STANDARDS ALIGNMENT GUIDE

Texas State Standards
Mathematics Grade 5

INTRODUCTION

Minecraft: Education Edition is an open-world game that promotes creativity, collaboration, and problem-solving in an immersive environment where the only limit is your imagination. As a game-based learning platform, Minecraft offers educators a transformative way to engage students and ignite their passion for learning. Teacher from around the world are using Minecraft in their classroom to successfully:

- Increase Student Engagement,
- Facilitate Classroom Collaboration
- Provide opportunities for Creative Exploration
- Connect Learning to Tangible Outcomes

This alignment guide will provide you with links to activities you can use in your classroom. These activities take full advantage of Minecraft's capabilities to complement and enhance classroom teaching. In this guide, you will find a list of applicable standards along with links and descriptions of Minecraft activities that focus on each objective.

For more information on using Minecraft in your classroom or to find additional education resources and training materials, visit us online.

education.minecraft.net

MATHEMATICAL PROCESS STANDARDS

STANDARD	DESCRIPTION	ACTIVITY
The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:		
111.7.b.1.A	Apply mathematics to problems arising in everyday life, society, and the workplace.	Angler Arithmetic – Cool math! Gamify Math Class or use Game-Based Learning and Project-Based Learning with a healthy dose of competition to engage students of all ages with FISHING Crafting your Review Students learn more by teaching others, and having them create a review for content learned is a great way to get them thinking and problem-solving. Fraction World Based on a lesson plan submitted by another user, wold download available. How Fast Can you Go? Students will understand how challenging it was to walk for thousands of miles. Math all Around Us See around where you can find something about math. Maths Decimal Garden Expanded upon world credit to https://education.minecraft.net/lessons/decimalfraction-garden/ for original lesson and world. Minecraft I Skolan Allt fler skolor i Sverige använder Minecraft i skolan för att träna samarbete och kreativa lösningar på utmaningar Steve's New Home Steve has just arrived in a new land and has no-where to live. All he has with him is £300 to buy resources and build a new home. Take it or Leave it? Discerning what to take and leave behind is an important skills for students to gain.
111.7.b.1.B	Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution.	Angler Arithmetic – Cool math! Gamify Math Class or use Game-Based Learning and Project-Based Learning with a healthy dose of competition to engage students of all ages with FISHING Area and Volume This project aims to enhance understanding in the concepts of area and volume in Grade 5 students. Dream Scream Machines This lesson plan was the finishing point for a brief introduction to quadratic functions. Fraction World Based on a lesson plan submitted by another user, wold download available. How Fast Can you Go?

		Students will understand how challenging it was to walk for thousands of miles.
		Math all Around Us
		See around where you can find something about math.
		Maths Decimal Garden
		Expanded upon world credit to https://education.minecraft.net/lessons/decimalfraction-garden/ for original lesson and world.
		Mi Colegio en Minecraft
		Se trata de realizar una reproducción a escala del centro educativo en Minecraft. Para ello los alumnos profundizarán en conceptos como escala, etc.
		Minecraft I Skolan
		Allt fler skolor i Sverige använder Minecraft i skolan för att träna samarbete och kreativa lösningar på utmaningar
		Steve's New Home
		Steve has just arrived in a new land and has no-where to live. All he has with him is £300 to buy resources and build a new home.
		Svet Posloupnosti
		Žáci řešení hádanky, které jsou uspořádané do 3 částí stupňující se obtížnosti. Pokud správně zodpoví řešení, získají část hesla SWAYového dokumentu
		Take it or Leave it?
		Discerning what to take and leave behind is an important skills for students to gain.
		Virtual Worksheet (Triangles)
		In this virtual world one can acquire a great range of knowledge.
		City Planning - Survival Roads
		Students will build roads that are 0.2 kilometers long and write equations to figure out how many blocks they will need.
		Crafting Fractions
		Students will observe crafting recipes, write them as fractions, and then use that knowledge to make an escape!
		Dividing Fractions Capture the Flag
		Build math models that represent dividing whole numbers with fractions. Then they will play capture the flag using the math models as obstacles.
		Fraction Capture the Flag
		Solve fraction problems, peer review math models based on solutions and use the models to play a mini-game.
		Fractions and Multiplication Video
		Observe and build math models that show patterns when multiplying numbers greater than, less than, or equal to 1. Create a video to show knowledge.
		Fraction Farm

