



STANDARDS ALIGNMENT GUIDE

Minnesota State Standards Mathematics Grade 3

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. Teachers 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

Number & Operation

STANDARD	DESCRIPTION	ACTIVITY
Compare and represent whole numbers up to 100,000 with an emphasis on place value and equality.		
3.1.1.1	Read, write and represent whole numbers up to 100,000. Representations may include numerals, expressions with operations, words, pictures, number lines, and manipulatives such as bundles of sticks and base 10 blocks.	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.
3.1.1.2	Use place value to describe whole numbers between 1000 and 100,000 in terms of ten thousands, thousands, hundreds, tens and ones.	The Decimal Dungeon - Part 1 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.
3.1.1.3	Find 10,000 more or 10,000 less than a given five-digit number. Find 1000 more or 1000 less than a given four- or five-digit. Find 100 more or 100 less than a given four- or five-digit number.	N/A
3.1.1.4	Round numbers to the nearest 10,000, 1000, 100 and 10. Round up and round down to estimate sums and differences.	Minecraft Math Gladiators (MMG): Elytra Flight and Rounding Round Number Video Students will learn how to round to the nearest 10s and 100s by building math models in Minecraft.
3.1.1.5	Compare and order whole numbers up to 100,000.	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.
Add and subtract multi-digit whole numbers; represent multiplication and division in various ways; solve real-world and mathematical problems using arithmetic.		
3.1.2.1	Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.	Minecraft Math Gladiators (MMG): Addition with Regrouping Death Run 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. Regrouping Video Students will use the blocks in the game to solve problems with regrouping and then make a video about it. Subtraction with Regrouping Capture the Flag Students will view and build math models of base 10 subtraction problems.
3.1.2.2	Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction,	Build a two step word problem Design and solve a two-step word problem by building it as scene in Minecraft. Steve's New Home

	the use of technology, and the context of the problem to assess the reasonableness of results.	<p>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.</p> <p>Angler Arithmetic – Cool Math!</p> <p>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</p>
3.1.2.3	Represent multiplication facts by using a variety of approaches, such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line and skip counting. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.	<p>Decimal/Fraction Garden</p> <p>Students will demonstrate understanding a fractional and decimal relationships using a 10 x 10 garden.</p> <p>Breaking Numbers</p> <p>Break down arrays and rebuild them in groups of equal numbers to understand how number families are the key to the multiplication and division.</p> <p>Build a word problem</p> <p>Students will use blocks in the game to solve multiplication or division world problems and then create a video to show understanding.</p> <p>Finding the Unknown</p> <p>Students will explore finding an unknown variable by building and looking at math models in Minecraft.</p> <p>Multi Digit Multiplication in Minecraft Bed Wars</p> <p>Students will solve and build area models of multi digit multiplication problems.</p> <p>Survival City Making Roads</p> <p>Students will make a section of road that is ten blocks long and find out how many materials it will take to build a full road.</p> <p>Survival City Part 2</p> <p>Survival City Part 3</p> <p>Design a prototype of a home and use area and perimeter to find out how many materials they will need to build it in survival.</p> <p>The Decimal Dungeon - Part 3</p> <p>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.</p>
3.1.2.4	Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.	<p>Two Step Word Problems</p> <p>Design and solve a two-step word problem by building it as scene in Minecraft.</p> <p>Building Word Problems</p> <p>Build a scene in Minecraft that tells a story involving multiplication or division.</p> <p>Build a Two Step Word Problem</p> <p>Design and solve a two-step word problem by building it as scene in Minecraft.</p> <p>Build a Word Problem</p> <p>Students will use blocks in the game to solve multiplication or division world problems and then create</p>

