

# MINING OUR LEARNING

Minecraft & Game Based Learning



Photo by Terry Madeley, [Flic.kr/p/ferjje](https://www.flic.kr/p/ferjje)

[ShellyTerrell.com/webinars](https://ShellyTerrell.com/webinars)





Minecraft is a game about breaking and placing blocks. At first, people built structures to protect against nocturnal monsters, but as the game grew players worked together to create wonderful, imaginative things.

- *Minecraft.net*

Photo by colmmcsky, Flic.kr/p/bzYBiM





It can also be about  
adventuring with  
friends or watching  
the sun rise over a  
blocky ocean.

- *Minecraft.net*








Photo by colmmcsky, Flic.kr/p/f9FiJB

What content &  
skills can students  
learn with  
Minecraft?





# Minecraft.gamepedia.com/Minecraft\_in\_education

Subject	Benefit
<b>Reading</b> 	The names of <a href="#">items</a> in the <a href="#">inventory</a> are a great place to start teaching children to read, since each item has a tooltip and image which go together. For older children, reading the <a href="#">wiki</a> and online guides can extend their skills.
<b>Writing</b> 	Players can use the <a href="#">Book and Quill</a> within the game to keep a log, or to communicate information to other players. By contributing to the <a href="#">Minecraft Wiki</a> , older children learn to write informational texts in a collaborative, multimedia environment <sup>1</sup> .
<b>Math</b> 	The <a href="#">crafting</a> system can help in teaching basic math (e.g. "I need 3 <a href="#">sugar cane</a> for <a href="#">paper</a> "), which transitions to multiplication (I need 3 Paper and 1 <a href="#">leather</a> for a <a href="#">book</a> , and 3 books for a <a href="#">bookshelf</a> , so I need 9 paper and 3 leather altogether") and division ("When I create paper I get 3 at once, so $\frac{9}{3} = 3$ times per bookshelf I'll have to create paper"). If players want to create a fully powered <a href="#">beacon</a> , they will need to mathematically calculate amounts of materials ( <a href="#">iron</a> , <a href="#">diamond</a> , <a href="#">emerald</a> , <a href="#">gold</a> ) they need to create one, which is 9 times ( $\sum_{i=1}^4 (2i+1)^2$ ). This means $(9+25+49+81) \times 9 = 1476 = 23 \times 64 + 4 = 23$ stacks and 4 pieces of materials. This shows not only you need math very much in <i>Minecraft</i> , but you also practice and possibly learn some mathematic skills.
<b>Geometry</b> 	While the <i>Minecraft</i> world is only made up of <a href="#">cubes</a> , the creations a child makes may resemble other shapes. Parental involvement can help teach children to recognize these shapes ( <a href="#">cube</a> , <a href="#">cuboid</a> , <a href="#">square based pyramid</a> , <a href="#">tesseract</a> , <sup>Note</sup> et cetera). Structures made with blocks to resemble shapes and figures can also help children with dimensions - x, length, y, height, z, width, and possibly also w, time. Also, counting the number of blocks that were dug out when making a 6x6x3 cave can help multiplication skills and understanding the concepts of volume and area. Also, <i>Minecraft</i> is all about three-dimensional graphing. A <i>Minecraft</i> world is based on x, y, and z coordinates. This very useful method of gaming can be used to learn high-levelled math such as the Pythagorean theorem (e.g.: $x^2+y^2=c^2$ ) therefore not only is <i>Minecraft</i> used to learn "child-level geometry", it can also be used to learn fairly difficult geometric concepts very easily.
<b>Music</b> 	With the preparation of some <a href="#">Redstone circuitry</a> , experimenting with <a href="#">Note Blocks</a> can teach children about notes, octaves and chords.
<b>Social skills</b> 	By setting up a private <a href="#">server</a> , parents can provide a safe environment for children to interact with friends and make playing <i>Minecraft</i> a cooperative event. Using a Local Area Network (LAN, or "home network") will allow children to play in the same room or same WI-FI network with their friends. By using Voice over Internet Protocol (VoIP, or "voice chat"), a phone call, or the in-game text chat, they can play together wherever they are. It is also possible to set up a Minecraft Realm. A minecraft realm is a server run by Mojang. Minecraft Realms costs \$13/Month. You can easily setup a server and invite your child's minecraft friends. You can also set up various minigames for your child to play on or just a default minecraft world. For more info on Minecraft Realms, go to <a href="#">this page</a> <sup>2</sup> . These methods allows children to work together to build, explore, and learn as they develop their social skills, especially teamwork. For older children, contributing to the <a href="#">Minecraft Wiki</a> can be a chance to learn about Internet etiquette and collaboration.
<b>Basic Technological Science</b> 	<a href="#">Redstone</a> circuitry provides an interactive environment to build basic logic circuits and combine them for more sophisticated purposes. Feedback is immediate, and the mistakes don't destroy expensive electrical components.
<b>Linguistics</b> Hello! - ¡Hola! Hallo! Salut! - Γεια	Via the options menu, children can select various languages to use while playing <i>Minecraft</i> . If a child can name an item by sight, there is a higher chance that the child will be able to at comprehend at least a few words of a new language very quickly.



