Michigan District Lutheran School Curriculum *SCOPE & SEQUENCE*

Grade Level: 8	**Curricular Area: Mathematics**		
Unit 1: **Numbers and Operations**	**Unit 2:** **Algebra**	**Unit 3:** **Geometry**	**Unit 4:** **Data and Probability**
1A **Understand real number concepts**	**2A** **Understand the concept of non-linear functions using basic examples**	**3A** **Understand and use the Pythagorean Theorem**	**4A** **Draw, explain, and justify conclusions based on data**
1B **Solve problems**	**2B** **Understand and represent quadratic functions**	**3B** **Solve problems about geometric figures**	**4B** **Understand probability concepts for simple and compound events**
	2C **Recognize, represent, and apply common formulas**	**3C** **Understand concepts of volume and surface area and apply formulas**	
	2D **Understand solutions and solve equations, simultaneous equations, and linear inequalities**	**3D** **Visualize solids**	
		3E **Understand and apply concepts of transformation and symmetry**	

Michigan District Lutheran School Curriculum *OUTCOMES*

Curricular Area: Mathematics Grade 8 - Numbers and Operations

Outcome: 1A: Understand real number concepts

Grade Level Content Expectations (GLCEs)	**Michigan Benchmarks**	**Teaching The Faith Activities**
N.ME.08.01 Understand the meaning of a square root of a number and its connection to the square whose area is the number; understand the meaning of a cube root and its connection to the volume of a cube. N.ME.08.02 Understand meanings for zero and negative integer exponents. N.ME.08.03 Understand that in decimal form, rational numbers either terminate or eventually repeat, and that calculators truncate or round repeating decimals; locate rational numbers on the number line; know fraction forms of common repeating decimals, e.g., 0.1=1/9; 0.3=13. N.ME.08.04 Understand that irrational numbers are those that cannot be expressed as the quotient of two integers, and cannot be represented by terminating or repeating decimals; approximate the position of familiar irrational numbers, e.g., square root of 2, square root of 3, π on the number line. N.ME.08.05 Estimate and solve problems with square roots and cube roots using calculators. N.ME.08.06 Find square roots of perfect squares and approximate the square roots of non-perfect squares by locating between consecutive integers,	IV.1.2**.** Extend their understanding of numeration systems to include decimal numeration, scientific numeration and non-decimal numeration systems. IV.2.1**.** Give geometric representations of fractions, prime and composite numbers, triangular and square numbers, and other number concepts; represent rational numbers and integers on the number line. IV.2.2. Recognize equivalent representations of a number, especially fractions, decimals and percents, and translate freely among representations. IV.2.4. Develop and refine strategies for estimating quantities, including fractional quantities, and evaluate the reasonableness and appropriateness of their estimates. IV.2.5**.** Select appropriate representations for numbers, including integers and rational numbers, in order to simplify and solve problems. IV.3.1. Compare and order integers and rational numbers using relations of equality and inequality. IV.3.3. Distinguish between prime and composite numbers; identify factors, multiples, common	Divide the students into groups. In each group develop five set/subset combinations from the Bible. (Examples: Moses, Amos, Isaiah-subset of prophets of the Old Testament; Genesis, Daniel-subset of books of the Old Testament.) In groups come up with five sets involving groups discussed in religion class that can have the operations of intersection and union performed on them. (Examples: descendants of Abraham and the descendants of Jacob; members of your church and members of the holy Christian church.) Discuss with your class how the commutative and associative properties remind us of certain attributes of our God. (Unchangeable.) How is the history of humankind like a repeating decimal? See Gen. 12:10-20, 26:6-11. Try to find other examples from Scripture. Develop with your class a list of things that should always come first in the life of a Christian. In what order will other things come?

e.g., square root of 130 is between 11 and 12.	factors and multiples, and relatively prime numbers; and apply divisibility tests to numbers. relationships in solving problems. symbolic expressions.	