		Explore math models of addition and subtraction problems with fractions then create a plan for a farm in Minecraft using what you've learned.
		Fractions in Minecraft
		Students will build math models that correspond to fraction operations and solve four to six problems per standard.
		Javelin Line Plots-3
		Students engage in a javelin throwing competition in Minecraft, plotting the distances and scores on line plot graphs in the game.
		Long Division in Minecraft
		Students will build long division math models in Minecraft and solve division problems on paper using the algorithm.
		Measurement Mini Game
		Students will play, examine, and create plans for a mini game that is 120 meters long and document their work.
		Minecraft Math Gladiators (MMG): Regrouping Obstacle Course
		Inside Minecraft Math Gladiators students will watch videos that will help them find strategies for regrouping.
		Minecraft Math Gladiators (MMG): Wither Battle Regrouping
		Students take part in a gameshow mini game. Inside they will regroup numbers in Minecraft and work together to fight the Wither Boss.
		Multi Digit Multiplication
		Students will solve and build area models of multi digit multiplication problems.
		Decimal Dungeon – Part 1
		Decimal Dungeon – Part 2
		Decimal Dungeon – Part 3
		Decimal Dungeon – Part 4
		Decimal Dungeon – Part 5
		Explore the Decimal Dungeon in a five-part unit on Numbers & Operations in Base Ten where students observe and build math models to solve problems.
		Subtraction + Regrouping CTF
		Students will view and build math models of base 10 subtraction problems.
		Volume World
		Students will learn about volume by filling sandboxes, creating equations, and finding the total amount of block in rectangular prisms.
111.7.b.1.C	Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems.	Angler Arithmetic – Cool math!
		Gamify Math Class or use Game-Based Learning and Project-Based Learning with a healthy dose of competition to engage students of all ages with FISHING

		Area and Volume
		This project aims to enhance understanding in the concepts of area and volume in Grade 5 students.
		Dream Scream Machines
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		Allt fler skolor i Sverige använder Minecraft i skolan för att träna samarbete och kreativa lösningar på utmaningar
		Steve's New Home
		Steve has just arrived in a new land and has no-where to live. All he has with him is £300 to buy resources and build a new home.
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		Žáci řešení hádanky, které jsou uspořádané do 3 částí stupňující se obtížnosti. Pokud správně zodpoví řešení, získají část hesla SWAYového dokumentu
		Take it or Leave it?
		Discerning what to take and leave behind is an important skills for students to gain.
		Virtual Worksheet (Triangles)
		In this virtual world one can acquire a great range of knowledge.
		City Planning - Survival Roads
		Students will build roads that are 0.2 kilometers long and write equations to figure out how many blocks they will need.
		Crafting Fractions
		Students will observe crafting recipes, write them as fractions, and then use that knowledge to make an escape!
		Dividing Fractions Capture the Flag
		Build math models that represent dividing whole numbers with fractions. Then they will play capture the flag using the math models as obstacles.

		Fraction Capture the Flag Solve fraction problems, peer review math models based on solutions and use the models to play a mini-game. **Fractions and Multiplication Video** Observe and build math models that show patterns when multiplying numbers greater than, less than, or equal to 1. Create a video to show knowledge. **Fraction Farm** Explore math models of addition and subtraction problems with fractions then create a plan for a farm in Minecraft using what you've learned. **Fractions in Minecraft** Students will build math models that correspond to fraction operations and solve four to six problems per standard. **Javelin Line Plots-3** Students engage in a javelin throwing competition in Minecraft, plotting the distances and scores on line plot graphs in the game. **Long Division in Minecraft** Students will build long division math models in Minecraft and solve division problems on paper using the algorithm. **Measurement Mini Game** Students will play, examine, and create plans for a mini game that is 120 meters long and document their work. **Minecraft Math Gladiators (MMG): Regrouping Obstacle Course** Inside Minecraft Math Gladiators students will watch videos that will help them find strategies for regrouping. **Minecraft Math Gladiators (MMG): Wither Battle Regrouping** Students take part in a gameshow mini game. Inside they will regroup numbers in Minecraft and work together to fight the Wither Boss. **Multi Digit Multiplication** Students will solve and build area models of multi digit multiplication problems. **Decimal Dungeon – Part 1** **Decimal Dungeon – Part 2** **Decimal Dungeon – Part 3** **Decimal Dungeon – Part 4** **Decimal Dungeon – Part 5** Explore the Decimal Dungeon in a five-part unit on Numbers & Operations in Base Ten where students observe and build math models to solve problems. **Subtraction + Regrouping CTF** Students will view and build math models of base 10 subtraction problems. **Volume World**

