



**LESSON
PLANS
FROM
GENERATION
HOMESCHOOL**

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Minecraft Terms

Mods: a downloaded add-on that can be used to change elements or add new elements to a gamer's world. Note: Mods cannot be added to games played on the iPhone or iPad.

Villager: They can trade with players and are not hostile. They can also fall in love and have children. Not to worry mom, there's no soap-opera drama here.

Endermen, Creepers, Zombies, Skeletons (and more): These creatures are part of the hostile mobs that can attack you, destroy your hard work, and make you want to cry. Each one attacks/is defeated in different ways.

Skins: New looks for your avatar.

The Nether: a landscape in the game that is cave-like, covered in lava.

Biomes: A climate that define the look and functionality of a place within the game. A player will encounter a wide variety within the game – such as the desert, jungle, ice plains, nether, ocean or underground. Each biome has unique features and specific items that can only be found there.

Mobs: The mobs can be hostile, docile, neutral or allied. Docile mobs that are land based with flee when attacked (like cows, pigs, etc.) Hostile mobs (creepers, cave spiders, etc.) will attack for no reason. A neutral / allied mob won't attack (unless you attack first) and can sometimes be tamed (like the wolf) to fight your enemies with you.

The Ender Dragon: The dragon is the final battle of the game, found past the Nether at The End.

The Different Modes of Play in Minecraft

Creative Mode: In this mode, you can create your world, explore and enjoy building without the threat of zombies arriving. A player doesn't need to be concerned about survival, finding food or building shelter. This is the mode I recommend for younger children or kids who are easily scared.

Survival Mode: this is the game mode in Minecraft (where most players play!). The focus is (obviously) survival and the player needs to build shelter, find food, fight enemies and collect resources that will help them survive long term. This mode can be played as a single or multi-player.

Hardcore Mode: Similar to Survival mode, but more difficult. The main difference is that you have only 1 life, and your entire world will be deleted when you die.

Adventure Mode: This also adds a layer of difficulty to Survival mode. The key difference is that you cannot break blocks unless you have the right tool.

Here is how you can learn while playing Minecraft!

1. Reading. Beginning readers can practice reading the names on the inventory list that is essential to building. Each item used in the game has a “tool tip” to help players learn how to use it for building.
2. Sharpens basic computation skills (addition and multiplication) through the creation of different structures.
3. Exposure to and exploration of geometry concepts (ex: making a square based pyramid)
4. Expand measuring skills.
5. Practice problem solving and critical thinking skills.
6. Survival skills (if you choose to play in survival mode).
7. Spatial reasoning.
8. Explore creativity in a variety of ways.
9. Social and communication skills (in multi-player / survival mode). Players learn how to be a good citizen in a virtual world and can communicate with other players through writing.
10. Teamwork through collaborative building.
11. Art and Design. Players can play with design by building houses and structures with a variety of colors and materials or they can create their own sculptures and art within their world.

Let's get started!

HISTORY IDEAS

Minecraft History Project

Plan: Life in Medieval Europe

Lesson: Explore the many aspects of medieval living

Objective: Students will be able to understand and identify the physical structures of a castle and the social system during the medieval age by creating a detailed castle and surrounding village in Minecraft.

Include in your castle:

- | | | |
|----------------------------------|--|--|
| <input type="radio"/> Watchtower | <input type="radio"/> Kitchen | <input type="radio"/> Bread ovens (hint: not always located in the kitchen!) |
| <input type="radio"/> Moat | <input type="radio"/> Keep | <input type="radio"/> Storeroom |
| <input type="radio"/> Well | <input type="radio"/> Inner and Outer Bailey (courtyard) | <input type="radio"/> Entrances |
| <input type="radio"/> Drawbridge | <input type="radio"/> Dungeon | |
| <input type="radio"/> Great Hall | <input type="radio"/> Stable | |
| <input type="radio"/> Chapel | | |

Optional:

- Dovecoat
- Garderobe
- Blacksmith shop
- Surrounding village
- Surrounding farms

Vocabulary Terms to Define:

Chivalry	Fealty	Lance
Joust	Lance	Conjurer
Scabbard	Valor	Herald
Fortress	Steward	Heretic
Sovereign	Serf	
Hilt	Plague	

*For a full glossary of medieval terms, see [The Scriptorium](#)