Michigan District Lutheran School Curriculum *TEACHER ACCOUNTABILITY RECORD*

1A: Understand real numbers concepts **Teacher name:_____** **Grade Level: Eighth Grade**	**Curricular Area: Mathematics/Unit 1-Numbers and Operations** **School Year:**				
Michigan Standard, Benchmark, or *GLCE* **(Italics indicates the one used)**	**Dates Taught (month/day/initials):**				
N.ME.08.01 Understand the meaning of a square root of a number and its connection to the square whose area is the number; understand the meaning of a cube root and its connection to the volume of a cube.					
N.ME.08.02 Understand meanings for zero and negative integer exponents.					
N.ME.08.03 Understand that in decimal form, rational numbers either terminate or eventually repeat, and that calculators truncate or round repeating decimals; locate rational numbers on the number line; know fraction forms of common repeating decimals, e.g., 0.1=1/9; 0.3=13.					
N.ME.08.04 Understand that irrational numbers are those that cannot be expressed as the quotient of two integers, and cannot be represented by terminating or repeating decimals; approximate the position of familiar irrational numbers, e.g., square root of 2, square root of 3, π on the number line.					
N.ME.08.05 Estimate and solve problems with square roots and cube roots using calculators.					
N.ME.08.06 Find square roots of perfect squares and approximate the square roots of non-perfect squares by locating between consecutive integers, e.g., square root of 130 is between 11 and 12.					

Outcome:1B: Solve Problems

Grade Level Content Expectations (GLCEs)	**Michigan Benchmarks**	**Teaching The Faith Activities**
N.MR.08.07 Understand percent increase and percent decrease in both sum and product form, e.g., 3% increase of a quantity x is x + .03=1.03x. N.MR.08.08 Solve problems involving percent increases and decreases. N.MR.08.09 Solve problems involving compounded interest or multiple discounts. N.MR.08.10 Calculate weighted averages such as course grades, consumer price indices, and sports ratings. N.FL.08.11 Solve problems involving ratio units, such as miles per hour, dollars per pound, or persons per square mile.	IV.2.5**.** Select appropriate representations for numbers, including integers and rational numbers, in order to simplify and solve problems. IV.3.5. Apply their understanding of number relationships in solving problems.	Invite a Christian financial planner to talk to your class about the Christian aspects of budgeting, tithing, and financial planning in general. Ask the guest to suggest some verbal problems that you can solve. Discuss if people sometimes do comparative "church buying." Do they "shop around" for a church to join? Is this good or bad? On what basis should one choose a church? Introduce this outcome with the following activity. Ask students to push buttons on their calculators for the digits that answer the following questions: 1. How many times did Naaman wash in the Jordan River? 2. How many times did the Israelites march around Jericho? 3. How many times a day did Daniel pray? 4. How many men did the king see when he looked into the fiery furnace?

Michigan District Lutheran School Curriculum *TEACHER ACCOUNTABILITY RECORD*

1B: Solve Problems **Teacher name:_____** **Grade Level: Eighth Grade**	**Curricular Area: Mathematics/Unit 1 –Numbers and Operations** **School Year:**				
Michigan Standard, Benchmark, or *GLCE* **(Italics indicate the one used)**	**Dates Taught (month/day/initials):**				
N.MR.08.07 Understand percent increase and percent decrease in both sum and product form, e.g., 3% increase of a quantity x is x + .03=1.03x.					
N.MR.08.08 Solve problems involving percent increases and decreases.					
N.MR.08.09 Solve problems involving compounded interest or multiple discounts.					
N.MR.08.10 Calculate weighted averages such as course grades, consumer price indices, and sports ratings.					
N.FL.08.11 Solve problems involving ratio units, such as miles per hour, dollars per pound, or persons per square mile.					

Michigan District Lutheran School Curriculum *OUTCOMES*

Curricular Area: Mathematics Grade 8- Algebra

Outcome: 2A: Understand the concept of non-linear functions using basic examples.