# Why Minecraft?



Photo by bohman, [Flic.kr/p/bm1PF6](https://www.flic.kr/p/bm1PF6)



# Why Minecraft?

Collaborative learning

Hands-on

Mission oriented

Beyond classroom walls

Motivational

CLIL

Gives a context



Photo by bohman, [Flic.kr/p/bm1PF6](https://www.flic.kr/p/bm1PF6)





Assignment: Observation Challenge  
Press m to see the full assignment.

Students learn  
digital  
citizenship

domination

loyalart12

reecemitchell

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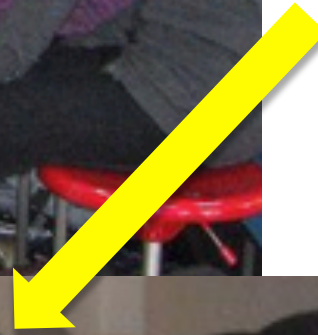
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Photo by Tammygparks, Flic.kr/p/kguN3i



9 year-old Filip  
Smolcec taught  
me about  
Minecraft!




Ogulin, Croatia 2013



# Filip Smolcec's Youtube Channel- Youtube.com/snakegaming12



## SnakeGaming12

[Home](#) [Videos](#) [Playlists](#) [Channels](#) [Discussion](#) [About](#) 

### What to watch next



#### YOLO DOESN'T WORK IN THIS DIMENSION!

by SnakeGaming12

130 views 1 month ago



#### SHOUTOUT TO DISCONNECTED REALM

by SnakeGaming12

73 views 2 months ago



#### Guard is trying to DANCE! Assassin's Creed 3

by SnakeGaming12

55 views 2 months ago

200 SUBSCRIBERS!!! THANK YOU!!! (New Series comming)

# Filip Smolcec's Online Presentation






Reform Symposium  
free global econference  
July 11-13th  
"wow" moments in edu  
reformsymposium.com  
#RSCON5

Presenter Name: **Filip Smolčec**

Session Title:  
**Minecraft for Edu: Filip Smolcec's (11 yr-old Youtuber) Insig**

**Thank you for your attention**



Please subscribe to my youtube channel  
[SnakeGaming12](#)



**Minecraft Learner**  
**#RSCON5**

[Futureofeducation.com/page/recordings-2014](http://Futureofeducation.com/page/recordings-2014)



