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Curriculum Design Project

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Evaluation Strategy

In order to adequately determine the success of the curriculum a culmination of pre-, formative, and summative assessments will be implemented for the students, teachers, schools and community members.

To begin, a survey would be distributed to the local community members who graduated from the public school system to assess their interest in mathematics. The community member pre-assessment will be used to determine to what degree the community values mathematics. The students will complete their mandatory standardized test in mathematics at the beginning of the school year. The students will also be given a pre-assessment to gauge their prerequisite knowledge about functions, an interest survey into possible real-world scenarios, as well as their own pre-assessment to determine to what degree they value mathematics. The functions pre-assessment will be used to determine how much support will need to be provided to the students as well as what some possible real-world scenarios might involve. The teachers can use this pre-assessment in a variety of manners such as ordering the specific outcomes in a certain manner, ability grouping, and/or choosing scenarios.

Throughout the implementation, formative assessments for the curriculum will include sub-unit tests to determine how well students are meeting each learning outcome for the unit. Since the tests are aligned with the learning outcomes and the outcomes dictate students are able to represent certain mathematical knowledge about functions all in relation to the real world, the sub-unit tests will mainly revolve around real-world scenarios in which students are asked to apply their mathematical knowledge to the context to answer questions. Additionally, each teacher will submit a portfolio of student work representing to what degree the students mastered the learning outcomes for each sub-unit by showing student work that is answering one of the real-world problems studied in class. The teachers can use the sub-unit tests to better plan for the next sub-unit. Additionally, teachers can implement other forms of formative assessment such as homework assignments, quizzes, and exit tickets to assess student learning prior to the sub-unit test that all involve real-world scenarios and require the application of knowledge.

At the end of the unit of functions, three major summative assessments will be provided. One summative assessment will occur directly at the end of the unit in which students’ understanding and fulfillment of the learning outcomes will be determined based on an end of unit test (similar to the pre-test) as well as by analyzing the scores from each sub-unit test. Again, this unit test will be a series of real-world problems in which students must use their knowledge about functions to answer all questions and solve the problem. The test must be rooted in real-world contextual learning in order to measure the effectiveness of this curriculum design. Additionally, the change in student score from pre-test to post-test should be a good indicator of student fulfillment of the learning objectives. The sub-unit tests could be used to understand any anomalies within the post-test. The second summative assessment will be the required standardized mathematics test at the end of the year. The scores from the beginning of the year covering functions can be compared to their score at the end of the year to determine how well the students understood functions. Additionally, the last summative assessment would be a mathematical interest survey (similar to the mathematical interest pre-assessment) to determine to what degree students value mathematics. By comparing students’ value of mathematics from before the lesson to after the lesson, the effectiveness of developing a deeper appreciation of mathematics by using this curriculum design can be determined.

As a long-term summative assessment for the curriculum design (after three to five years of being implemented), the standardized tests scores of the students can be analyzed from before the curriculum was implemented to present day. Any change in student score might reflect to which degree the curriculum was successful. Additionally, another survey could be distributed to the community who graduated from the public school system to determine if their value of mathematics has changed post-graduation. If the curriculum is successful, we should see student’s scores and value of mathematics increase since the implementation of the curriculum.