



# **Classroom Build Challenges**

# CLASSROOM BUILD CHALLENGE

Build a Treehouse

**TIME** 20-30 min

**SKILLS** Creativity, Collaboration, Problem Solving

**WORLD** <https://aka.ms/meetree>

## OBJECTIVES

Work individually or in teams to create your own treehouse. Try to create a functional shelter within the branches of a nearby tree. Challenge yourself by setting a time limit. Don't forget a ladder or stairs to get in!

## EXTENSIONS

- Take a pictures of your creation with the camera and share with your class.
- Consider the pros and cons of your treehouse from a real-world perspective and as a shelter in Survival Mode.



# CLASSROOM BUILD CHALLENGE

## Minecraft Book Covers

**TIME** 30-60 min

**SKILLS** Creativity, Collaboration, Problem Solving

**WORLD** <https://aka.ms/meebook>

### OBJECTIVES

Use this book themed world to create your own Minecraft book covers. Your designs could be 2D or 3D.

### EXTENSIONS

- Use the camera to take pictures and share with your class.
- Choose a book to create a cover for or design a cover for your own original story!
- Start a new world or use the space around the book to build more scenes from the story. Choose a scene from each chapter, or to represent the Aristotelian story structure.



# CLASSROOM BUILD CHALLENGE

What would you bring to a desert island?

**TIME** 20-30 min

**SKILLS** Creativity, Collaboration, Problem Solving

**WORLD** <https://aka.ms/atow-di>

## OBJECTIVES

Use this desert island world as a setting to build an object in Minecraft representing the one thing you would want to have on a desert island.

## EXTENSIONS

- Take pictures of your creations with the camera and share back with the class.
- Write a paragraph about what you built and why. Was your choice driven by necessity or comfort? Use as a writing prompt, what would happen next if you were stranded on an island with this item?
- Once you are done, switch to survival and see how long you can survive on the island with only the resources provided!



# CLASSROOM BUILD CHALLENGE

Agent to the Rescue!

**TIME** 20-30 min

**SKILLS** Creativity, Problem Solving

**WORLD** <https://aka.ms/mee-csrescue>

## OBJECTIVES

Interact with patterns in this world to give yourself a coding workout and use the Agent to save the day!

## EXTENSIONS

- Plan out patterns on graph paper then create your own patterns by coding the Agent.
- Use the camera to take pictures and share with your class.
- Look at architectural patterns on real world buildings for inspiration.
- Use code to have the agent create an entire building.
- Try to complete the patterns using as few lines of code as possible.



# CLASSROOM BUILD CHALLENGE

## Design A Vehicle

**TIME** 20-30 min

**SKILLS** Creativity, Problem Solving

**WORLD** <https://aka.ms/atow-vehicles>

### OBJECTIVES

Use this creative world to have design your own vehicle. Will it drive, float, fly? What type of fuel does it use? How many people can it carry? How would it move?

### EXTENSIONS

- Use the camera to take pictures and share with your class.
- Write a paragraph about your vehicle describing its key design features.
- Use your vehicle design to create a marketing poster or even a TV commercial advertising a product.
- Use the structure block to export your design to Windows 10 Mixed Reality Viewer and snap a picture of yourself next to your creation.



# CLASSROOM BUILD CHALLENGE

## Design An Animal

**TIME** 20-30 min

**SKILLS** Creativity, Problem Solving

**WORLD** <https://aka.ms/aotw-animals>

### OBJECTIVES

Use this forest setting to design their own animal in Minecraft. Is it a herbivore or a carnivore? How has this animal adapted to its surroundings? Does it have camouflage or other defenses?

### EXTENSIONS

- Sketch first, then build based on your idea.
- Take pictures using the camera and share back with your class.
- Fly to a different biome, or use a world seed code. Create an animal adapted to live in the taiga, desert, ocean, etc.
- Write a paragraph about your creature and its adaptations to the environment.