Recommended Books:

Castle, by David MacCauley

The Duke and the Peasant: Life in the Middle Ages, by Sister Wendy

Beckett

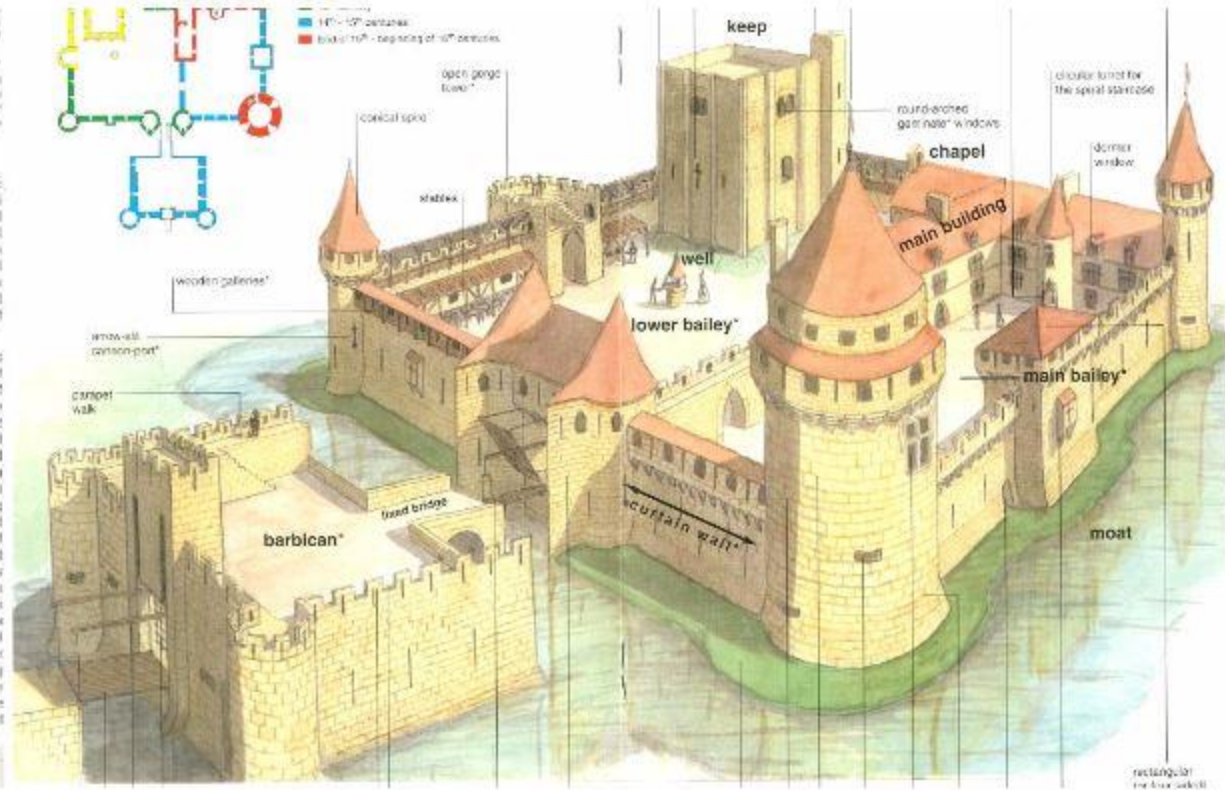
Usborne Internet-Linked Medieval World, by Jane Bingham

Tales of King Arthur, retold by Felicity Brooks

You Wouldn't Want to Work on a Medieval Cathedral! By Fiona MacDonald

A Medieval Feast, by Alike

A Door in the Wall, by Marguerite de Angeli



Additional areas to explore:

- Examine the tools and weapons of the Middle Ages. Can you recreate them in Minecraft?
- Is your castle secure against invaders? Test it in survival mode.
- Do the people of the castle have enough food / water / supplies within the castle gates to survive an attack where they are surrounded and cut off from the outside?

WRITING PROMPTS

1. If You Build It

Use your imagination to **design a Minecraft building** such as a shop, cave dwelling, mansion, or theater. What will you design? How will you persuade others to come to your building? Make a list of 6-10 reasons why people will love this place.