		Students will learn about volume by filling sandboxes, creating equations, and finding the total amount of block in rectangular prisms.
111.7.b.1.D	Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.	Crafting your Review Students learn more by teaching others, and having them create a review for content learned is a great way to get them thinking and problem-solving. Math all Around Us See around where you can find something about math. Breaking Numbers Break down arrays and rebuild them in groups of equal numbers to understand how number families are the key to the multiplication and division. Build a Clock! Student will learn about how to read time by building a clock in Minecraft. They will do this by using command blocks with the testforblock and setblock commands. Then they will build a minecart ticker to start the clock and keep time. Build a Two-Step Word Problem Design and solve a two-step word problem by building it as scene in Minecraft. Two Step Word Problems Design and solve a two-step word problem by building it as scene in Minecraft. Build a Word Problem Students will use blocks in the game to solve multiplication or division world problems and then create a video to show understanding. Building Word Problems Build a scene in Minecraft that tells a story involving multiplication or division. Capture the Flag! Students will be able to build and explain Minecraft math models that show the relationship between equivalent fractions. Then add design purpose to their models by using them strategically in a mini-game. City Planning - Survival Roads Students will build roads that are 0.2 kilometers long and write equations to figure out how many blocks they will need. Classifying Quadrilaterals Define, build, and classify quadrilaterals then will peer review classmates' structures by labeling shapes with signs and documentation. Commutative Property Bed Wars Build Minecraft math models that represent the commutative property of multiplication and use them in a mini-game. Coordinate Planes in Minecraft

		Students will use coordinate planes to plot points and draw lines with basic functions within Minecraft. Crafting Fractions Students will observe crafting recipes, write them as fractions, and then use that knowledge to make an escape! Dividing Fractions Capture the Flag Build math models that represent dividing whole numbers with fractions. Then they will play capture the flag using the math models as obstacles. Finding the Unknown Students construct math models in Minecraft to determine missing variables. Fraction Capture the Flag Solve fraction problems, peer review math models based on solutions and use the models to play a mini-game. Fractions and Multiplication Video Observe and build math models that show patterns when multiplying numbers greater than, less than, or equal to 1. Create a video to show knowledge. Fraction Farm Explore math models of addition and subtraction problems with fractions then create a plan for a farm in Minecraft using what you've learned. Javelin Line Plots-3 Students engage in a javelin throwing competition in Minecraft, plotting the distances and scores on line plot graphs in the game. Lines, Angles, and Architecture Students study lines and angles and use them to design a facade of a building. Liquid Measurements Students will use the fill command to fill up a liter measuring cup. Then they will design an aquarium that is 1000 blocks or 1,000,000 liters. They will build the aquarium with the fill command and make a coral reef. Long Division in Minecraft Students will build long division math models in Minecraft and solve division problems on paper using the algorithm. Math Bed Wars 2! Students build and explain Minecraft math models that show the inverse relationship between multiplication and division and add design purpose to their models by using them strategically in a mini-game. Measurement Mini Game Students will play, examine, and create plans for a mini game that is 120 meters long and document their work. Measuring Angles and Building Bridges

Students will explore parallel lines, perpendicular lines, acute angles, and obtuse angles and use this knowledge to design facades for buildings.

Minecraft Math Gladiators (MMG): Base Ten Puzzles
Students take part in a game show mini game. Inside they will learn how to solve problems using base-ten numerals.

Minecraft Math Gladiators (MMG): Elytra Flight Rounding
Solve Base 10 rounding math problems by playing the Minecraft Math Gladiators: Elytra Flight and Rounding mini-game.

Minecraft Math Gladiators (MMG): Regrouping Obstacle Course
Inside Minecraft Math Gladiators students will watch videos that will help them find strategies for regrouping.

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Students take part in a gameshow mini game. Inside they will regroup numbers in Minecraft and work together to fight the Wither Boss.

