STANDARDS ALIGNMENT GUIDE

Virginia 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. 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

NUMBER AND NUMBER SENSE

STANDARD	DESCRIPTION	ACTIVITY
3.1.a	The student will read, write, and identify the place and value of each digit in a six-digit whole number, with and without models.	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. 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.b	The student will round whole numbers, 9,999 or less, to the nearest ten, hundred, and thousand.	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. 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.
3.1.c	The student will compare and order whole numbers, each 9,999 or less.	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.
3.2.a	The student will name and write fractions and mixed numbers represented by a model.	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 Enter the Math Model Exhibition World, examine math models, and find the fraction for each piece. Next they will be asked to make a shape made out of smaller equal size pieces. Last they will recreate their partners work using different size pieces.
3.2.b	The student will represent fractions and mixed numbers with models and symbols.	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
Enter the Math Model Exhibition World, examine math models, and find the fraction for each piece. Next they will be asked to make a shape made out of smaller equal size pieces. Last they will recreate their partners work using different size pieces. |
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| 3.2.c | The student will compare fractions having like and unlike denominators, using words and symbols (>, <, =, or ≠), with models. | Fraction Stories
Have students discover fractions in real life settings and have them communicate their findings through fraction stories.
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.
Fractions in Minecraft
Students will build math models that correspond to fraction operations and solve four to six problems per standard.
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.
Javelin Line Plots
Students will throw 10 tridents and track their distance on a line plot graph. |

COMPUTATION AND ESTIMATION

STANDARD	DESCRIPTION	ACTIVITY
3.3.a	The student will estimate and determine the sum or difference of two whole numbers.	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. 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. Subtraction + Regrouping CTF Students will view and build math models of base 10 subtraction problems.
3.3.b	The student will create and solve single-step and multistep practical problems involving sums or differences of two whole numbers, each 9,999 or less.	N/A
3.4.a	The student will represent multiplication and division through 10 × 10, using a variety of approaches and models.	N/A
3.4.b	The student will create and solve single-step practical problems that involve multiplication and division through 10 x 10.	N/A
3.4.c	The student will demonstrate fluency with multiplication facts of 0, 1, 2, 5, and 10.	N/A
3.4.d	The student will solve single-step practical problems involving multiplication of whole numbers, where one factor is 99 or less and the second factor is 5 or less.	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.
3.5	The student will solve practical problems that involve addition and subtraction with proper fractions having like denominators of 12 or less.	Fractions in Minecraft Students will build math models that correspond to fraction operations and solve four to six problems per standard.

MEASUREMENT AND GEOMETRY

STANDARD	DESCRIPTION	ACTIVITY
3.6.a	The student will determine the value of a collection of bills and coins whose total value is $5.00 or less.	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.

3.6.b	The student will compare the value of two sets of coins or two sets of coins and bills.	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.
3.6.c	The student will make change from $5.00 or less.	N/A
3.7.a	The student will estimate and use U.S. Customary and metric units to measure length to the nearest ½ inch, inch, foot, yard, centimeter, and meter.	How Fast Can you Go? Students will understand how challenging it was to walk for thousands of miles. Measuring Landforms Students will choose and name their own length of measurement. Then they will get into a world and measure different kinds land features.
3.7.b	The student will estimate and use U.S. Customary and metric units to measure liquid volume in cups, pints, quarts, gallons, and liters.	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.
3.8.a	The student will estimate and measure the distance around a polygon in order to determine its perimeter using U.S. Customary and metric units.	Area and Perimeter Tasks Students will demonstrate their knowledge of area and perimeter in these performance tasks. Area and Volume This project aims to enhance understanding in the concepts of area and volume in Grade 5 students. Class Village 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. 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.
3.8.b	The student will estimate and count the number of square units needed to cover a given surface in order to determine its area.	Area and Perimeter Tasks Students will demonstrate their knowledge of area and perimeter in these performance tasks. Area and Volume This project aims to enhance understanding in the concepts of area and volume in Grade 5 students. Area Functions In this lesson, you will be challenged to write code to make quadrilaterals that you have made by hand in Minecraft. Class Village 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. Exploring Systems of Measurement Students will use Minecraft to reimagine system of measurement in ancient China. Can you use the materials

		available in Minecraft to create a system of measurement similar to those used by people living in ancient China. [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.
3.9.a	The student will tell time to the nearest minute, using analog and digital clocks.	[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.
3.9.b	The student will solve practical problems related to elapsed time in one-hour increments within a 12-hour period.	[How Fast Can you Go?](#) Students will understand how challenging it was to walk for thousands of miles. [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.
3.9.c	The student will identify equivalent periods of time and solve practical problems related to equivalent periods of time.	N/A
3.10	The student will read temperature to the nearest degree.	N/A
3.11	The student will identify and draw representations of points, lines, line segments, rays, and angles.	[Lines, Angles, and Architecture](#) Students study lines and angles and use them to design a facade of a building. [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. [Points, Lines, Rays, Segments, and Droppers](#) Students will learn about 2D geometric figures by creating dropper games in Minecraft.
3.12.a	The student will define polygon.	[Area Functions](#) In this lesson, you will be challenged to write code to make quadrilaterals that you have made by hand in Minecraft. [Patterns and Motifs](#) Students will understand patterns in history to identify information about how people lived, their beliefs, their surroundings and culture. [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.

STANDARD	DESCRIPTION	ACTIVITY
		Classifying Quadrilaterals Define, build, and classify quadrilaterals then will peer review classmates' structures by labeling shapes with signs and documentation.
3.12.b	The student will identify and name polygons with 10 or fewer sides.	Area Functions In this lesson, you will be challenged to write code to make quadrilaterals that you have made by hand in Minecraft. Patterns and Motifs Students will understand patterns in history to identify information about how people lived, their beliefs, their surroundings and culture. 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.
3.12.c	The student will combine and subdivide polygons with three or four sides and name the resulting polygon(s).	Classifying Quadrilaterals Define, build, and classify quadrilaterals then will peer review classmates' structures by labeling shapes with signs and documentation.
3.13	The student will identify and describe congruent and noncongruent figures.	N/A

PROBABILITY AND STATISTICS

STANDARD	DESCRIPTION	ACTIVITY
3.14	The student will investigate and describe the concept of probability as a measurement of chance and list possible outcomes for a single event.	N/A
3.15.a	The student will collect, organize, and represent data in pictographs or bar graphs.	Survival Olympics Students will fish, mine ores, and fight monsters. Then they will make and compare their activities to create bar graphs.
3.15.b	The student will read and interpret data represented in pictographs and bar graphs.	Survival Olympics Students will fish, mine ores, and fight monsters. Then they will make and compare their activities to create bar graphs.

PATTERNS, FUNCTIONS, AND ALGEBRA

STANDARD	DESCRIPTION	ACTIVITY
3.16	The student will identify, describe, create, and extend patterns found in objects, pictures, numbers and tables.	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.
3.17	The student will create equations to represent equivalent mathematical relationships.	N/A