		<p>a video to show understanding.</p> <p>Finding Factors</p> <p>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.</p> <p>Commutative Property Bed Wars</p> <p>Build Minecraft math models that represent the commutative property of multiplication and use them in a mini-game.</p> <p>Multiplication and Division</p> <p>Build multiplication and division math models and play Bed Wars Minecraft mini-game.</p> <p>Repeated Addition with Parkour</p> <p>Students analyze math models and build their own parkour course in Minecraft to demonstrate understanding.</p> <p>Steve's New Home</p> <p>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.</p>
3.1.2.5	Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two- or three-digit number by a one-digit number. Strategies may include mental strategies, partial products, the standard algorithm, and the commutative, associative, and distributive properties.	<p>Multiplication and Division</p> <p>Build multiplication and division math models and play Bed Wars Minecraft mini-game.</p>
Understand meanings and uses of fractions in real-world and mathematical situations.		
3.1.3.1	Read and write fractions with words and symbols. Recognize that fractions can be used to represent parts of a whole, parts of a set, points on a number line, or distances on a number line.	<p>Capture the Flag!</p> <p>Students will build math models of equivalent fractions and use them as obstacles in a Capture the Flag game map.</p> <p>Crafting Fractions</p> <p>Students will observe crafting recipes, write them as fractions, and then use that knowledge to make an escape!</p> <p>Fraction Pixel Art</p> <p>Design a pixel art image then break down the colors into fractions, discuss number patterns & unit fractions, then build the designs in Minecraft.</p> <p>Fractions Steeplechase</p> <p>Build a number line in Minecraft to show equivalent fractions and create a racetrack.</p> <p>Fractions and Multiplication Video</p> <p>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.</p> <p>Javelin Line Plots</p>

		<p>Students will throw 10 tridents and track their distance on a line plot graph. Measuring Landforms Create a unit of measurement and find the size of different landforms in Minecraft. Fractions in Minecraft Students will build math models that correspond to fraction operations and solve four to six problems per standard. Shapes From Shapes Examine math models, and find the fraction for each piece. Make a shape made out of smaller equal size pieces. Symmetry in Pixel Art Study and use lines of symmetry in pixel art. Design your own pixel art with a partner. American Flag Three-Act Math Welcome to the world of Three-Act Mathematics in Minecraft! Ask Questions, Work Collaboratively, and Build Understanding. Decimal/Fraction Garden Students will demonstrate understanding a fractional and decimal relationships using a 10 x 10 garden. Fraction Stories Have students discover fractions in real life settings and have them communicate their findings through fraction stories. Fraction World Based on a lesson plan submitted by another user, wold download available.</p>
3.1.3.2	Understand that the size of a fractional part is relative to the size of the whole.	<p>American Flag Three-Act Math Welcome to the world of Three-Act Mathematics in Minecraft! Ask Questions, Work Collaboratively, and Build Understanding. Decimal/Fraction Garden Students will demonstrate understanding a fractional and decimal relationships using a 10 x 10 garden. Fraction Stories Have students discover fractions in real life settings and have them communicate their findings through fraction stories. Fraction World Based on a lesson plan submitted by another user, wold download available. Shapes From Shapes Examine math models, and find the fraction for each piece. Make a shape made out of smaller equal size pieces. Symmetry in Pixel Art</p>

		Study and use lines of symmetry in pixel art. Design your own pixel art with a partner.
3.1.3.3	Order and compare unit fractions and fractions with like denominators by using models and an understanding of the concept of numerator and denominator.	Fraction Stories Have students discover fractions in real life settings and have them communicate their findings through fraction stories. Capture the Flag! Students will build math models of equivalent fractions and use them as obstacles in a Capture the Flag game map. Fraction Pixel Art Design a pixel art image then break down the colors into fractions, discuss number patterns & unit fractions, then build the designs in Minecraft. Fractions Steeplechase Build a number line in Minecraft to show equivalent fractions and create a racetrack. Javelin Line Plots Students will throw 10 tridents and track their distance on a line plot graph. Fractions in Minecraft Students will build math models that correspond to fraction operations and solve four to six problems per standard.

ALGEBRA

STANDARD	DESCRIPTION	ACTIVITY
Use single-operation input-output rules to represent patters and relationships and to solve real-world and mathematical problems.		
3.2.1.1	Create, describe, and apply single-operation input-output rules involving addition, subtraction and multiplication to solve problems in various contexts.	American Flag Three-Act Math Welcome to the world of Three-Act Mathematics in Minecraft! Ask Questions, Work Collaboratively, and Build Understanding. Patterns and Motifs Students will understand patterns in history to identify information about how people lived, their beliefs, their surroundings and culture. Number Pattern Architecture Students explore math models to learn about arithmetic patterns and create towers in architectural designs. Number Patterns Algebra Architecture Explore math models to learn about arithmetic patterns and use this knowledge to build architecture designs.
Use number sentences involving multiplication and division basic facts and unknowns to represent and solve real-world and mathematical problems; create real-world situations corresponding to number sentences.		
3.2.2.1	Understand how to interpret number sentences involving multiplication and division basic facts	Division Into Equal Numbers