# Platforms \$\$



PC/MAC

XBox

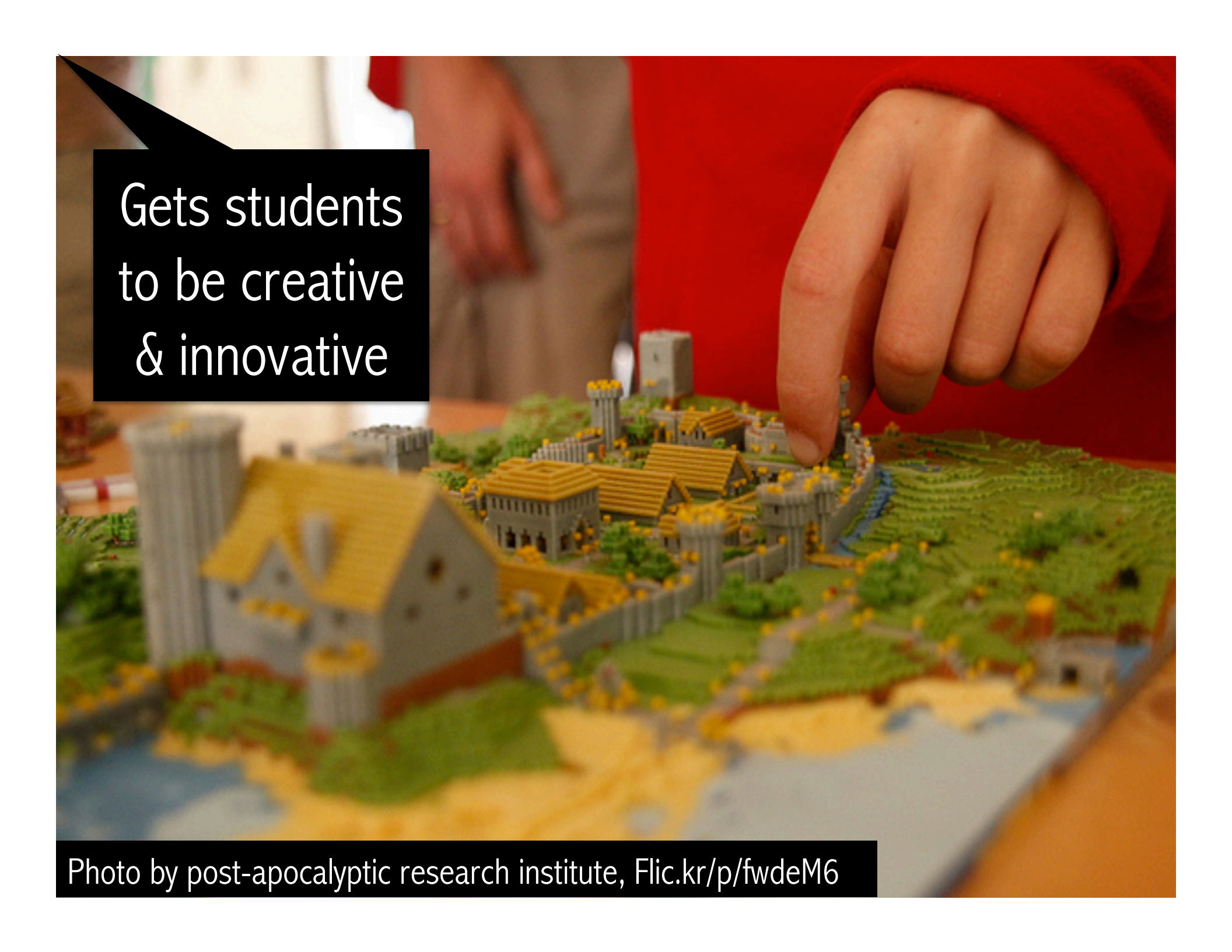
Playstation

iOS

Android



Photo by post-apocalyptic research institute, [Flic.kr/p/bjeQKn](https://www.flic.kr/p/bjeQKn)

A close-up photograph of a child's hand, wearing a red sleeve, reaching down to touch a highly detailed LEGO city model. The model features grey stone walls, yellow-roofed buildings, green grass, and a blue river. The background is blurred, showing other people in a classroom setting.

Gets students  
to be creative  
& innovative

Photo by post-apocalyptic research institute, [Flic.kr/p/fwdeM6](https://www.flic.kr/p/fwdeM6)



# How Videogames Changed the World



[Youtu.be/9xAlpVxL3HU](https://youtu.be/9xAlpVxL3HU)

Geekwire.com/2014/minecraft-education-strategy

# How Microsoft can use Minecraft to build its education strategy

BY FRANK CATALANO on September 16, 2014 at 8:08 am

Comments 3

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GeekWire Summit, Oct. 2

Educators had the right to feel a little freaked out about Microsoft's announcement that it was acquiring Minecraft maker Mojang.

