

Name of Game: Minecraft EDU - Division Farms World	Score: 14.5 /18	Date: April 8, 2014
Content/Topic/Grade: Math - Division/Arrays Grades 4-8	Cost: Free Download as per coursework Minecraft EDU \$335 US per class of 25	Developer/Version: Minecraft EDU, Teacher Gaming LLC with Mojang AB of Sweden
Reviewed by: Kris Sward	Estimated time: 2-3 hours max.	Website: http://minecrafterdu.com/page/

Criteria	Exceeding (3)	Accomplished (2)	Developing (1)	Not Meeting (0)
Embedding - Connect with LO's and accuracy of info	Game is very closely aligned with curriculum objectives and content within is accurate.	Game is aligned with curriculum objectives and/or content is mostly accurate.	Game is somewhat aligned with curriculum objectives and/or some content is accurate.	Game is not aligned with curriculum objectives and content is not accurate.
Relevance - Age/Gender/Needs	Game is very relevant for age group and strongly appeals to both genders. Adaptations are possible to engage all learners. Game allows for numerous individuality and collaboration possibilities	Game is relevant for age group and appealing to both genders. Some adaptations are possible to engage all learners. Game allows for some individuality and collaboration possibilities.	Game is somewhat relevant for age group and/or may be more appealing to one gender. Few adaptations are possible. Game allows for only individuality or collaboration possibilities.	Game is not appropriate for age group and does not appeal to both genders. No adaptations are possible. The game only allows for individuality possibilities.
Transfer - use previous knowledge, knowledge transfer, time to proficiency	Game strongly encourages the use previous knowledge and behaviour changes to progress. LO's are easily transferred from game to reality. Game is not complex and takes very little time for proficiency.	Game encourages using previous knowledge and behaviour changes to progress. Transfer of LO's from game to reality fairly easy. Game is somewhat complex and takes a little time for proficiency.	Game occasionally encourages the use of previous knowledge or behaviour changes to progress. Transfer from game to reality is possible. Game is complex and takes time for proficiency.	Game does not encourage the transfer of knowledge and behaviour to progress. Knowledge/behaviour transfer difficult. The game is very complex and needs a lot of time for proficiency.
Ease and Enjoyment of Use	Game is easy to use, intuitive and provides a wealth of information that helps players to figure out what to do next. Tutorials are easy to access and appear prior to being needed or when requested by players. Consistent and timely rewards encourage players to persevere and want to learn more.	Game flows logically from start to finish and information on how to progress through the game is available throughout to assist players. Tutorials on all aspects of the game can be found in a main menu tab. Players are rewarded for patience and perseverance and want to continue playing	There are some lags or inconsistencies in the game or in how players progress through it. No sense of linear completion. Some tutorials can help players progress - they may be hard to find or follow. Players often get frustrated with how the game 'won't work' and quit, leaving them with no desire to finish.	Game is difficult to follow or understand and little help in the form of tutorials or hints are given. Levels tend to seem un-passable and player fatigue or frustration is high. Players aren't motivated to stick with it and finish the game.

Functionality, Cost and Graphics	Game is available for multiple platforms/devices and is reasonably priced. Online option. Bulk pricing is available for use in schools. Graphics are clear and provide detailed information to the player. Great processing speed with extra information given while levels are loading.	Game is available for the major platforms/devices. Online available. Cost is marginal and bulk pricing may or may not be available. Graphics are engaging and entertaining but are not cutting edge. Good processing time and not much lag between levels.	Game is available for only one or two platforms/ devices. May or may not be available online. Cost is somewhat prohibitive for many users and bulk purchasing is not available. Graphics are somewhat primitive and leave the player wanting more. Processing time is slow with little 'filler' between levels.	Game has limited availability to one platform/ device. Not available online. Game is expensive for purchase and bulk pricing is not available. Graphics are primitive and rough, leaving the player unsatisfied with the quality. Processing time is slow and frustrating.
Quality	'Missions' have detailed outlines and prompts are provided for sub-goals. Each level builds on knowledge learned in previous levels and all skills are used to progress through the game. There are few distractions or glitches to lead the player astray. This is a well produced and entertaining video game. There is ample storage	'Mission' outlines are clear and concise. Players can find supports and prompts if they are unsure how to proceed. Knowledge and skills learned in previous levels are applicable throughout the game. Some glitches or distractions allow players to get side-tracked, though the game effectively brings them back on track. This is a well produced video game. There is ample storage.	'Mission' outlines tend to be vague or incomplete. Players struggle to understand how to proceed in a logical manner. Knowledge and skills learned in levels are used randomly and inconsistently. Players often get off track and struggle to find their way back to the overall goal. This video game is not recommended. There is some storage available.	There is no outlined 'mission' to follow and very little information is provided that guides the player through the game. No incremental learning and skills learned in one level don't apply elsewhere in the game. This is a poorly produced video game. There is very little storage.

Brief Overview: Minecraft is an adventure game where players collect resources, build structures and tools, fight off attackers and collaborate with friends and strangers to solve puzzles, survive peril and create amazing and engaging worlds. Minecraft EDU allows for teachers to benefit from the engaging and challenging aspects of the minecraft environment in the classroom without needing to worry about the threat of strangers or hackers coming in to ruin the fun. In Minecraft EDU teachers set up their own server on which players can work and play together to achieve common goals and progress through learning activities in a safe, stable environment.