Multi Digit Multiplication
Students will solve and build area models of multi digit multiplication problems.

Number Pattern Architecture
Students explore math models to learn about arithmetic patterns and create towers in architectural designs.

Number Patterns Algebra Architecture
Students complete and document problems in Minecraft to find growth patterns and missing numbers then use a number pattern to build an architectural structure.

Points, Lines, Rays, Segments, and Droppers
Students will learn about 2D geometric figures by creating dropper games in Minecraft.

Regrouping Video
Students will be able to produce a video of them solving a three-digit addition and subtraction problem.

Repeated Addition with Parkour
Students analyze math models and build their own parkour course in Minecraft to demonstrate understanding.

Decimal Dungeon – Part 1
Decimal Dungeon – Part 2
Decimal Dungeon – Part 3
Decimal Dungeon – Part 4
Decimal Dungeon – Part 5
Explore the Decimal Dungeon in a five-part unit on Numbers & Operations in Base Ten where students observe and build math models to solve problems.

Round Number Video

			Students demonstrate rounding by breaking and placing blocks in Minecraft. They then set up their own problem, creating a video to explain their rounding. Subtraction + Regrouping CTF Students will view and build math models of base 10 subtraction problems. Survival City Making homes Part 1 Survival City Making homes Part 2 Survival City Making homes Part 3 Design a prototype of a home and find the area and perimeter. Survival City Making Roads Students will design a prototype of a home. Then they use their knowledge of area and perimeter to find out how much and what kind of materials they will need to build it in survival. Survival City Part 2 Survival City Part 3 Students will design a prototype of a home. Then they use their knowledge of area and perimeter to find out how much and what kind of materials they will need to build it in survival. Survival Olympics Students will fish, mine ores, and fight monsters. Then they will make and compare their activities to create bar graphs. Symmetry in Pixel Art Study and use lines of symmetry in pixel art. Design your own pixel art with a partner. Volume World Students will learn about volume by filling sandboxes, creating equations, and finding the total amount of block in rectangular prisms.
111.7.b.1.E	Create and use representations to organize, record, and communicate mathematical ideas.		Crafting your Review Students learn more by teaching others, and having them create a review for content learned is a great way to get them thinking and problem-solving. Math all Around Us See around where you can find something about math. Breaking Numbers Break down arrays and rebuild them in groups of equal numbers to understand how number families are the key to the multiplication and division. Build a Clock! Student will learn about how to read time by building a clock in Minecraft. They will do this by using command blocks with the testforblock and setblock commands. Then they will build a minecart ticker to start the clock and keep time. Build a Two-Step Word Problem

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Build a Word Problem
Students will use blocks in the game to solve multiplication or division world problems and then create a video to show understanding.
Building Word Problems
Build a scene in Minecraft that tells a story involving multiplication or division.
Capture the Flag!
Students will be able to build and explain Minecraft math models that show the relationship between equivalent fractions. Then add design purpose to their models by using them strategically in a mini-game.
City Planning - Survival Roads
Students will build roads that are 0.2 kilometers long and write equations to figure out how many blocks they will need.
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Crafting Fractions
Students will observe crafting recipes, write them as fractions, and then use that knowledge to make an escape!
Dividing Fractions Capture the Flag
Build math models that represent dividing whole numbers with fractions. Then they will play capture the flag using the math models as obstacles.
Finding the Unknown
Students construct math models in Minecraft to determine missing variables.
Fraction Capture the Flag
Solve fraction problems, peer review math models based on solutions and use the models to play a mini-game.
Fractions and Multiplication Video
Observe and build math models that show patterns when multiplying numbers greater than, less than, or equal to 1. Create a video to show knowledge.
Fraction Farm |

		Explore math models of addition and subtraction problems with fractions then create a plan for a farm in Minecraft using what you've learned.
		Javelin Line Plots-3
		Students engage in a javelin throwing competition in Minecraft, plotting the distances and scores on line plot graphs in the game.
		Lines, Angles, and Architecture
		Students study lines and angles and use them to design a facade of a building.
		Liquid Measurements
		Students will use the fill command to fill up a liter measuring cup. Then they will design an aquarium that is 1000 blocks or 1,000,000 liters. They will build the aquarium with the fill command and make a coral reef.
		Long Division in Minecraft
		Students will build long division math models in Minecraft and solve division problems on paper using the algorithm.
		Math Bed Wars 2!
		Students build and explain Minecraft math models that show the inverse relationship between multiplication and division and add design purpose to their models by using them strategically in a mini-game.
		Measurement Mini Game
		Students will play, examine, and create plans for a mini game that is 120 meters long and document their work.
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Points, Lines, Rays, Segments, and Droppers

Students will learn about 2D geometric figures by creating dropper games in Minecraft.