Microsoft's **news release** stated, "The Mojang team will join Microsoft Studios, which includes the studios behind global blockbuster franchises Halo, Forza, Fable and more." Xbox head Phil Spencer's **blog** said, "Minecraft adds diversity to our game portfolio and helps us reach new gamers across multiple platforms." And Mojang's own **blog** post noted, "We're confident that Minecraft will continue to grow in an awesome way."



(image via @poweredredstone on Twitter)

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# Minecraft.gamepedia.com

## Minecraft functions and gameplay [\[edit\]](#)

- **Mod** - Short for "modification", a mod is a player-made re-write of certain game features, to either add new things (new items, blocks, tools, mobs, structures, etc) or change existing ones.
- **Features** - Components of the game such as logic, lights, animals, blocks, or anything else that resides in the world of minecraft.
- **Structures** - Buildings generated by the game (Nether Fortresses, dungeons, villages, strongholds, et cetera).
- **Skins** - The visual appearance of your character in-game, that you either make or download from external sites.
- **NPC** - Non-Playable Character. AI in the game that you can interact with but not play as\*.  
\*Exception: one can view the world from a mob's viewpoint with Spectator Mode (`/gamemode 3`) in version 1.8+.
- **Resource packs** - A player-made set of resources that change the appearance of blocks, and the appearance and sounds of mobs (previously known as texture packs). (Note: Sound files must be in `.ogg` format!)
- **SMP/SSP** - Survival Multiplayer and Survival Singleplayer.
- **Spleef** - A popular, player-generated game in multiplayer, in which the player has to dig the blocks under his opponent to kill said opponent.
- **PvP** - 'Player vs Player', meaning that you can attack other players, and they can attack you.
- **PvE** - 'Player vs Environment', meaning that you fight against mobs, weather, and time
- **Classic Creative** - An old, but original version of Minecraft Creative mode. ~~You can find it on the website.~~
- **Commands** - Abilities granted to certain players by typing them into the chat (example: `/help` is a command that will list other commands).  
Most (but not all) servers will not allow normal players to use most commands, but some servers will have more commands for players to use.  
It is very rare, however, for a server to allow players unrestricted rights to commands.



Students can  
create a  
collaborative  
visual glossary





# Examples of Minecraft for language learning





## Why Minecraft may well be one of the best games for language learning

25/03/2014

5 Comments

I love Minecraft.

I don't own it. I've never played it. I don't know how to play it.

But I love it.

Why? Because, as a teacher of English as a Foreign Language, I have seen it have a HUGE impact on my learners over the last couple of years. Despite its pixelated retro looks, complete lack of storyline, missions and targets and its minimal direct language input, it has enthused and engaged a vast majority of my students, both boys and girls, like no other game. In fact, it has a positive effect on them like nothing else I have seen in my years of teaching.





# Pinterest.com/eltsandbox/minecraft-and-language-learning

## Minecraft and (Language) Learning

Links about Minecraft and its uses in an educational setting

David Dodgson

Follow Board

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14 Pins

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My Tricks for Using Minecraft to Motivate Your Class

Pinned from  
graphite.org



from the Guardian

Minecraft at 33 million users – a personal story

1



Storycraft: How Minecraft inspired some reluctant writers to open up :)

1

Pinned from  
eltsandbox.weebly.com



Why Minecraft may well be one of the best games for language learning

2

Pinned from  
eltsandbox.weebly.com



A review of my presentation about Minecraft and Language Learning at the Virtual Round Table Web Conference

1

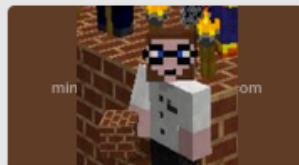
Pinned from  
eltsandbox.weebly.com



Chicago Tribune - Video game 'Minecraft' finds a home in schools

2

Pinned from  
my.chicagotribune.com



The Minecraft Teacher - a blog about using Minecraft in education

1

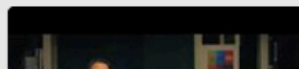
Pinned from  
minecraftteacher.tumblr.com