The 'Division Farms' world (reviewed here) is an environment built to support learning and understandings around concepts in division for math. The world is divided into two parts, one that allows students to work together to harvest wheat and cocoa beans in order to bake cookies, and the other where students can create flower and pumpkin patches and milk cows. Both sides require students to collaborate with others, divide resources and answer questions regarding arrays and groupings of objects. Problem solving is also key as students need to figure out how to move and work within the environment and how to complete the tasks presented to them with little guidance or, in the case of students new to Minecraft, little tutorial support. There are some signs and information notes that direct students to what they need to do, however, things like gathering coal for the furnace (to bake the cookies) proved difficult for me and I couldn't figure out a logical place to find some (it wouldn't let me dig up the spawn point!)

Overall Comments/Concerns

Initially I was not supportive of using the Minecraft environment in education, not because the concept was not sound, but because I personally found it nauseating, frustrating and not user friendly enough. As a newcomer, I was hoping for guidelines of how to work through the 'tutorial' world, whereas Minecraft wanted me to persevere, problem solve and work my way through based on new information and knowledge that I gained from doing the activities presented within the world. Over time I came to see this as the main benefits of the Minecraft environment: building patience, perseverance and problem solving skills. When I tried again I realized that I had developed some level of skill in working within the Minecraft world that could help me to understand where to go and what to do next. Though I still feel that the platform can be somewhat vague in directing players towards their next task (there is no end point to Minecraft, living and working in the world is simply the point), I am now more intrigued by the potential uses of Minecraft in the classroom.

One potential use would be to create a world that could act as a base for our class country study. This world would have mountains, rivers, lakes and more in order to pass as anyplace in the real world. Students would be required to build replicas of important monuments or places in the country they were studying and include details and information to showcase new knowledge and understandings that they have gained through their studies.

Worlds like Division Farms and Coordinate Hunt can be directly tied to curricular outcomes. These worlds require students to complete tasks that will provide evidence of their understandings of math concepts like division and coordinate grids. In fact Minecraft is an ideal platform to discuss coordinate systems as everything can be located using their x,y and z coordinates. Building on classroom knowledge, students can successfully apply their understandings to the activities in the world to support long term retention.

Collaboration and problem solving skills can be used in a variety of ways. Initially when you start Minecraft, the first priority is finding (or building) shelter for the first night. This is important in order to protect your character as well as anything you have mined or created thus far in the game. Bad things spawn at night and you need to be able to hide out the first night and then start exploring, gathering resources and building better shelters to protect you throughout the game.

Minecraft vs. Minecraft EDU

Minecraft itself is a hugely popular 'game' with millions of users worldwide. The potential for problem solving, creativity, collaboration and engagement in learning is huge and many students are already invested in the world of Minecraft. Motivation to learn and persevere through struggles is built in to the 'game' in the form of rewards and achievements in finding new tools or resources and being able to create some magnificent builds. Unfortunately, not all gamers are created equal (and kind) and there have been problems with some players attacking others or destroying their builds, plus with the fact that players can 'start fresh' and restart servers, there is the potential for hours of work to be lost. Minecraft EDU offers up a bit more security in terms of who can access the server and what can be done there. First off, the teacher creates and maintains the server so no student work is lost because of a reboot. Secondly, access is restricted so strangers or hackers can't get in to mingle with students or destroy their work. Controls can be set (like using first names) so that if anything does happen in the world, the teacher is able to know who is saying and doing what. A huge benefit of the Minecraft EDU platform is the access it provides to lesson plans created for education. A variety of topic and content areas are covered that are able to be tied directly to the curriculum. Though some of these worlds can be hard to understand (the objective or how to know if you've reached it), there is support to be found on the internet and some people have even created 'worksheets' to correspond with the worlds and have a tangible learning artifact for students to hand in (rather than use the journal option given in the game – linked to an unknown storage space). Basically, the Minecraft EDU site is a safer, more controlled version of Minecraft that provides additional features to track student use.

Speaking specifically to the rubric:

I noted that the game was both 'easy to use, intuitive' and 'difficult to follow or understand.' This depends upon two things - one, player experience with the world and two, the tasks as they are presented. There were some worlds that I tried (Coordinate Hunt, for instance) where there were entire areas that were inaccessible. I was also unsure if the coordinates I was collecting were for proper spots as the directions only said 'items' would be located throughout the world. I didn't know what most of the items were and I wasn't sure of their significance (is this what I'm looking for?) - and I certainly couldn't find 40 of them. In that way, you can spend a lot of time on a wild goose chase of sorts trying to figure out if you are on the right track. On the other hand, I found mastering things like opening doors and finding pathways to door locks challenging whereas one of my students who is much more well versed in the world of Minecraft might find that excruciatingly easy and become easily bored with the simple, mundane tasks. There are many things that I, as a newbie, found difficult working and playing within the environment that others may not find difficult at all.

Players are definitely rewarded for their patience and perseverance. It felt good when I was finally able to reason out where the switch for the door would probably be and understand what step-by-step tasks I had to complete before moving on to the next area of the map. I didn't figure it all out, but I was able to get enough of a working ability in a short amount of time that I was at least able to achieve a few tasks and have some fun in the end.

The graphics can leave something to be desired, but when you come to the understanding that the entire world has been created with little pixelated blocks, it is pretty impressive. The creations that people have come up with are amazing and I wonder at the hours that have been spent making the world what it is.

Though initially hesitant about the value of Minecraft EDU in the classroom, I have been converted and am now intrigued with the possibilities this world has to offer. Highest on the list are student engagement and easy ties to the curriculum. From there, it's all learning to play and playing to learn. I would highly recommend the use of Minecraft EDU in the classroom and look forward to using it with my own students in the future.

References:

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