Grade Level Content Expectations (GLCEs)	**Michigan Benchmarks**	**Teaching The Faith Activities**
A.RP.08.01 Identify and represent linear functions, quadratic functions, and other simple functions including inversely proportional relationships ($y=k/x$); cubic ($y = ax^3$); roots, and exponentials ($y =a^x$, $a > 0$); using tables, graphs, and equations. A.PA.08.02 For basic functions, e.g., simple quadratics, direct and indirect variation, and population growth, describe how changes in one variable affect the others. A.PA.08.03 Recognize basic functions in problem context, e.g., area of a circle is πr^2, volume of a sphere is $4/3\ \pi^3$, and represent them using tables, graphs, and formulas. A.R.P.08.04 Use the vertical line test to determine if a graph represents a function in one variable. A.RR.08.05 Relate quadratic functions in factored form and vertex form to their graphs, and vice versa; in particular, note that solutions of a quadratic equation are the x-intercepts of the corresponding quadratic function. A.RP.08.06 Graph factorable quadratic functions, finding where the graph intersects the x-axis and the coordinates of the vertex; use words "parabola" and "roots"; include functions in vertex form and	I.1.2**.** Represent and record patterns in a variety of ways including tables, charts and graphs, and translate between various representations. I.1.4**.** Explore and describe visual and numeric patterns, including linear expressions, near-linear patterns and symmetric and spatial patterns. I.2.3. Begin to investigate applications in bivariate data and linear relationships, and explore questions of what will happen to one quantity if another variable is changed. I.2.5. Differentiate between functions and relationships such as linear vs. not linear or continuous vs. non-continuous. IV.3.2. Express a numerical comparison as ratios and rates,numbers; and apply divisibility tests to numbers. IV.3.4. Explain the meaning of powers and roots of numbers and use calculators to compute powers and square roots.	Divide the class in half. In each group develop five sequences from the Bible to try to stump the other group. (Examples: the number of true Gods, the number of men the king saw when he looked into the fiery furnace, the number of plagues in Egypt minus one.) What is the pattern? 1^2, 2^2, 3^3. Use the averaging method to find the square root of several numbers. Notice that each step actually brings you closer to the square root. How does this method compare with daily Bible study, fellowship with other believers, and prayer? (These things bring us closer to God through the working of the Holy Spirit.

those with leading coefficient -1, e.g., $y = x^2 - 36$, $y = (x - 2)^2 - 9$; $y = x^2$; $y = -(x - 3)^2$		

Michigan District Lutheran School Curriculum *TEACHER ACCOUNTABILITY RECORD*

2A: Understand the concept of non-linear functions using basic examples **Teacher name:_____** **Grade Level: Eighth Grade**	**Curricular Area: Mathematics/ Unit 2 Algebra** **School Year:**				
Michigan Standard, Benchmark, or *GLCE* **(Italics indicate the one used)**	**Dates Taught (month/day/initials):**				
A.RP.08.01 Identify and represent linear functions, quadratic functions, and other simple functions including inversely proportional relationships ($y=k/x$); cubic ($y = ax^3$); roots, and exponentials ($y = a^x$, $a > 0$); using tables, graphs, and equations.					
A.PA.08.02 For basic functions, e.g., simple quadratics, direct and indirect variation, and population growth, describe how changes in one variable affect the others					
A.PA.08.03 Recognize basic functions in problem context, e.g., area of a circle is πr^2, volume of a sphere is $4/3\ \pi^3$, and represent them using tables, graphs, and formulas					
A.R.P.08.04 Use the vertical line test to determine if a graph represents a function in one variable					
A.RR.08.05 Relate quadratic functions in factored form and vertex form to their graphs, and vice versa; in particular, note that solutions of a quadratic equation are the x-intercepts of the corresponding quadratic function.					
A.RP.08.06 Graph factorable quadratic functions, finding where the graph intersects the x-axis and the coordinates of the vertex; use words "parabola" and "roots"; include functions in vertex form and those with leading coefficient -1, e.g., $y = x^2 - 36$, $y = (x - 2)^2 - 9$; $y = x^2$; $y = -(x - 3)^2$					

Outcome: 2B: Recognize, represent, and apply common formulas.