Kotoba Miners - interesting project about using Minecraft to teach Japanese

1

Pinned from  
blog.kotobaminers.org



from Mashable

25 'Minecraft' Creations That Will Blow Your Flippin' Mind

25 'Minecraft' Creations That Will Blow Your Flippin' Mind - just to show the potential this game offers to a creative mind :)

1

Pinned from  
mashable.com



from the Guardian

Minecraft: how a game with no rules changed the rules of the game for ever



Gamifying the Classroom with Minecraft – the Possibilities are Powerful and Endless!

1

Pinned from  
emergingtech.com



from Edudemic

Minecraft In Education: Pros And Cons

Minecraft In Education: Pros And Cons - Edudemic



[Duncanbilingual.blogspot.com/2013/09/minecrafting-our-learning-space.html](http://Duncanbilingual.blogspot.com/2013/09/minecrafting-our-learning-space.html)







Assignment: Observation Challenge  
Press m to see the full assignment.

More  
Minecraft  
resources

creeperrhat joined the game

Saved screenshot as 2014-02-19\_10.36.01.png

Saved screenshot as 2014-02-19\_10.36.02.png



en



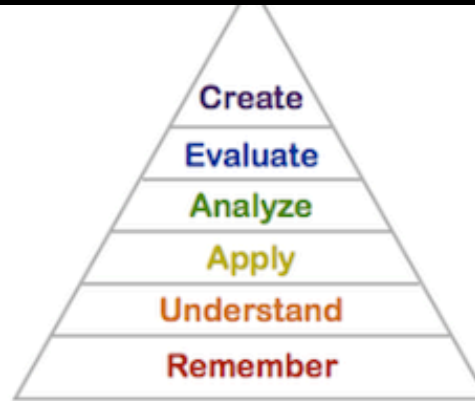
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Photo by Tammygparks, [Flic.kr/p/kgxqkd](http://Flic.kr/p/kgxqkd)

# Minemum.com/minecraft-educational



HOME

GAME BASICS

ARTICLES

HOW TO'S

QUESTIONS

MODS HELP

CRAFTS

LEARNING

RESOURCES

So how does playing Minecraft stack up as a learning exercise? Does it encourage development and expansion of thinking skills? Let's take a look, using real-life examples taken from my kids during a typical Minecraft session.

## BLOOM'S TAXONOMY APPLIED TO MINECRAFT

### Level 1: REMEMBER

- List all the items in their inventory
- Know the available actions and which keys to press
- Recall how to save and quit the game



Pearltrees.com/shellyterrell/minecraft-edu/id12593241

# Minecraft Edu



By shellyterrell



September 2014



18 items

Breaking the Learning Blocks - A Review of my...



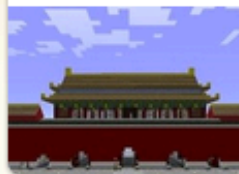
Storycraft: Using the world of Minecraft as...



SnakeGaming12



The Minecraft Teacher



Minecraft in education



Resources - Minecraft in Education



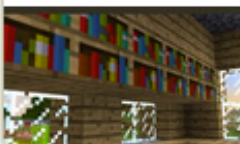
Minecraft Wiki:Projects/Minecraft in education/M...



Community Library for minecraft



Minecraft Makes You Think • MineMum



Sean Fay Wolfe



Beyond Minecraft: Games That Inspire Building...



SIXTY SEVEN Minecraft activities for learning...



duncan bilingual: Minecrafting our Learning...



Crafty Ways to Use Minecraft at School | ...



# Beyond Minecraft: Games That Inspire Building and Exploration



blogs.kqed.org

★ 4 adds

Comment

KQED News Radio TV Education Arts Food Science Donate

## MindShift

How we will learn.