	and unknowns. Create real-world situations to represent number sentences.	<p>Break down arrays and rebuild them in groups of equal numbers to understand how number families are the key to the multiplication and division.</p> <p>Two Step Word Problems</p> <p>Design and solve a two-step word problem by building it as scene in Minecraft.</p> <p>Finding the Unknown</p> <p>Students will explore finding an unknown variable by building and looking at math models in Minecraft.</p> <p>Commutative Property Bed Wars</p> <p>Build Minecraft math models that represent the commutative property of multiplication and use them in a mini-game.</p> <p>Multiplication and Division</p> <p>Build multiplication and division math models and play Bed Wars Minecraft mini-game.</p> <p>Repeated Addition with Parkour</p> <p>Students analyze math models and build their own parkour course in Minecraft to demonstrate understanding.</p>
3.2.2.2	Use multiplication and division basic facts to represent a given problem situation using a number sentence. Use number sense and multiplication and division basic facts to find values for the unknowns that make the number sentences true.	<p>Finding the Unknown</p> <p>Students will explore finding an unknown variable by building and looking at math models in Minecraft.</p>

GEOMETRY & MEASUREMENT

STANDARD	DESCRIPTION	ACTIVITY
Use geometric attributes to describe and create shapes in various contexts.		
3.3.1.1	Identify parallel and perpendicular lines in various contexts, and use them to describe and create geometric shapes, such as right triangles, rectangles, parallelograms and trapezoids.	<p>Lines, Angles, and Architecture</p> <p>Students study lines and angles and use them to design a facade of a building.</p>
3.3.1.2	Sketch polygons with a given number of sides or vertices (corners), such as pentagons, hexagons and octagons.	N/A
Understand perimeter as a measurable attribute of real-world and mathematical objects. Use various tools to measure distances.		
3.3.2.1	Use half units when measuring distances.	<p>How Fast Can You Go?</p> <p>Students will understand how challenging it was to walk for thousands of miles.</p> <p>Measuring Landforms</p> <p>Create a unit of measurement and find the size of different landforms in Minecraft.</p>
3.3.2.2	Find the perimeter of a polygon by adding the lengths of the sides.	<p>Area and Perimeter Tasks</p> <p>Students will demonstrate their knowledge of area and perimeter in these performance tasks.</p>

		<p>Area and Volume</p> <p>This project aims to enhance understanding in the concepts of area and volume in Grade 5 students.</p> <p>Class Village</p> <p>Students will need to explore and find their way through the maze. Collecting resources that they can use when it's time to build their village.</p> <p>Survival City Part 2</p> <p>Survival City Part 3</p> <p>Design a prototype of a home and use area and perimeter to find out how many materials they will need to build it in survival.</p>
3.3.2.3	Measure distances around objects.	<p>Area and Perimeter Tasks</p> <p>Students will demonstrate their knowledge of area and perimeter in these performance tasks.</p> <p>Area and Volume</p> <p>This project aims to enhance understanding in the concepts of area and volume in Grade 5 students.</p> <p>Class Village</p> <p>Students will need to explore and find their way through the maze. Collecting resources that they can use when it's time to build their village.</p> <p>Survival City Part 2</p> <p>Survival City Part 3</p> <p>Design a prototype of a home and use area and perimeter to find out how many materials they will need to build it in survival.</p>
Use time, money and temperature to solve real-world and mathematical problems.		
3.3.3.1	Tell time to the minute, using digital and analog clocks. Determine elapsed time to the minute.	<p>How Fast Can You Go?</p> <p>Students will understand how challenging it was to walk for thousands of miles.</p> <p>Make a Clock</p> <p>Build a clock in Minecraft by using command blocks with the testforblock and setblock commands. Then build a minecart ticker to keep time.</p>
3.3.3.2	Know relationships among units of time.	N/A
3.3.3.3	Make change up to one dollar in several different ways, including with as few coins as possible.	N/A
3.3.3.4	Use an analog thermometer to determine temperature to the nearest degree in Fahrenheit and Celsius.	N/A

DATA ANALYSIS

STANDARD	DESCRIPTION	ACTIVITY
Collect, organize, display, and interpret data. Use labels and a variety of scales and units in displays.		
3.4.1.1	Collect, display and interpret data using frequency tables, bar graphs, picture graphs and number line plots having a variety of scales. Use appropriate titles, labels and units.	Javelin Line Plots Students will throw 10 tridents and track their distance on a line plot graph. Javelin Line Plots Students engage in a javelin throwing competition in Minecraft, plotting the distances and scores on line plot graphs in the game. Survival Olympics Bar Graphs Students will fish, mine ores, and fight monsters. Then they will make and compare bar graphs for a scoreboard.