Grade Level Content Expectations (GLCEs)	**Michigan Benchmarks**	**Teaching The Faith Activities**
A.FO.08.07 Recognize and apply the common formulas: $(a + b)^2 = a^2 + 2\ ab + b^2$ $(a – b)^2 = a^2 – 2\ ab + b^2$ $(a + b)\ (a – b) = a^2 – b^2$; represent geometrically. A.FO.08.08 Factor simple quadratic expressions with integer coefficients, e.g., $x^2 + 6x + 9$m $x^2 +2x – 3$, and $x^2 – 4$; solve simple quadratic equations, e.g., $x^2 = 16$ or $x^2 = 5$ (by taking square roots); $x^2 – x – 6 = 0$, $x^2 – 2x = 15$ (by factoring); verify solutions by evaluation. A.FO.08.09 Solve applied problems involving simple quadratic equations.		

Michigan District Lutheran School Curriculum *TEACHER ACCOUNTABILITY RECORD*

2B: Recognize, represent, and apply common formulas **Teacher name:_____** **Grade Level: Eighth Grade**	**Curricular Area: Mathematics/ Unit 2- Algebra** **School Year:**				
Michigan Standard, Benchmark, or *GLCE* (Italics indicate the one used)	**Dates Taught (month/day/initials):**				
A.FO.08.07 Recognize and apply the common formulas: $(a + b)^2 = a^2 + 2\ ab + b^2$ $(a – b)^2 = a^2 – 2\ ab + b^2$ $(a + b)\ (a – b) = a^2 – b^2$; represent geometrically.					
A.FO.08.08 Factor simple quadratic expressions with integer coefficients, e.g., $x^2 + 6x + 9$m $x^2 + 2x – 3$, and $x^2 – 4$; solve simple quadratic equations, e.g., $x^2 = 16$ or $x^2 = 5$ (by taking square roots); $x^2 – x – 6 = 0$, $x^2 – 2x = 15$ (by factoring); verify solutions by evaluation.					
A.FO.08.09 Solve applied problems involving simple quadratic equations.					

Outcome: 2C: Understand solutions and solve equations, simultaneous equations, and linear inequalities.

Grade Level Content Expectations (GLCEs)	**Michigan Benchmarks**	**Teaching The Faith Activities**
A.FO.08.10 Understand that to solve the equations f(x) = g(x) means to find all values of x for which the equation is true, e.g., determine whether a given value, or values from a given set, is a solution of an equation (0 is a solution of $3x^2 + 2 = 4x + 2$, but 1 is not a solution). A.F0.08.11 Solve simultaneous linear equations in two variables by graphing, by substitution, and by linear combination; estimate solutions using graphs; include examples with no solutions and infinitely many solutions. A.FO.08.12 Solve linear inequalities in one and two variables and graph the solution sets. A.FO.08.13 Set up and solve applied problems involving simultaneous linear equations and linear inequalities.	V.2.1. Read and write algebraic expressions; develop original examples expressed verbally and algebraically; simplify expressions and translate between verbal and algebraic expressions; and solve linear equations and inequalities. V.2.2. Represent algebraic concepts with geometric models (e.g., algebra tiles), physical models (e.g., balance beam), tables and graphs; and write algebraic expressions to correspond to the multiple representations.	

Michigan District Lutheran School Curriculum *OUTCOMES*

Curricular Area: Mathematics Grade 8 Geometry

Outcome: 3A: Understand and use the Pythagorean Theorem

Grade Level Content Expectations (GLCEs)	**Michigan Benchmarks**	**Teaching The Faith Activities**
G.GS.08.01 Understand at least one proof of the Pythagorean Theorem; use the Pythagorean Theorem and its converse to solve applied problems including perimeter; area, and volume problems. G.LO.08.02 Find the distance between two points on the coordinate plane using the distance formula; recognize that the distance formula is an application of the Pythagorean Theorem.	II.1.7 Use shape, shape properties and shape relationships to describe the physical world and to solve problems II.2.4. Locate the position of points or objects described by two or more conditions; locate all the points (locus) that satisfy a given condition.	