GAMES AND LEARNING BIG IDEAS TEACHING STRATEGIES CHILDREN AND MEDIA ABOUT

ENTER SEARCH TERMS SEARCH

DIGITAL TOOLS

### Beyond Minecraft: Games That Inspire Building and Exploration

MindShift | November 19, 2013 | 10 Comments

Tweet (424) Like (112) Share 59 Email Post Print

By Tanner Higgin, Graphite

The success and popularity of *Minecraft* in and out of classrooms is no surprise. It's one of the best examples of the potential of learning with games because it embraces exploration, discovery, creation, collaboration, and problem-solving while allowing teachers to shepherd play toward any subject area.

But *Minecraft* is not the only game of this kind. Take a look at some of these.

- 1. Garry's Mod**  
Garry's Mod (GMod) is a sandbox game like *Minecraft* but instead of building and exploring, students use a fun physics engine that simulates things like gravity and mass. They also use a virtual toy box of assets from Valve Software's popular games. The tool is a step up in complexity from the elegant simplicity of *Minecraft*, but with Garry's Mod, students are exposed to physics concepts while having madcap fun.
- 2. Kerbal Space Program**  
Kerbal Space Program has a robust physics engine too, but it's more focused than Garry's Mod. Players purchase rocket parts, put them together, and then see if they can get a ship into orbit, to one of two moons, or even to another planet. These aren't easy tasks, so play is focused on trial and error testing, and, like *Minecraft*, seeking help from the community is part of a successful strategy.
- 3. Sound Shapes**

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3. Inventive Games That Teach Kids About Empathy and Social Skills
4. How We Can Connect School Life to Real Life
5. Why Kids Should Be Allowed to Act Out (Scenes) in Class

KIDS AND CODING

- Demand for Computer Science Classes Grows, Along With Digital Divide
- Learn to Code, Code to Learn
- Why Programming Teaches So Much More Than Technical Skills
- Should Kids Learn to Code in Grade School?

## • Digital Tools

By Tanner Higgin, Graphite

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any subject area.

<http://blogs.kqed.org/mindshift/2013/11/beyond-minecraft-games-that-inspire-building-and-exploration/>



How can we  
tell if a game is  
effective for  
learning?





Group #1: Jennifer James, Liahanni Cruz, Melissa Balajadia, and Valene Salas

Title of Game: Batter's Up Baseball

Grade Level: Grade 2 (Ages 6-9)

Subject: Math (Addition and Multiplication)

Site URL: <http://www.prongo.com/math/index.html>

Instructions: Rate each category by circling the thumbs. Please see the key

Key



= Excellent  
(3)



= Good  
(2)



















































= Fair  
(1)

Aesthetics

Graphics	• Colorful			
	• Font is a good size			
	• Interesting			
	• Enhances Learner understanding			
Layouts	• User friendly			
	• Attractive/Interesting			
	• Organized			
Sound	• Relates to game			
	• Motivational sounds			
	• Quality			





Instruction	
Directions	<ul style="list-style-type: none"> <li>Brief   </li> <li>Straight Forward   </li> <li>Clearly Stated   </li> <li>Different levels   </li> <li>Appropriate word usage   </li> </ul>
Load Time and Download	<ul style="list-style-type: none"> <li>Quick to download   </li> <li>Mac or PC   </li> </ul>
Game-based learning	
Purpose	<ul style="list-style-type: none"> <li>Relates to subject matter   </li> <li>Grade level specified   </li> </ul>
Levels	<ul style="list-style-type: none"> <li>Progression of levels   </li> <li>Achievable levels   </li> </ul>
Interest	<ul style="list-style-type: none"> <li>Score Keeping   </li> <li>Timed   </li> <li>Stats are kept   </li> </ul>
Feedback	<ul style="list-style-type: none"> <li>Corrections and explanations given   </li> <li>Scoring is clear   </li> </ul>

# Game Based Learning- Pear.ly/cd1wj

## Game-based learning



By shellyterrell | September 2014 | 60 items | 6 adds | 1.4K views

### Minecraft Edu

23

### Learning with Game Consoles & AR

13 ★ 3

### GameSites

Let's Play! Great Games for Young Learners

Teacher Relief Camp

### Let's Play! 20+ Sites for Young Learners

Teacher Relief Camp

### Learning Beyond Walls- Games and Wikis!

Teacher Relief Camp

### Digital Play

How can guess in 5 minutes... This list was compiled

5:00 0100

### Kindergarten Education Games Songs Stories

Games Songs Stories

### Game-Based Learning Units for the Everyday...

edroopia

### Free Online Game Creator

Edroopia

### Online Game Rubric

Key

### Board Game Rubric

Board Game Rubric

### Introduction to Games & Simulations for...

Introduction to Games & Simulations for...

