress the importance of illustrating the process and not just the final answer when we do class activities.

II. Course Summary and Action Plans Based on Assessment Results

1. Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

Overall, the course seems to be meeting the needs of students very well. I was actually surprised at how well students performed on the final exam questions. The assessment process encouraged me to really examine the final exam questions and evaluate how well they assess each outcome. Although students did really well on the exam questions, there is room for improvement regarding the final exam.

2. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

I have already shared the assessment data and my action plan with all the instructors who will be teaching MTH 148 next semester. This information is available to the department faculty if anyone is interested in learning more about MTH 148.

3. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Assessment Tool	I will add more questions pertaining to outcome 1 (problem-solving with Polya's four steps).	I don't think one question is enough to truly assess whether students understand this first outcome.	2013

4. Is there anything that you would like to mention that was not already captured?

III. Attached Files

MTH 148 Assessment Data_ NKlemmer
MTH 148 Final Exam Rubric_NKlemmer
MTH 148 Final Exam_NKlemmer

Faculty/Preparer: Nichole Klemmer **Date:** 6/10/13
Department Chair: Kristen Good **Date:** 6/11/13
Dean: Martha Showalter **Date:** 6/13/13
Assessment Committee Chair: Michelle Garey **Date:** 7/16/13