2. Minecraft Scenario

After a **terrifying shipwreck**, you find yourself on a beach. You don't know where you are, and it will soon be dark. What will you do?

3. Avatar Adventures

Write a story about your **Minecraft avatar**. How did you arrive in your world? What are some of your goals? Who are your allies?

4. It's a Zoo!

You have been hired to build an enclosure for a **Minecraft zoo**. Choose a mob to live in your enclosure, and describe the enclosure you will build for them.

5. Tools of the Trade

Describe **three Minecraft tools** and explain how you like to use them.

6. Dear Grandma

Your grandma has never seen Minecraft, and she has asked you to help her understand it. Write a letter in which you **explain what Minecraft is** and why you enjoy playing the game.

7. Reap What You Sow

As a **Minecraft crop farmer**, you're getting tired of beets, potatoes, and carrots. If you could sow three brand-new crops, what would you choose to grow? Explain what you will have to do to harvest your new crops.

8. The Choice is "Mine"

Do you prefer playing Minecraft in **Survival mode or Creative mode**? Before you start writing, make a [Venn diagram](#) that compares and contrasts these two modes. Write one or two paragraphs explaining your reasons.

9. Toolbelt Tactics

Would you rather build a castle, a tree house, or a bridge? **Describe the Minecraft tools, materials, and supplies** you will need to accomplish your goal.

10. Dear Diary

Write a **diary or journal entry** describing your most exciting Minecraft adventure.

11. Making a House a Home

It's time to **decorate your Minecraft house!** Make a list of 10 structural features you want to include, such as wood floors or a glass roof. Then make a list of 10 decorating ideas, such as lighting and furniture.

(Source: writeshop.com)

READING ACTIVITIES

1. Expand on the book you are reading, or a favorite story by re-creating the setting in Minecraft. *Examples: Laura's homestead from Little House on the Prairie; the Arena from the Hunger Games; Diagon Alley from Harry Potter.* Include as many details from the reading as possible!
2. Create a story about their world.
3. Start a Minecraft journal or scrapbook. Take screen shots of the places and things you have built in creative mode. Print the screen shots and include them in the book or journal. Then write summaries describing the picture, how long it took to build and why you love it.
4. Create a Minecraft blog where you can write about what you are doing daily. A blog on WordPress.com gives you the ability to keep your writing and photos private and password protected, if you are

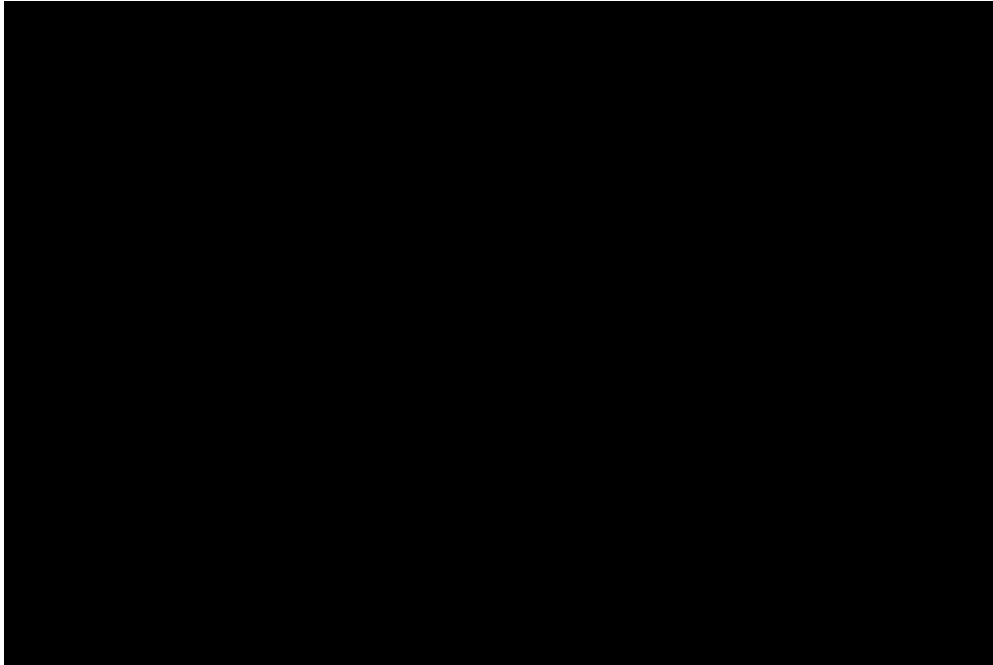
concerned about having a public blog. Write – even just a little-everyday!

