# PA Core Standards For Mathematics
# Curriculum Framework
# Grade Level 3

| Grade | Big Idea | Essential Questions | Concepts | Competencies | Standard | Eligible Content | Vocabulary |
|---|---|---|---|---|---|---|---|
| 3 | Mathematical relationships among numbers can be represented, compared, and communicated.<br><br>Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations.<br><br>Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.<br><br>Patterns exhibit relationships that can be extended, described, and generalized. | How is mathematics used to quantify, compare, represent, and model numbers?<br>How can mathematics support effective communication?<br><br>How are relationships represented mathematically?<br><br>What does it mean to estimate or analyze numerical quantities?<br><br>What makes a tool and/or strategy appropriate for a given task?<br><br>When is it is appropriate to estimate versus calculate?<br><br>How can patterns be used to describe relationships in mathematical situations? | Place Value and Properties of Operations | Perform multi-digit arithmetic.<br><br>Demonstrate fluency of addition and subtraction.<br><br>Round whole numbers to the nearest ten or hundred. | CC.2.1.3.B.1 | M03.A-T.1.1.1<br>M03.A-T.1.1.2<br>M03.A-T.1.1.3<br>M03.A-T.1.1.4 | Area<br>Denominator<br>Division<br>Equivalent fractions<br>Estimate<br>Fraction<br>Linear<br>Liquid Volume<br>Mass<br>Numerator<br>Pattern<br>Pentagon<br>Perimeter<br>Pictograph<br>Polygon<br>Quadrilateral<br>Rhombus<br>Round<br>Square Unit<br>Tally Chart<br>Temperature |
| 3 | Mathematical relationships among numbers can be represented, compared, and communicated.<br><br>Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations.<br><br>Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools. | How is mathematics used to quantify, compare, represent, and model numbers?<br><br>How can mathematics support effective communication?<br><br>How are relationships represented mathematically?<br><br>What does it mean to estimate or analyze numerical quantities?<br><br>What makes a tool and/or strategy appropriate for a given task? | Fractions | Develop an understanding of fractions as numbers.<br><br>Represent fractions on a number line.<br><br>Represent and generate equivalent fractions.<br><br>Compare fractions with the same numerator or same denominator. | CC.2.1.3.C.1 | M03.A-F.1.1.1<br>M03.A-F.1.1.2<br>M03.A-F.1.1.3<br>M03.A-F.1.1.4<br>M03.A-F.1.1.5 | |
| 3 | Mathematical relationships | How is mathematics used to quantify, | Multiplication | Demonstrate an understanding | CC.2.2.3.A.1 | M03.B-O.1.1.1 | |

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| | among numbers can be represented, compared, and communicated.<br><br>Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations. | compare, represent, and model numbers?<br><br>How can mathematics support effective communication?<br><br>How are relationships represented mathematically?<br><br>How can expressions, equations and inequalities be used to quantify, solve, model, and/or analyze mathematical situations? | and Division | of properties of multiplication.<br><br>Demonstrate an understanding of the relationship between multiplication and division.<br><br>Demonstrate fluency. | CC.2.2.3.A.2<br>CC.2.2.3.A.3 | M03.B-O.1.1.2<br>M03.B-O.1.2.1<br>M03.B-O.1.2.2<br>M03.B-O.2.1.1<br>M03.B-O.2.1.2<br>M03.B-O.2.2.1 | |
| **3** | Mathematical relationships among numbers can be represented, compared, and communicated.<br><br>Patterns exhibit relationships that can be extended, described, and generalized.<br><br>Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.<br><br>Data can be modeled and used to make inferences. | How is mathematics used to quantify, compare, represent, and model numbers?<br><br>How can mathematics support effective communication?<br><br>How can patterns be used to describe relationships in mathematical situations?<br><br>How can recognizing repetition or regularity assist in solving problems more efficiently?<br><br>How can data be organized and represented to provide insight into the relationship between quantities?<br><br>How can probability and data analysis be used to make predictions? | Patterns | Represent and solve problems.<br><br>Identify and explain patterns in arithmetic (including addition and subtraction). | CC.2.2.3.A.4 | M03.B-O.3.1.1<br>M03.B-O.3.1.2<br>M03.B-O.3.1.3<br>M03.B-O.3.1.4<br>M03.B-O.3.1.5<br>M03.B-O.3.1.6<br>M03.B-O.3.1.7 | |
| **3** | Patterns exhibit relationships that can be extended, described, and generalized.<br><br>Geometric relationships can | How can patterns be used to describe relationships in mathematical situations?<br><br>How can recognizing repetition or | Two- and Three-Dimensional Figures | Identify and classify shapes and their attributes.<br><br>Compare shapes. | CC.2.3.3.A.1 | M03.C-G.1.1.1<br>M03.C-G.1.1.2 | |