Regrouping Video

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Repeated Addition with Parkour

Students analyze math models and build their own parkour course in Minecraft to demonstrate understanding.

Decimal Dungeon – Part 1
Decimal Dungeon – Part 2
Decimal Dungeon – Part 3
Decimal Dungeon – Part 4
Decimal Dungeon – Part 5

Explore the Decimal Dungeon in a five-part unit on Numbers & Operations in Base Ten where students observe and build math models to solve problems.

Round Number Video

Students demonstrate rounding by breaking and placing blocks in Minecraft. They then set up their own problem, creating a video to explain their rounding.

Subtraction + Regrouping CTF

Students will view and build math models of base 10 subtraction problems.

Survival City Making homes Part 1
Survival City Making homes Part 2
Survival City Making homes Part 3

Design a prototype of a home and find the area and perimeter.

Survival City Making Roads

Students will design a prototype of a home. Then they use their knowledge of area and perimeter to find out how much and what kind of materials they will need to build it in survival.

Survival City Part 2
Survival City Part 3

Students will design a prototype of a home. Then they use their knowledge of area and perimeter to find out how much and what kind of materials they will need to build it in survival.

		Survival Olympics
		Students will fish, mine ores, and fight monsters. Then they will make and compare their activities to create bar graphs.
		Symmetry in Pixel Art
		Study and use lines of symmetry in pixel art. Design your own pixel art with a partner.
		Volume World
		Students will learn about volume by filling sandboxes, creating equations, and finding the total amount of block in rectangular prisms.
111.7.b.1.F	Analyze mathematical relationships to connect and communicate mathematical ideas.	Build a Two-Step Word Problem
		Design and solve a two-step word problem by building it as scene in Minecraft.
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		Design and solve a two-step word problem by building it as scene in Minecraft.
		Build a Word Problem
		Students will use blocks in the game to solve multiplication or division world problems and then create a video to show understanding.
		Capture the Flag!
		Students will be able to build and explain Minecraft math models that show the relationship between equivalent fractions. Then add design purpose to their models by using them strategically in a mini-game.
		Commutative Property Bed Wars
		Build Minecraft math models that represent the commutative property of multiplication and use them in a mini-game.
		Fraction Pixel Art
		Using a pixel art editor (or graph paper) students design an artwork, then break down the colors into fractions, discuss number patterns and unit fractions, then build their designs in Minecraft.
		Fractions Steeplechase
		Students will build and explain Minecraft math models that show fractions, improper fractions, and mixed numbers on number lines, then use number lines to create jumps for a horse race.
		Long Division in Minecraft
		Students will build long division math models in Minecraft and solve division problems on paper using the algorithm.
		Math Bed Wars 2!
		Students build and explain Minecraft math models that show the inverse relationship between multiplication and division and add design purpose to their models by using them strategically in a mini-game.

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		Repeated Addition with Parkour
		Students analyze math models and build their own parkour course in Minecraft to demonstrate understanding.
		Decimal Dungeon – Part 2
		Explore the Decimal Dungeon in a five-part unit on Numbers & Operations in Base Ten where students observe and build math models to solve problems.
		Survival City Making homes Part 2
		Survival City Making homes Part 3
		Design a prototype of a home and find the area and perimeter.
		Survival Olympics
		Students will fish, mine ores, and fight monsters. Then they will make and compare their activities to create bar graphs.
111.7.b.1.G	Display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.	Breaking Numbers
		Break down arrays and rebuild them in groups of equal numbers to understand how number families are the key to the multiplication and division.
		Building Word Problems
		Build a scene in Minecraft that tells a story involving multiplication or division.
		Crafting Fractions
		Students will observe crafting recipes, write them as fractions, and then use that knowledge to make an escape!
		Dividing Fractions Capture the Flag
		Build math models that represent dividing whole numbers with fractions. Then they will play capture the flag using the math models as obstacles.
		Finding the Unknown
		Students construct math models in Minecraft to determine missing variables.
		Fraction Capture the Flag
		Solve fraction problems, peer review math models based on solutions and use the models to play a mini-game.
		Fractions and Multiplication Video
		Observe and build math models that show patterns when multiplying numbers greater than, less than, or equal to 1. Create a video to show knowledge.
		Regrouping Video
		Students will be able to produce a video of them solving a three-digit addition and subtraction problem.
		Round Number Video

