STANDARDS ALIGNMENT GUIDE

Common Core 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

OPERATIONS AND ALGEBRAIC THINKING

STANDARD	DESCRIPTION	ACTIVITY
3.OA.A.1	Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each.	Repeated Addition with Parkour Students analyze math models and build their own parkour course in Minecraft to demonstrate understanding.
3.OA.A.2	Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.	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.
3.OA.A.3	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	Build a Word Problem Students write word problems then build a representation of their problem in Minecraft, including characters to help tell the story and models to prove their math.
3.OA.A.4	Determine the unknown whole number in a multiplication or division equation relating three whole numbers	Finding the Unknown Students construct math models in Minecraft to determine missing variables.
3.OA.B.5	Apply properties of operations as strategies to multiply and divide.	Math Bed Wars! Students build arrays to show commutative properties of multiplication while constructing defenses as part of a Minecraft mini-game.
3.OA.B.6	Understand division as an unknown-factor problem.	Finding the Unknown Students will explore finding an unknown variable by building and looking at math models in Minecraft.
3.OA.C.7	Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations.	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.OA.D.8	Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	Build a Two-Step Word Problem Deconstruct problems to identify what operations are used to solve them, then build a word problem story set in Minecraft.
3.OA.D.9	Identify arithmetic patterns (including patterns in the addition table or multiplication table),and explain them using properties of operations.	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.

NUMBERS AND OPERATIONS IN BASE TEN

STANDARD	DESCRIPTION	ACTIVITY
3.NBT.A.1	Use place value understanding to round whole numbers to the nearest 10 or 100.	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.NBT.A.2	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	Regrouping Video Students will be able to produce a video of them solving a three-digit addition and subtraction problem.
3.NBT.A.3	Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.	Survival City Roads Students will design a prototype of a city road with a length of ten blocks and width of their choice. They will determine how long the road will be and how many blocks are needed if it were to be extended five to ten times, then construct their road in Minecraft.

NUMBERS AND OPERATIONS - FRACTIONS

STANDARD	DESCRIPTION	ACTIVITY
3.NF.A.1	Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b.	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.
3.NF.A.2	Understand a fraction as a number on the number line; represent fractions on a number line diagram.	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.
3.NF.A.3	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.	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.

MEASUREMENT AND DATA

STANDARD	DESCRIPTION	ACTIVITY
3.MD.A.1	Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.	Build a Clock! Student will learning 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.MD.A.2	Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).1 Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.	Liquid Measurements Students will use the fill command to fill up a liter measuring cup. Then the 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.MD.B.3	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled 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.MD.B.4	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.	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.MD.C.5	Recognize area as an attribute of plane figures and understand concepts of area measurement.	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.
3.MD.C.6	Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).	Survival City Part 2 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.MD.C.7	Relate area to the operations of multiplication and addition.	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.MD.D.8	Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.	Survival City Part 3 cont'd 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.

GEOMETRY

STANDARD	DESCRIPTION	ACTIVITY
3.G.A.1	Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.	Capture the Flag Students will compare and contrast different quadrilaterals and define them. Next they will build them on the capture the flag map. Once complete push the button to start the game, chose a character, and destroy your opponent's flag.
3.G.A.2	Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.	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.