Michigan District Lutheran School Curriculum *TEACHER ACCOUNTABILITY RECORD*

3A: Understand and use the Pythagorean Theorem **Teacher name:_____** **Grade Level: Eighth Grade**	**Curricular Area: Mathematics/ Unit 3 - Geometry** **School Year:**				
Michigan Standard, Benchmark, or *GLCE* (Italics indicate the one used)	**Dates Taught (month/day/initials):**				
G.GS.08.01 Understand at least one proof of the Pythagorean Theorem; use the Pythagorean Theorem and its converse to solve applied problems including perimeter; area, and volume problems					
G.LO.08.02 Find the distance between two points on the coordinate plane using the distance formula; recognize that the distance formula is an application of the Pythagorean Theorem.					

Outcome: 3B: Solve problems about geometric figures.

Grade Level Content Expectations (GLCEs)	**Michigan Benchmarks**	**Teaching The Faith Activities**
G.SR.08.03 Understand the definition of a circle; know and use the formulas for circumference and area of a circle to solve problems. G.SR.08.04 Find area and perimeter of complex figures by sub-dividing them into basic shapes (quadrilaterals, triangles, circles). G.SR.08.05 Solve applied problems involving areas of triangles, quadrilaterals, and circles.	II.1.2. Generalize the characteristics of shapes and apply their generalizations to classes of shapes. II.1.5 Combine, dissect and transform shapes II.1.7 Use shape, shape properties and shape relationships to describe the physical world and to solve problems. II.3.5**.** Use proportional reasoning and indirect measurements to draw inferences.	-Write five if-then statements about one of the following topics: salvation, Baptism, the Lord's Supper.

Michigan District Lutheran School Curriculum *TEACHER ACCOUNTABILITY RECORD*

3B: Solve problems about geometric figures **Teacher name:_____** **Grade Level: Eighth Grade**	**Curricular Area: Mathematics/Unit 3- Geometry** **School Year:**				
Michigan Standard, Benchmark, or *GLCE* **(Italics indicate the one used)**	**Dates Taught (month/day/initials):**				
G.SR.08.03 Understand the definition of a circle; know and use the formulas for circumference and area of a circle to solve problems					
G.SR.08.04 Find area and perimeter of complex figures by sub-dividing them into basic shapes (quadrilaterals, triangles, circles).					
G.SR.08.05 Solve applied problems involving areas of triangles, quadrilaterals, and circles.					

Outcome: 3C: Understand concepts of volume and surface area, and apply formulas

Grade Level Content Expectations (GLCEs)	II.1.2. Generalize the characteristics of shapes and apply their generalizations to classes of shapes.	**Teaching The Faith Activities**
G.SR.08.06 Know the volume formulas for generalized cylinders ((area of base) x height), generalized cones and pyramids (1/3(area of base) x height), and spheres (4/3 π (radius)^3). G.SR.08.07 Understand the concept of surface area and find the surface area of prisms, cones, spheres, pyramids, and cylinders.	II.3.5. Use proportional reasoning and indirect measurements to draw inferences.	Make spheres of several sizes by putting papier-mâché around inflated balloons. Paint the spheres to represent the earth and the other planets. Form them into a mobile of the solar system and hang it in the classroom. Title the mobile, "God Created the Heavens and the Earth." Estimate and calculate the volume and surface area for each planet replica. Pretend you are sailing with the Saxon immigrants to the new world. All that a family of four persons is permitted to take along, with the exception of food and clothing, must fit into a box measuring 2.5' x 5' x 2'. What would you choose to take? In groups of four, make a list of what the four of them would put into their trunk. Compute the volume in modern terms, and build a replica (of cardboard or wood) of the Ark of the Covenant. Replicate its contents as well. Design and build a scale model of the tabernacle, the Ark of the Covenant, your church, your school, or a home of Bible times. Calculate the surface area of each geometric shape found in your models. Find or create religious symbols that are composed of chords and/or tangents and/or secants. Find the measurements of various complementary and supplementary angles. Copy the symbols onto an unlined piece of paper and beneath each symbol explain its meaning. What does congruent mean? Are all people

		congruent in the eyes of God? If so, how? See Rom. 3:22-24. Christ is the transversal that runs through all pages of Holy Scripture. How is this possible, since He wasn't born until the New Testament time? -As a class, use trigonometry to explore and appreciate both God's creation and the structures He has given us the knowledge, skill, and materials to build. Divide the class into groups and define the sine, cosine, and/or tangent of angles formed when looking at the height of a church, distance across a lake, etc.