		Students demonstrate rounding by breaking and placing blocks in Minecraft. They then set up their own problem, creating a video to explain their rounding.

NUMBERS AND OPERATIONS

STANDARD	DESCRIPTION	ACTIVITY
The student applies mathematical process standards to represent, compare, and order positive rational numbers and understand relationships as related to place value. The student is expected to:		
111.7.b.2.A	Represent the value of the digit in decimals through the thousandths using expanded notation and numerals.	Decimal Dungeon – Part 1 Decimal Dungeon – Part 2 Explore the Decimal Dungeon in a five-part unit on Numbers & Operations in Base Ten where students observe and build math models to solve problems.
111.7.b.2.B	Compare and order two decimals to thousandths and represent comparisons using the symbols >, <, or =.	Fractions in Minecraft Students will build math models that correspond to fraction operations and solve four to six problems per standard. Decimal Dungeon – Part 2 Explore the Decimal Dungeon in a five-part unit on Numbers & Operations in Base Ten where students observe and build math models to solve problems.
111.7.b.2.C	Round decimals to tenths or hundredths.	Decimal Dungeon – Part 2 Explore the Decimal Dungeon in a five-part unit on Numbers & Operations in Base Ten where students observe and build math models to solve problems.
The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. The student is expected to:		
111.7.b.3.A	Estimate to determine solutions to mathematical and real-world problems involving addition, subtraction, multiplication, or division.	N/A
111.7.b.3.B	Multiply with fluency a three-digit number by a two-digit number using the standard algorithm.	Multi Digit Multiplication Students will solve and build area models of multi digit multiplication problems. Decimal Dungeon – Part 3 Explore the Decimal Dungeon in a five-part unit on Numbers & Operations in Base Ten where students observe and build math models to solve problems.
111.7.b.3.C	Solve with proficiency for quotients of up to a four-digit dividend by a two-digit divisor using strategies and the standard algorithm.	Long Division in Minecraft Students will build long division math models in Minecraft and solve division problems on paper using the algorithm. Decimal Dungeon – Part 5 Explore the Decimal Dungeon in a five-part unit on Numbers & Operations in Base Ten where students observe and build math models to solve problems.
111.7.b.3.D	Represent multiplication of decimals with products to the hundredths using objects and pictorial models, including area models.	N/A

111.7.b.3.E	Solve for products of decimals to the hundredths, including situations involving money, using strategies based on place-value understandings, properties of operations, and the relationship to the multiplication of whole numbers.	N/A
111.7.b.3.F	Represent quotients of decimals to the hundredths, up to four-digit dividends and two digit whole number divisors, using objects and pictorial models, including area models.	Decimal Dungeon – Part 5 Explore the Decimal Dungeon in a five-part unit on Numbers & Operations in Base Ten where students observe and build math models to solve problems.
111.7.b.3.G	Solve for quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using strategies and algorithms, including the standard algorithm.	Decimal Dungeon – Part 5 Explore the Decimal Dungeon in a five-part unit on Numbers & Operations in Base Ten where students observe and build math models to solve problems.
111.7.b.3.H	Represent and solve addition and subtraction of fractions with unequal denominators referring to the same whole using objects and pictorial models and properties of operations.	Fraction Farm Explore math models of addition and subtraction problems with fractions then create a plan for a farm in Minecraft using what you've learned. Javelin Line Plots-3 Students engage in a javelin throwing competition in Minecraft, plotting the distances and scores on line plot graphs in the game.
111.7.b.3.I	Represent and solve multiplication of a whole number and a fraction that refers to the same whole using objects and pictorial models, including area models.	Fraction Capture the Flag Solve fraction problems, peer review math models based on solutions and use the models to play a mini-game. Fractions in Minecraft Students will build math models that correspond to fraction operations and solve four to six problems per standard.
111.7.b.3.J	Represent division of a unit fraction by a whole number and the division of a whole number by a unit fraction such as 1/3 ÷ 7 and 7 ÷ 1/3 using objects and pictorial models, including area models.	Dividing Fractions Capture the Flag Build math models that represent dividing whole numbers with fractions. Then they will play capture the flag using the math models as obstacles.
111.7.b.3.K	Add And subtract positive rational numbers fluently.	Fraction Farm Explore math models of addition and subtraction problems with fractions then create a plan for a farm in Minecraft using what you've learned. Javelin Line Plots-3 Students engage in a javelin throwing competition in Minecraft, plotting the distances and scores on line plot graphs in the game. Fractions in Minecraft Students will build math models that correspond to fraction operations and solve four to six problems per standard. Decimal Dungeon – Part 4 Explore the Decimal Dungeon in a five-part unit on Numbers & Operations in Base Ten where students observe and build math models to solve problems.

