

Fractions and Decimals in Math with Minecraft: Education Edition

About the Crate

This Cobblestone Crate, designed for Grade 4 to 6 teachers, will help you integrate Minecraft: Education Edition activities to supplement your current Fractions & Decimals unit and show how coding can be integrated in math. Our team of Cobblestone educators will help guide you and your students through each of the activities, providing options for student reflection and sharing, leaving room for you to determine your own assessment techniques. Although this set of activities is designed for Grade 4 to 6 classes, it can be adapted for other grade levels by modifying the level of difficulty of the tasks.

The 5 Activities included are:

- Crafting Fractions (Fractions as Division)
- 3D Fractions (Fractions on a number line)
- Fraction Garden (Relating fractions & decimals)
- Fraction Farm (Adding & Subtracting decimals)
- Minecraft Marathon (Equivalent fractions)

Guide for Implementation

Plan to begin your fractions and decimals math unit the way you always have and then when the timing is right for you, add a dash of Cobblestone Crate to your lesson plan and learning activities. You may choose to sprinkle the activities throughout your math unit or save them all until the end. That's totally up to you, and the beauty of this crate collection.

It is recommended, however, that the math activities are completed in order as they build upon each other in both skill and understanding, but if you don't have time for all 5, no problem! Perhaps consider using the later activities as Extensions, even after your fractions unit has been completed.

Refer to the following pages for a detailed description of each activity.



Introduction

Video Length: 7:33min | Suggested Additional Class Time required: none

Suggested Materials (in addition to M:EE): none

In this video, students will meet the team of co-teachers that will be working with them to explore the math concepts of fractions and decimals with Minecraft Education. Students will be introduced to the submission form that will allow them to share their learning- thecc.page/mathcrate. Students will also learn more about each of the 5 activities that will be covered in this unit.

Activity 1: Crafting with Fractions

Video Length: 24:14min | Suggested Additional Class Time required: 20 to 30 minutes

Suggested Materials (in addition to M:EE): Microsoft Word or Pencil and Paper for math strategies

<https://education.minecraft.net/en-us/lessons/crafting-fractions-2>

In this video, students will explore fractions as division and visual representations of fractions. In this lesson, students will enter a Minecraft Education world where they will observe crafting recipes and write them as fractions in order to escape. Students will also encounter a performance task at the end to extend their thinking! Try out the six crafting fraction word problems and see how you do!

Activity 2: 3D Fractions

Video Length: 25:07min | Suggested Additional Class Time required: 40 to 60 minutes

Suggested Materials (in addition to M:EE): Microsoft Word or Pencil and Paper for math strategies

How to code with Minecraft-

<https://education.minecraft.net/en-us/resources/computer-science-subject-kit/coding-tutorials>

<https://education.minecraft.net/en-us/lessons/3-d-fractions>

In this video, students will work through coding principles to program their agent to create and order unit fractions on a number line. No previous knowledge is required in coding, but if need be feel free to show students one of Minecraft's coding tutorials. Students may also choose to manually build their number line fractions with the blocks available in their inventory, keeping in mind a darker colour for the numerator and a lighter colour for the unit fraction. Come and enjoy understanding fractions through 3-dimensional representations and coding!

After this lesson students are welcome to continue with the other two challenges located in this 3D fraction world!

Activity 3: Fraction Garden

Video Length: 22:34min | Suggested Additional Class Time required: 40 to 60 minutes

Suggested Materials (in addition to M:EE): Microsoft Word or Pencil and Paper for math strategies

Blocks of Grass Template

In this video, students will explore the relationships between fractions and decimals by building their own fraction garden. Through the power of Minecraft Education Edition, students will build a 10 x 10 garden space to demonstrate their understanding of decimals and fractions. Check out the many crops, flowers, and plant life available in the Minecraft inventory to boost your garden diversity and showcase your knowledge. Be sure to check out the garden example and be creative with your own design and fractions!

Activity 4: Fraction Farm

Video Length: 22:02min | Suggested Additional Class Time required: 40 to 60 minutes

Suggested Materials (in addition to M:EE): Microsoft Word or Pencil and Paper for math strategies

<https://education.minecraft.net/en-us/lessons/fraction-farms>

In this video, students will explore math models of addition and subtraction problems with fractions as they observe and explore in this fraction farm world. After students have solved the fraction warm-up problems to unlock the door, they will enter a new space where they can help Old MacDonald to create and design a plan for a farm in Minecraft using their knowledge about fractions. Come and explore how Minecraft can solidify fraction concepts for addition and subtraction with your students!

Activity 5: Minecraft Marathon

Video Length: 23:03min | Suggested Additional Class Time required: 40 to 60 minutes

Suggested Materials (in addition to M:EE): Microsoft Word or Pencil and Paper for math strategies

<https://education.minecraft.net/en-us/lessons/minecraft-marathon-3>

In this video students will express, model, and explain the equivalence between fractions with denominators of 10 and 100. Students will explore and create with decimals and fractions with denominators of 10 and 100 to help Jack design a variety of outdoor living spaces! After this lesson students can continue on in the Minecraft Marathon world to the other challenges through the teleporter to demonstrate their learning of fraction and decimal concepts taught throughout this unit.