5. Older kids can contribute their ideas and Minecraft knowledge to the [MinecraftWiki](#). **This is also a great place to get some reading practice while learning about their favorite topic!*
6. Work together with early readers to make signs / labels for each of their structures to help them learn new words.
7. Find a Minecraft guide book that will teach them to build something new or show them short-cuts. This is reading practice that they will love!
8. Create a library in Minecraft. Although you cannot name each individual book, you can put up signs for each section -fiction, biography, science etc. Make your library as detailed as possible!

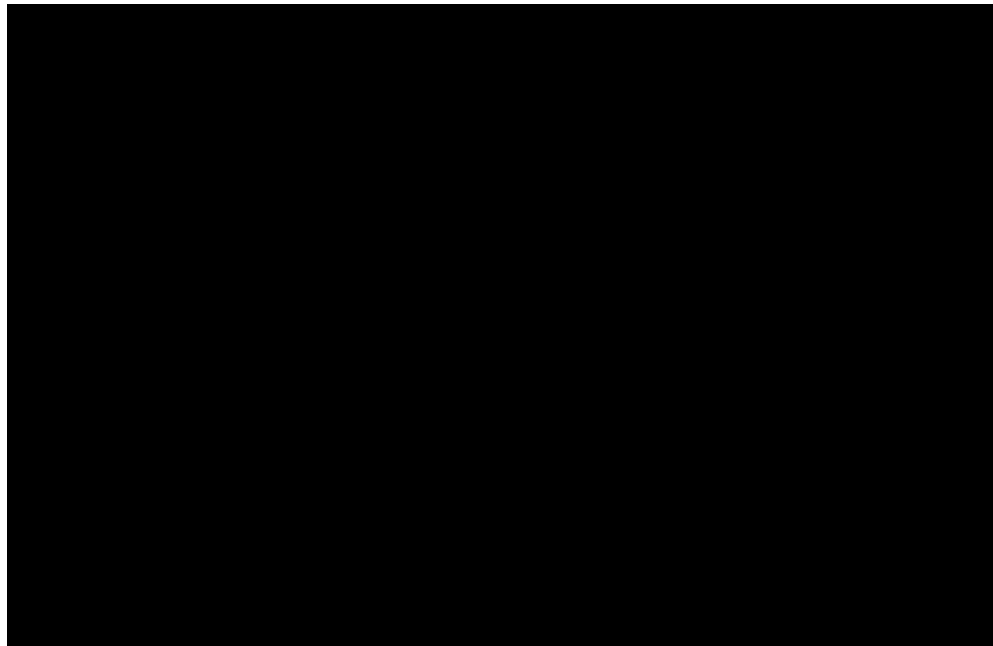
MATH ACTIVITIES

1. [Distinguishing area and perimeter](#)
2. Create a mathematical structure (tower or pyramid). When it is complete, calculate how many blocks were used.
3. Build a replica of a historical site *to scale*.
4. You have 26 arrows to fight off an approaching group of 4 Skeletons. How many arrows can you use on each skeleton and still defeat them?
5. You must keep your castle / home well lit to prevent enemies from spawning in the dark. How many square feet will stay lit with one torch? What is the square footage of your home / castle? How many torches will you need to keep your enemies out?