| 111.7.b.3.L | Divide whole numbers by unit fractions and unit fractions by whole numbers. | Decimal Dungeon – Part 4
Explore the Decimal Dungeon in a five-part unit on Numbers & Operations in Base Ten where students observe and build math models to solve problems. |

ALGEBRAIC REASONING

STANDARD	DESCRIPTION	ACTIVITY
111.7.b.4.A	Identify prime and composite numbers.	Finding Factors Students will use a 100 chart on paper as a map to build rectangles that show the factors for each number between 1 and 100.
111.7.b.4.B	Represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity.	N/A
111.7.b.4.C	Generate a numerical pattern when given a rule in the form y = ax or y = x + a and graph.	N/A
111.7.b.4.D	Recognize the difference between additive and multiplicative numerical patterns given in a table or graph.	Number Patterns Algebra Architecture Students complete and document problems in Minecraft to find growth patterns and missing numbers then use a number pattern to build an architectural structure.
111.7.b.4.E	Describe the meaning of parentheses and brackets in a numeric expression.	City Planning - Survival Roads Students will build roads that are 0.2 kilometers long and write equations to figure out how many blocks they will need.
111.7.b.4.F	Simplify numerical expressions that do not involve exponents, including up to two levels of grouping.	City Planning - Survival Roads Students will build roads that are 0.2 kilometers long and write equations to figure out how many blocks they will need.
111.7.b.4.G	Use concrete objects and pictorial models to develop the formulas for the volume of a rectangular prism, including the special form for a cube (V = l x w x h, V = s x s x s, and V = Bh).	Area and Volume This project aims to enhance understanding in the concepts of area and volume in Grade 5 students.
111.7.b.4.H	Represent and solve problems related to perimeter and/or area and related to volume.	Area and Volume This project aims to enhance understanding in the concepts of area and volume in Grade 5 students. Survival City Part 2 Survival City Part 3 Students will design a prototype of a home. Then they use their knowledge of area and perimeter to find out how much and what kind of materials they will need to build it in survival. Volume World

		Students will learn about volume by filling sandboxes, creating equations, and finding the total amount of block in rectangular prisms.