Michigan District Lutheran School Curriculum *TEACHER ACCOUNTABILITY RECORD*

3C: Understand concepts of volume and surface area, and apply formulas **Teacher name:_____** **Grade Level: Eighth Grade**	**Curricular Area: Mathematics/ Unit 3 - Geometry** **School Year:**				
Michigan Standard, Benchmark, or *GLCE* **(Italics indicate the one used)**	**Dates Taught (month/day/initials):**				
G.SR.08.06 Know the volume formulas for generalized cylinders ((area of base) x height), generalized cones and pyramids (1/3(area of base) x height), and spheres (4/3 π (radius)^3).					
G.SR.08.07 Understand the concept of surface area and find the surface area of prisms, cones, spheres, pyramids, and cylinders.					

Outcome: 3D: Visualize solids

Grade Level Content Expectations (GLCEs)	**Michigan Benchmarks**	**Teaching The Faith Activities**
G.SR.08.08 Sketch a variety of two-dimensional representations of three-dimensional solids including orthogonal views, (top, front, and side), picture views (projective or isometric), and nets; use such two-dimensional representations to help solve problems.	II.1.4. Construct familiar shapes using coordinates, appropriate tools (including technology), sketching and drawing two- and three-dimensional shapes II.1.7 Use shape, shape properties and shape relationships to describe the physical world and to solve problems.	

Michigan District Lutheran School Curriculum *TEACHER ACCOUNTABILITY RECORD*

3D: Visualize solids **Teacher name:_____** **Grade Level: Eighth Grade**	**Curricular Area: Mathematics/ Unit 3 - Geometry** **School Year:**				
Michigan Standard, Benchmark, or *GLCE* **(Italics indicate the one used)**	**Dates Taught (month/day/initials):**				
G.SR.08.08 Sketch a variety of two-dimensional representations of three-dimensional solids including orthogonal views, (top, front, and side), picture views (projective or isometric), and nets; use such two-dimensional representations to help solve problems.					

Outcome: 3E: Understand and apply concepts of transformation and symmetry.

Grade Level Content Expectations (GLCEs)	**Michigan Benchmarks**	**Teaching The Faith Activities**
G.RT.08.09 Understand the definition of a dilation from a point in the plane, and relate it to the definition of similar polygons. G.RT.08.10 Understand and use reflective and rotational symmetries of two-dimensional shapes and relate them to transformations to solve problems.	II.1.6 Generalize about the common properties of similar, congruent, parallel and perpendicular shapes and verify their generalizations informally II.2.2**.** Locate and describe objects in terms of their orientation and relative position, including coincident, collinear, parallel, perpendicular; differentiate between fixed (e.g., N-S-E-W) and relative (e.g., right-left) orientations; recognize and describe Examples of bilateral and rotational symmetry. II.2.3. Describe translations, reflections, rotations and dilations using the language of transformations, and employ transformations to verify congruence of figures.	

Michigan District Lutheran School Curriculum *TEACHER ACCOUNTABILITY RECORD*

3E: Understand and apply concepts of transformation and symmetry **Teacher name:_____** **Grade Level: Eighth Grade**	**Curricular Area: Mathematics/ Unit 3 - Geometry** **School Year:**				
Michigan Standard, Benchmark, or *GLCE* **(Italics indicate the one used)**	**Dates Taught (month/day/initials):**				
G.RT.08.09 Understand the definition of a dilation from a point in the plane, and relate it to the definition of similar polygons					
G.RT.08.10 Understand and use reflective and rotational symmetries of two-dimensional shapes and relate them to transformations to solve problems					

Michigan District Lutheran School Curriculum *OUTCOMES*

Curricular Area: Mathematics Grade 8 Data Analysis and Statistics

Outcome: 4A: Draw, explain, and justify conclusions based on data.