### How to Plan Instruction Using the Video Game...

LEARN SOMETHING

### Kahoot! | Game-based blended learning &...

Kahoot!

### The Playful Learning Wiki / FrontPage

The Playful Learning Wiki / FrontPage

### The Playful Learning Wiki / Play Quotes

The Playful Learning Wiki / Play Quotes

### Great Gaming/Learning Quotes

Great Gaming/Learning Quotes

### Create iOS, Android and Flash Games with Stencyl

Create iOS, Android and Flash Games with Stencyl

### Create your own Interactive Fiction

Create your own Interactive Fiction

### Creating Adventure Games On Your Computer

Creating Adventure Games On Your Computer

### Samorost 1

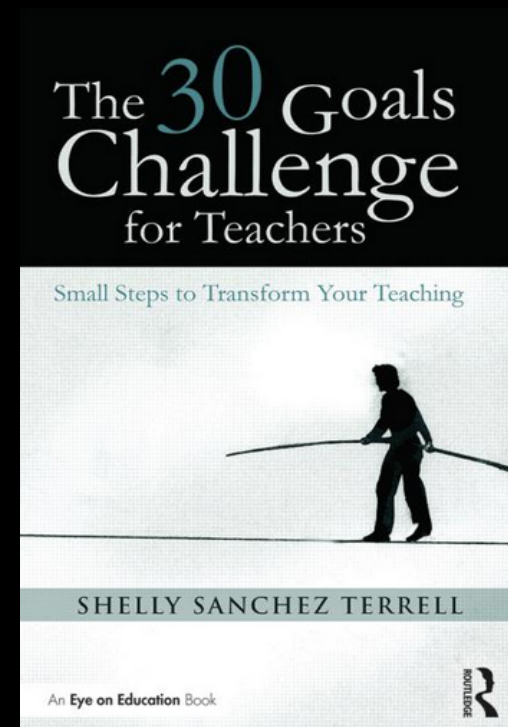
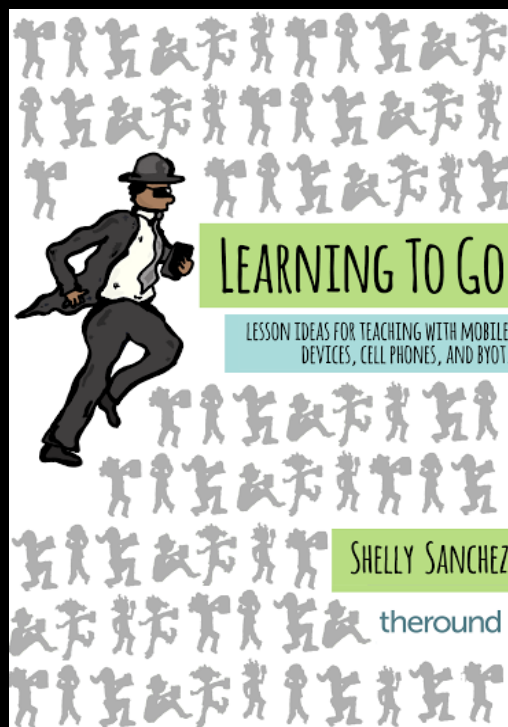
Samorost 1





As astronauts and space  
travelers children puzzle  
over the future; as  
dinosaurs and princesses  
they unearth the past ... as  
monsters and gremlins they  
make sense of the unreal.

*- Gretchen Owocki*



[Gum.co/learn2go](http://Gum.co/learn2go)

[Amazon.com/Shelly-Sanchez-Terrell/e/B00L2Q8CV0](http://Amazon.com/Shelly-Sanchez-Terrell/e/B00L2Q8CV0)

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