GEOMETRY AND MEASUREMENT

STANDARD	DESCRIPTION	ACTIVITY
The student applies mathematical process standards to classify two-dimensional figures by attributes and properties. The student is expected to classify two-dimensional figures in a hierarchy of sets and subsets using graphic organizers based on their attributes and properties.		
111.7.b.5	The student applies mathematical process standards to classify two-dimensional figures by attributes and properties. The student is expected to classify two-dimensional figures in a hierarchy of sets and subsets using graphic organizers based on their attributes and properties.	Capture the Flag (Quadrilateral Capture the Flag) Compare, contrast and define different quadrilaterals. Build them on the map to play the capture the flag mini-game. Classifying Quadrilaterals Define, build, and classify quadrilaterals then will peer review classmates' structures by labeling shapes with signs and documentation. Lines, Angles, and Architecture Students study lines and angles and use them to design a facade of a building.
The student applies mathematical process standards to understand, recognize, and quantify volume. The student is expected to:		
111.7.b.6.A	Recognize a cube with side length of one unit as a unit cube having one cubic unit of volume and the volume of a three-dimensional figure as the number of unit cubes (n cubic units) needed to fill it with no gaps or overlaps if possible.	Area and Volume This project aims to enhance understanding in the concepts of area and volume in Grade 5 students. Volume World Students will learn about volume by filling sandboxes, creating equations, and finding the total amount of block in rectangular prisms.
111.7.b.6.B	Determine the volume of a rectangular prism with whole number side lengths in problems related to the number of layers times the number of unit cubes in the area of the base.	Area and Volume This project aims to enhance understanding in the concepts of area and volume in Grade 5 students. Volume World Students will learn about volume by filling sandboxes, creating equations, and finding the total amount of block in rectangular prisms.
The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving measurement. The student is expected to solve problems by calculating conversions within a measurement system, customary or metric.		
111.7.b.7	The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving measurement. The student is expected to solve problems by calculating conversions within a measurement system, customary or metric.	Measurement Mini Game Students will play, examine, and create plans for a mini game that is 120 meters long and document their work.
The student applies mathematical process standards to identify locations on a coordinate plane. The student is expected to:		

111.7.b.8.A	Describe the key attributes of the coordinate plane, including perpendicular number lines (axes) where the intersection (origin) of the two lines coincides with zero on each number line and the given point (0, 0); the x-coordinate, the first number in an ordered pair, indicates movement parallel to the x-axis starting at the origin; and the y-coordinate, the second number, indicates movement parallel to the y-axis starting at the origin.	Coordinate Planes in Minecraft Students will use coordinate planes to plot points and draw lines with basic functions within Minecraft.
111.7.b.8.B	Describe the process for graphing ordered pairs of numbers in the first quadrant of the coordinate plane.	Coordinate Planes in Minecraft Students will use coordinate planes to plot points and draw lines with basic functions within Minecraft.
111.7.b.8.C	Graph in the first quadrant of the coordinate plane ordered pairs of numbers arising from mathematical and real-world problems, including those generated by number patterns or found in an input-output table.	Coordinate Planes in Minecraft Students will use coordinate planes to plot points and draw lines with basic functions within Minecraft.

DATA ANALYSIS

STANDARD	DESCRIPTION	ACTIVITY
The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. The student is expected to:		
111.7.b.9.A	Represent categorical data with bar graphs or frequency tables and numerical data, including data sets of measurements in fractions or decimals, with dot plots or stem-and-leaf plots.	Javelin Line Plots Students will throw 10 tridents and track their distance on a line plot graph. Javelin Line Plots-3 Students engage in a javelin throwing competition in Minecraft, plotting the distances and scores on line plot graphs in the game. Survival Olympics Students will fish, mine ores, and fight monsters. Then they will make and compare their activities to create bar graphs.
111.7.b.9.B	Represent discrete paired data on a scatterplot.	N/A
111.7.b.9.C	Solve one- and two-step problems using data from a frequency table, dot plot, bar graph, stem-and-leaf plot, or scatterplot.	Javelin Line Plots Students will throw 10 tridents and track their distance on a line plot graph. Javelin Line Plots-3 Students engage in a javelin throwing competition in Minecraft, plotting the distances and scores on line plot graphs in the game. Survival Olympics Students will fish, mine ores, and fight monsters. Then they will make and compare their activities to create bar graphs.

PERSONAL FINANCIAL LITERACY

STANDARD	DESCRIPTION	ACTIVITY
The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. The student is expected to:		
111.7.b.10.A	Define income tax, payroll tax, sales tax, and property tax.	N/A
111.7.b.10.B	Explain the difference between gross income and net income.	N/A
111.7.b.10.C	Identify the advantages and disadvantages of different methods of payment, including check, credit card, debit card, and electronic payments.	N/A
111.7.b.10.D	Develop a system for keeping and using financial records.	Steve's New Home Steve has just arrived in a new land and has no-where to live. All he has with him is £300 to buy resources and build a new home.
111.7.b.10.E	Describe actions that might be taken to balance a budget when expenses exceed income.	Steve's New Home Steve has just arrived in a new land and has no-where to live. All he has with him is £300 to buy resources and build a new home.
111.7.b.10.F	Balance a simple budget.	Steve's New Home Steve has just arrived in a new land and has no-where to live. All he has with him is £300 to buy resources and build a new home.