**WATCH THIS VIDEO ABOUT
SURFACE AREA**



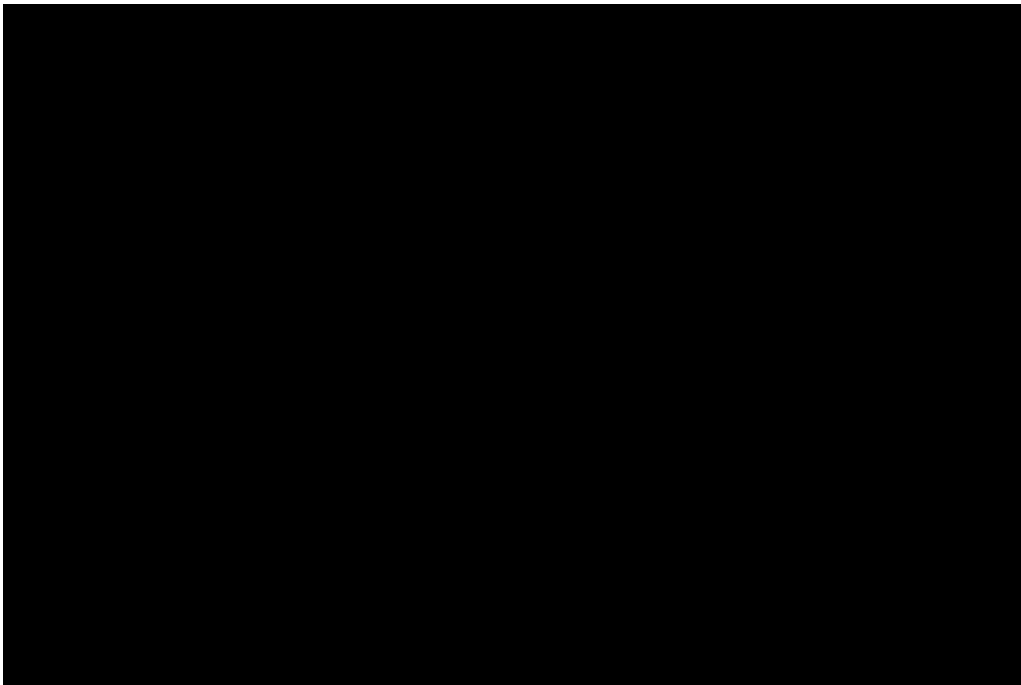
**WATCH THIS VIDEO ABOUT VOLUME OF
PRISM**



LITERATURE ACTIVITIES

- Pick a play to explore with your kids. You can read the original play, read a children's version, watch it on Netflix or listen to the audiobook version. *One of our favorite audiobooks is A Midsummer Night's dream retold for children by Jim Weiss.*
- Pick a favorite passage from your play of choice.
- Interpret the passage into modern English or compare it with a "kid friendly" script.
- Build a stage in Minecraft or build a set to match your chosen passage.
- If you use copywork with your kids, use Shakespeare quotes and discuss their meaning. You can get a free ebook to [help here](#).
- Practice performing the scene together.
- Create Minecraft characters to play your actors on screen.
- Create a video of your scene. [Watch a tutorial to learn how.](#)
- Post your project on YouTube or share it with your friends and family!

WATCH THE VIDEO TO SEE HOW IT ALL WORKS TOGETHER!



Physics: Have your child design and build a working roller coaster in Minecraft. Do experiments on acceleration and velocity.

Earth Science: Explore a biome. Compare (for example) the desert biome in Minecraft to one of [the world's largest deserts](#).

[\(Desert Biomes - Watch the video\)](#)

The desert biome is characterized by low precipitation, a high rate of evaporation (seven to fifty times as much as precipitation), and a wide daily range in temperature. The dramatic temperature fluctuations are the result of low humidity, which allows up to 90 percent of solar radiation to penetrate the atmosphere and heat the ground during the day, then for this accumulated heat to be released back into the atmosphere at night.

Precipitation in deserts, unlike other biomes, is highly irregular. In the Sonoran Desert, rain usually comes in short, sporadic clusters of rainy days three to fifteen times a year. On average, only one to six of these rainfalls is large enough to stimulate plant growth. Thus, Sonoran plants experience long periods of inactivity broken by periods of rapid growth and reproduction.

Plant production, given these extremely limited water resources, depends on the efficiency with which plants can absorb and use available water. Desert plants have evolved a wide variety of structural characteristics that limit the amount of water they lose to the atmosphere -- from dense spines on some cactuses that create shade for the plant underneath, to a waxy coating on the surfaces of leaves. In addition, many desert plants have evolved a functional strategy to limit water loss: They perform the processes of transpiration and photosynthesis separately instead of concurrently as in most plants. They do this by fixing large amounts of CO₂ throughout the night, then storing it until daytime when they can use it to photosynthesize carbohydrates.

