Minecraft Marathon

I can solve addition and subtraction problems using decimals and fractions with denominators of 10 and 100. NC.4.NF.6 CCSS 4.NF.C.6

Welcome to the Minecraft Marathon! Here is your objective:

1. Complete 3 Minecraft related challenges using your knowledge of fractions and decimals. Roller Coaster *Challenge is optional.*
2. Create and build your own Minecraft challenge document your steps using the in-game camera and portfolio.
3. Submit your final portfolio with the pictures of each of the challenges.
4. Let's get started by downloading the world. Log into Minecraft: Education Edition > Play > View Library > Subject Kits > Math > Fractions > Minecraft Marathon > Create World

Challenge 1: Jennifer's Garden

Jennifer is planting her 10' x 10' garden.

- She has planted melons in 0.25 of the garden.
- She has planted pumpkins in 3/10 of the garden.
- She has planted potatoes in .2 of the garden.
- She has planted carrots in 1/10 of the garden.

Step 1: Build Jennifer's garden in Minecraft. The soil has already been prepared so just gather the seeds from the chest and begin.

Step 2: Answer these questions. Get a poster from the chest and write the number sentence and the answer to the question in a complete sentence. Create one poster for each question:

1. How much of Jennifer's garden is planted with vegetables?

2. How much of Jennifer's garden is planted with fruits?
3. How much of Jennifer's garden is planted with fruits and vegetables?

Step 3: Take a picture of your work. Use the camera and portfolio from Jennifer and take a picture of each of the poster and the garden. Using your portfolio caption the pictures.

Challenge 2: Jack's Outdoor Living Area

Jack has space in his backyard where he wants to create a sitting area but doesn't want to take away from the beautiful outdoor atmosphere. He wants to design an area where 87/100 of the space is made of concrete and decorative stone and the rest of the area remains grass. However, there is criteria that must be met when he designs this area:

- The concrete can ONLY be in tenths (together, not separated)
- The decorative stone is in hundredths

Step 1: Design the outdoor living area. Help Jack by designing three different outdoor living areas using a different amount of concrete and decorative rocks. 3 prepared areas are ready for you.

Step 2: Answer this question. Get a poster from the Jack and explain how much concrete blocks and decorative stone blocks you used for each design.

Step 3: Take a picture of your work. Using the in-game camera and portfolio take a picture of each of the posters and designs. Document your work in your portfolio.

Challenge 3: Steve's Stained Glass Wall

Steve wants to build a stained glass wall in his castle however he is not sure what he wants. Help him build 4 different walls will the following criteria:

- **WallA:** The wall contains 3/10 blue stained glass, 4/100 yellow stained glass and the rest is white stained glass.
- **Wall B:** The wall contains 9/100 orange stained glass, 1/10 brown stained glass and the rest is white stained glass.
- **Wall C:** The wall contains 6/10 red stained glass, 2/100 purple stained glass, and the rest is white stained glass.
- **Wall D:** The wall contains 8/100 green stained glass, 4/10 black stained glass, and the rest is white stained glass.

Step 1: Design the stained glass wall. Help Steve by building the four different stained glass walls for his castle. You can find the spots where the walls are to be built in the castle.

Step 2: Answer this question. Get a poster from the chest and explain what portion of the wall is filled with colored stained glass and what portion is filled with white stained glass. An example is in the castle for you to refer to.

Step 3: Take a picture of your work. Using your in-game camera and portfolio, take pictures of your designs and poster. Document your work in your portfolio.

Challenge 4: Make Your Own Problem

Now it is your turn to create your own word problem involving fractions with denominators of 10 and 100.

Step 1: Write your problem. Get a board from the chest and write your own problem on it. It must include:

1. A story related to Minecraft. Be creative!
2. Fractions with denominators of 10 and 100. *Optional: include both decimals and fractions.*
3. A question that needs to be answered using addition or subtraction of the given fractions/decimals.

Step 2: Build your problem. Build your problem in the given space provided. Use any material available in the inventory.

Step 3: Document your work. Using your camera and portfolio document your work.

Challenge 5: Build a Roller Coaster (optional)

Hey guys! My roller coaster is almost built but needs to be finished. While building, the crew got confused on the last 100 pieces of rail. It was supposed to be all powered rails except for the corners which are regular rails. Because they had to fix their mistake, only 78/100 of the last 100 pieces got built. I was able to build so 0.9 of the last 100 pieces where complete. What fraction of the last 100 did I build? What fraction (and decimal) of the track still needs to be completed?

Step 1: Solve the problem. Get a board from the chest and write the number sentence and answer the questions in complete sentences.

Step 2: Build the roller coaster. Build the rest of the roller coaster.

Step 3: Document your work. Using your camera and portfolio document your work.

Challenge	**4**	**3**	**2**	**1**

Mathematical Concepts	Explanation shows a complete understanding of the mathematical concepts used to solve the problems.	Explanation shows substantial understanding of the mathematical concepts used to solve the problems.	Explanation shows some understanding of the mathematical concepts needed to solve the problems.	Explanation shows a very limited understanding of the underlying concepts needed to solve the problems OR is not written.
Mathematical Errors	90-100% of the solutions have no mathematical errors.	Almost all (85-89%) of the solutions have no mathematical errors.	Most (75-84%) of the solutions have no mathematical errors.	More than 75% of the solutions have mathematical errors.
On Your Own Problem	Includes all components expected of the problem and built a model to accurately represent the problem.	Includes most of the components expected and built a model to represent the problem	Includes some of the components expected and/or built a model that somewhat represents the problem	Problem is not understandable and/or the model does not represent the problem.
Minecraft Models	Models are clear and greatly show the learner's understanding of the concept.	Models are clear and show the learners understanding of the concept.	Models somewhat show the learner's understanding of the concept.	Models do not accurately show the learner's understanding of the concept.
Working with Others	Student was an engaged partner, listening to suggestions of others and working cooperatively throughout the lesson.	Student was an engaged partner but had trouble listening to others and/or working cooperatively.	Student cooperated with others, but needed prompting to stay on-task.	Student did not work effectively with others.
Score	_____**/20**			