Grade Level Content Expectations (GLCEs)	**Michigan Benchmarks**	**Teaching The Faith Activities**
D.AN.08.01 Determine which measures of central tendency (mean, median, mode) best represents a data set, e.g., salaries, home prices, for answering certain questions; justify the choice made. D.AN.08.02 Recognize practices of collecting and displaying data that may bias the presentation or analysis.	III.2.2**.** Describe the shape of a data distribution and identify the center, the spread, correlations and any outliers III.2.4**.** Critically question the sources of data; the techniques used to collect, organize and present data; the inferences drawn from the data; and the possible sources of bias in the data or their presentation.	Make a line graph to indicate the number of Lutherans in the U.S. at each 10-year interval beginning with the year 1900. Use a circle graph to show the percentages of the world's population that belong to its major religions. Compare with figures available for 20 years ago; for 40 years ago.

Michigan District Lutheran School Curriculum *TEACHER ACCOUNTABILITY RECORD*

4A: Draw, explain, and justify conclusions based on data **Teacher name:_____** **Grade Level: Eighth Grade**	**Curricular Area: Mathematics/ Unit 4 – Data and Probability** **School Year:**				
Michigan Standard, Benchmark, or *GLCE* **(Italics indicate the one used)**	**Dates Taught (month/day/initials):**				
D.AN.08.01 Determine which measures of central tendency (mean, median, mode) best represents a data set, e.g., salaries, home prices, for answering certain questions; justify the choice made					
D.AN.08.02 Recognize practices of collecting and displaying data that may bias the presentation or analysis.					

Outcome: 4B: Understand probability concepts for simple and compound events.

Grade Level Content Expectations (GLCEs)	**Michigan Benchmarks**	**Teaching The Faith Activities**
D.PR.08.03 Compute relative frequencies from a table of experimental results for a repeated event. Interpret the results using the relationship of probability to of relative frequency. D.PR.08.04 Apply the Basic Counting Principle to find total number of outcomes possible for independent and dependent events, and calculate the probabilities using organized lists or tree diagrams. D.PR.08.05 Find and/or compare the theoretical probability, the experimental probability, and/or the relative frequency of a given event. D.PR.08.06 Understand the difference between independent and dependent events, and recognize common misconceptions involving probability, e.g., Alice rolls a 6 on a die three times in a row; she is just as likely to roll a 6 on the fourth roll as she was on any previous roll.	VI.1.3. Conduct experiments and give examples to illustrate the difference between dependent and independent events. VI.1.4. Explain the difference between probabilities determined from experiments or chance events (empirical) and probabilities derived mathematically (theoretical), and explain how the empirical probability changes for a large number of trials. VI.1.5. Conduct probability experiments and simulations to model and solve problems. VI.2.1. Use manipulatives, diagrams and the fundamental theorem of counting to count permutations and combinations.	Some things in life are probable, yet for Christians several things are absolutely certain. After discussing the certainties upon which Christians can depend, write a list of them on the board. What would probability laws suggest about these certainties? (They probably would not be certainties.) Form a circle and join hands. Have a circle prayer thanking God for His unchangeable and unfailing goodness. Answer questions like the following: What is the probability that God loves me? What is the probability I could get to heaven without Jesus? Discuss why the rules of probability don't apply here.

Michigan District Lutheran School Curriculum *TEACHER ACCOUNTABILITY RECORD*

4B: Understand probability concepts for simple and compound events **Teacher name:_____** **Grade Level: Eighth Grade**	**Curricular Area: Mathematics/ Unit 4 – Data and Probability** **School Year:**				
Michigan Standard, Benchmark, or *GLCE* **(Italics indicate the one used)**	**Dates Taught (month/day/initials):**				
D.PR.08.03 Compute relative frequencies from a table of experimental results for a repeated event. Interpret the results using the relationship of probability to of relative frequency.					
D.PR.08.04 Apply the Basic Counting Principle to find total number of outcomes possible for independent and dependent events, and calculate the probabilities using organized lists or tree diagrams.					
D.PR.08.05 Find and/or compare the theoretical probability, the experimental probability, and/or the relative frequency of a given event.					
D.PR.08.06 Understand the difference between independent and dependent events, and recognize common misconceptions involving probability, e.g., Alice rolls a 6 on a die three times in a row; she is just as likely to roll a 6 on the fourth roll as she was on any previous roll.					