Most desert animals are what ecologists call generalists and opportunists, animals that eat whatever they find, whenever they can find it. Some small desert mammals, however, are seed-eating specialists. One study conducted in the Sonoran Desert showed that while these small herbivores (especially jackrabbits and kangaroo rats) consumed only 2 percent of all the leaves and stems produced by plants in their area in a given year, they ate 87 percent of all seeds produced. Further, the researchers found that the preferences these animals had for some varieties of seeds over others had a pronounced effect on plant populations and species composition.

Discussion Questions

- What are the climatic conditions in the desert biome?
- Where do deserts occur in the world?
- What are some examples of desert plants and how are they adapted to their environment?
- What are some examples of animals that live in the desert and how are they adapted to their environment?

Then, complete the following

[Watch the video](#) – Use guided learning as follows:

- **Before:** Explain to students that they are about to watch a series of videos showing a group of friends exploring a desert in Australia. Point out Australia on a map or globe, or ask for a volunteer to find it. Have a short conversation about deserts. What do deserts look like, and where might you find deserts? Are there any deserts near your school? What kinds of plants and animals do they think they would find in a desert?
- **During:** Be sure to ask students if they have any questions as you move from one video to the next. As they watch, have them note the things that make desert life challenging for the plants and animals that live there.
- **After:** Continue to discuss desert life. What are some of the things that make desert life challenging for plants and animals? What body parts, behaviors, or activities help desert plants and animals survive in this environment? How are deserts similar to where you live? How are they different?

Then, look at the photo and read the following:



Scientists often refer to large geographical areas with a distinct set of plants, animals, and climatic conditions as *biomes*. There are four major terrestrial biomes: forest, grassland, tundra, and desert. Deserts cover about one-fifth of Earth's land area and are found in the driest places on the planet, where annual rainfall totals less than 20 cm (8 in).

Desert landscapes are created and maintained by weathering and erosion. These natural processes gradually break down rocks into smaller particles and then transport the particles across the landscape. The sand and dust are carried away by wind, and in some cases, by runoff from seasonal rainstorms or snowmelt, continuing the erosion of the landscape. Desert landscapes reflect the forces of both erosion and deposition. For example, sand dunes are formed by the deposition of wind-borne material that has been eroded from solid rock by various physical and chemical processes.

Deserts are dry, but they are not entirely devoid of water. Seasonal precipitation may collect on the surface -- although this is generally a temporary situation. Areas in a desert that contain enough water to support plant life on a more or less permanent basis are called oases. Oases usually occur where groundwater stored in underlying rocks seeps to the surface in the form of springs. These springs attract people and animals, and both may settle nearby.

Geological evidence demonstrates that desert areas expand and contract naturally as a result of changes in climate. Fossilized dunes found in sedimentary rock layers in Arizona suggest that inland seas once covered today's desert. Also, whale bones have been discovered in ancient seabeds that underlie sand-covered valleys in Pakistan.

Although the natural expansion of deserts cannot be stopped, desertification brought on by human hands can be. *Desertification* is the spread of desert-like conditions through the mismanagement of renewable resources, such as grassland. For example, overgrazing by animal stock, wood extraction at desert margins, and maximum-yield farming practices can destroy soil structure and reduce the biological potential of land. As thin soil erodes, the desertification process begins. According to the UN, more than a quarter of the Earth's land surface, which supports 250 million people, is either already affected by the phenomenon or at risk from it.

Like global warming, desertification has been the subject of intense debate among scientists. Some blame local climate change, while others believe that human factors are largely responsible. Whatever its cause, desertification can be slowed or even halted by adopting measures designed to preserve plant cover and reduce soil loss.

Discussion Questions

- In what ways do you think the climates in each of these deserts are similar? How are they different?
- What do you think causes the ripples in the sand of a desert? In what other environments have you seen similar ripples? What causes them?
- How do you think plants survive in these deserts?
- Examine the photograph from the Painted Desert in Arizona. What do you think created the layers in the rock?
- What do humans need to do to survive in a desert environment? How does this compare to your daily life?

Volcanoes: Research volcanoes together. Let them build a volcano in Minecraft and ask them to include as many true to life details as possible. Find great kid friendly resources and [videos about volcanoes here](#).

Geology: Learn about the materials used to craft. What are they like in reality? Where in the world can the different types of rock be found? Have any of these materials been used to build your own house? What are the differences between how these resources are mined in Minecraft and in reality - (there's a huge difference!).