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| | be described, analyzed, and classified based on spatial reasoning and/or visualization. | regularity assist in solving problems more efficiently?<br><br>How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving?<br><br>How can geometric properties and theorems be used to describe, model, and analyze situations? | | | | | |
| **3** | Patterns exhibit relationships that can be extended, described, and generalized.<br><br>Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization. | How can patterns be used to describe relationships in mathematical situations?<br><br>How can recognizing repetition or regularity assist in solving problems more efficiently?<br><br>How are spatial relationships, including shape and dimension, used to draw, construct, model, and represent real situations or solve problems?<br><br>How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving?<br><br>How can geometric properties and theorems be used to describe, model, and analyze situations? | Fractions and Area | Partition two-dimensional shapes into equal parts.<br><br>Express the area of a partition as a unit fraction of the whole. | CC.2.3.3.A.2 | M03.C-G.1.1.3 | |
| **3** | Numerical quantities, | What does it mean to estimate or | Measuremen | Solve problems. | CC.2.4.3.A.1 | M03.D-M.1.2.1 | |

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| | calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.<br><br>Measurement attributes can be quantified, and estimated using customary and non-customary units of measure. | analyze numerical quantities?<br><br>When is it is appropriate to estimate versus calculate?<br><br>What makes a tool and/or strategy appropriate for a given task?<br><br>Why does "what" we measure influence "how" we measure?<br><br>In what ways are the mathematical attributes of objects or processes measured, calculated and/or interpreted?<br><br>How precise do measurements and calculations need to be? | t | Make estimations.<br><br>Determine the area of a rectangle as it relates to multiplication and addition.<br><br>Determine perimeter or side lengths of various polygons.<br><br>Distinguish between linear and area measurements. | CC.2.4.3.A.5<br>CC.2.4.3.A.6 | M03.D-M.1.2.2<br>M03.D-M.1.2.3<br>M03.D-M.3.1.1<br>M03.D-M.3.1.2<br>M03.D-M.4.1.1 | |
| **3** | Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.<br><br>Measurement attributes can be quantified, and estimated using customary and non-customary units of measure. | What does it mean to estimate or analyze numerical quantities?<br><br>When is it is appropriate to estimate versus calculate?<br><br>How precise do measurements and calculations need to be? | Time | Solve problems.<br><br>Make estimations.<br><br>Tell and write time to nearest minute.<br><br>Calculate time intervals. | CC.2.4.3.A.2 | M03.D-M.1.1.1<br>M03.D-M.1.1.2 | |
| **3** | Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.<br><br>Measurement attributes can be quantified, and estimated using customary and non- | What does it mean to estimate or analyze numerical quantities?<br><br>When is it is appropriate to estimate versus calculate?<br><br>What makes a tool and/or strategy appropriate for a given task?<br><br>How precise do measurements and | Money (Coins and Bills) | Solve problems.<br><br>Make estimations.<br><br>Make change using combination of coins and bills. | CC.2.4.3.A.3 | M03.D-M.1.3.1<br>M03.D-M.1.3.2<br>M03.D-M.1.3.3 | |

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| | customary units of measure. | calculations need to be? | | | | | |
| 3 | Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.<br><br>Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.<br><br>Data can be modeled and used to make inferences. | What does it mean to estimate or analyze numerical quantities?<br><br>When is it is appropriate to estimate versus calculate?<br><br>How can data be organized and represented to provide insight into the relationship between quantities?<br><br>How does the type of data influence the choice of display?<br><br>How can probability and data analysis be used to make predictions?<br><br>What makes a tool and/or strategy appropriate for a given task? | Data Displays | Solve problems.<br><br>Make estimations.<br><br>Represent and interpret data using various displays. | CC.2.4.3.A.4 | M03.D-M.2.1.1<br>M03.D-M.2.1.2<br>M03.D-M.2.1.3<br>M03.D-M.2.1.4 | |