Exploring Gravity: Talk about the law of gravity. How does it differ in Minecraft? For advanced / interested students, check out [this article on gravity](#) in Minecraft. Here's the accompanying video:

Agriculture: Plant a field of crops in Minecraft and help it grow. Certain crops require more effort to successfully grow and harvest. Large plants like melons or pumpkins will require more care. Find out what your crops need. How much time does it take to grow? What is the best way to harvest the crops? How does that compare to growing crops or a small garden in your yard?

Raising Animals: You child can raise a flock of sheep, craft shears, shear the sheep and dye the wool (16 colors possible). These blocks of wool are weak and highly flammable, but can be used to bring color to your buildings or artistic designs in Minecraft. Wool is a key component for crafting beds and paintings. Discuss this process in real life. Start by [watching a sheep shearing contest](#), talk about how the wool is processed by hand (carded, spun, dyed) or by machine. Aside from sheep, what other animals are shorn for their fibers?

Engineering with Redstone. By using Redstone dust to create circuits, players can build all kinds of machines, from lamps to trap doors.

ART IN MINECRAFT

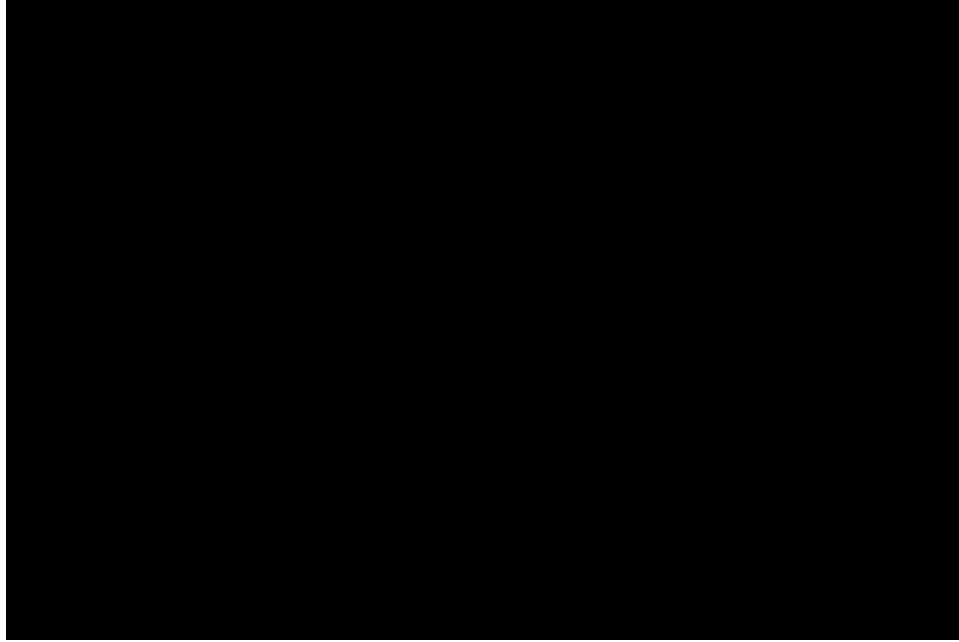
Create your own art museum. Design and build the museum and fill it with artwork! For an additional challenge, try to replicate the Metropolitan Museum of Art or the Guggenheim.

Design a unique skin. You can find step-by-step directions to do this [here](#).

Create a pixel art project in Minecraft. Once you learn the technique for creating pixel art, try creating a drawing on grid paper and convert it to a 3D form. This will help your child learn the principles and tools used for creating digital art. You can find plenty of simple ideas to get you started [at this site](#).

Take your art offline and try out one of these cool [Minecraft craft projects](#). For the youngest players, check out the [Minecraft Coloring EBook](#).

WONDERS OF THE WORLD IN MINECRAFT



Look at each structure, discuss the time period, locate it on a map of the world, bring it up on Google Earth to see exactly how it looks today. Talk about the people and cultures that created these amazing buildings and see where it leads you!

Are you interested in learning more about the Ancient Mayans after seeing the pyramid at Chitzen Itza? Dive into learning about that culture.

Are you intrigued by the legendary Hanging Gardens of Babylon? Learn about the stories and theories about how and why the gardens were created. Where was Babylon? What country exists in that area now?

Pick a favorite wonder (or two) and recreate it in Minecraft. Some of these will be very challenging, but there are mods available to help you build and explore certain structures.

To finish your study, take a look at the 7 New Wonders of the World, which represent a more global heritage, as voted on in 2007. Many of them are repeats from the traditional list.

Helpful Links for studying the Wonders of the World:

[The 7 Wonders of the Ancient World](#)

[The Wonders of the World](#) – a complete list.

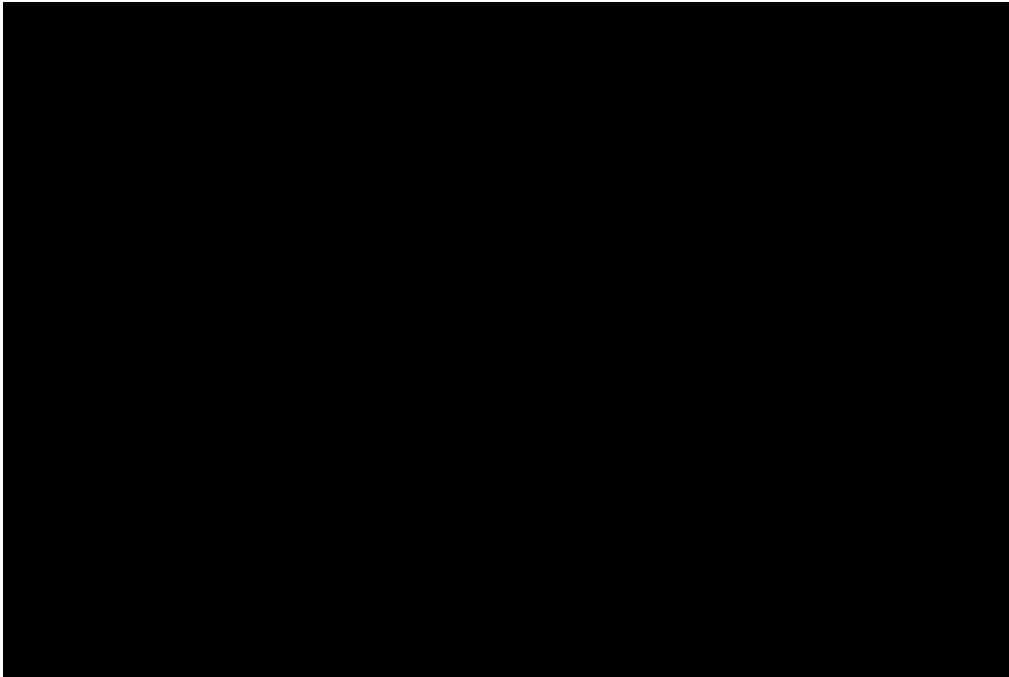
Photo Gallery: [7 New Wonders vs. 7 Ancient Wonders](#)

ENGINEERING WITH REDSTONE

Building with Redstone is an advanced concept in Minecraft. After mining redstone underground, the dust can be used to create wires that carry power. This enables players to build a wide range of machines and powered structures, from gates and trap doors to elevators and pressure plates.

Building and designing machines requires a solid understanding of how the circuitry works within Minecraft.

Here is the first video from an in-depth series.



COMMUNICATING IN MINECRAFT

By using the social and collaborative learning features of Minecraft, players can play in single-player or multiplayer mode. Multiplayer mode opens a whole new set of learning experiences.

Entering a multiplayer game allows players to:

- Build collaboratively
- Go on adventures as a team
- Build a town or city
- Trade resources
- Hang out, chat and explore together
- Duel with other players

By playing in this mode, you will communicate with others through text (or sometimes voice), learn to work with others to reach a common goal and socialize with other kids who share your passion for the game!

If you are looking for a place to meet new friends through Minecraft, look online for Minecraft servers maintained by other homeschoolers.

Here are a few links to help you find a homeschool friendly group server:

- [Minecraft Homeschool](#) Group on Facebook
- [Homeschool MC](#) maintains servers for homeschooled students.
- [Unschooling Girls Play Minecraft](#) is a small group on Facebook that could offer opportunities for your daughter to connect with other gaming enthusiasts online.
- [Unschooling Gamers](#)
- [Minecraft Homeschooling](#) (Facebook based)