# CLASSROOM BUILD CHALLENGE

## Build A Moat

**TIME** 20-30 min

**SKILLS** Creativity, Problem Solving

**WORLD** <https://aka.ms/meemoats>

### OBJECTIVES

Protect the castle! Use your creativity to build an effective moat around the structure. When you are ready, change the gamemode to survival and see if you can survive the night.

### EXTENSIONS

- Create a sketch or blueprint before building.
- Add to the challenge by choosing a specific threat to protect against.
- Challenge yourself to use at least one redstone circuit.
- Use the camera and portfolio to share yourr creations with your class.





# CLASSROOM BUILD CHALLENGE

## Blackjack Challenge

**TIME** 15 min

**SKILLS** Creativity, Problem Solving

**WORLD** <https://aka.ms/meeblackjack>

### OBJECTIVES

Sometimes constraints can actually make us more creative. Think about what constraints affect the daily work of different jobs and how they may creatively work around them. Challenge yourself to set a time limit and use this world to create a build using only twenty-one or fewer blocks.

### EXTENSIONS

- Choose a theme based on your current lesson.
- Look at pixel art for inspiration.
- Use the camera and portfolio to share your creations with your class.



# CLASSROOM BUILD CHALLENGE

Vexillology 101

**TIME** 20-30 min

**SKILLS** Creativity, Collaboration, Problem Solving

**WORLD** <https://aka.ms/meevexillology>

## OBJECTIVES

Vexillology is the study of flags! Use this Minecraft world to learn how to craft banners and begin a conversation about elements and principles of design. Create your own banner that reflects something about yourself.

## EXTENSIONS

- Research the imagery and symbolism of local, state, and national flags.
- Design a flag for your class or school.
- Use the structure block to export your flag design to Windows 10 Mixed Reality Viewer and snap a picture of your flag flying high above your school.



# CLASSROOM BUILD CHALLENGE

Community Landmark

**TIME** 30-60 min

**SKILLS** Creativity, Collaboration, Communication

**WORLD** <https://aka.ms/meelandmark>

## OBJECTIVES

Work individually or in groups to research a local, state, or national landmark. Using the world provided, recreate this landmark within Minecraft.

## EXTENSIONS

- Take your own pictures of the chosen landmark from different angles or find images online.
- Use the camera and portfolio to create a plaque detailing the purpose and history of the landmark.
- Based on the countries you are studying in class, view examples of famous landmarks created within Minecraft.



# CLASSROOM BUILD CHALLENGE

## Spaceships

**TIME** 20 - 30 min

**SKILLS** Creativity, Critical Thinking, Problem Solving

**WORLD** <https://aka.ms/aotwspaceship>

### OBJECTIVES

Look at examples of real and fictional spacecraft. Build your own spaceship, give it a name, and take a picture using the camera.

### EXTENSIONS

- Write a story about where the spaceship will go.
- Include chests in your spaceship and plan how much food and water your crew will need based on the length of their journey.
- Use the structure block to export your designs and use a 3D printer to create models of each.



# CLASSROOM BUILD CHALLENGE

## The Labyrinth

**TIME** 20 - 30 min

**SKILLS** Creativity, Collaboration, Problem Solving

**WORLD** <https://aka.ms/mcworldlabyrinth>

### OBJECTIVES

Look up examples of labyrinths. Work with a partner. Each create your own labyrinth in Minecraft. Switch to survival and have your partner try to navigate their way through.

### EXTENSIONS

- Explore the importance of labyrinths as a symbol in pop culture, literature, and folklore.
- Plan out the maze on graph paper before building. Add unique features to dead-ends or create a picture from the walls.
- Write a program using Code Connection that allows the agent to navigate the maze.



# CLASSROOM BUILD CHALLENGE

## Element Scavenger Hunt

**TIME** 20-30 min

**SKILLS** Critical Thinking, Collaboration

**WORLD** <https://aka.ms/elementhunt>

### OBJECTIVES

Did you know the most common element on Earth's surface is oxygen? In this scavenger hunt world, use the material reducer to find as many materials as you can that contain oxygen! Found as many as you can? Choose another element and make your own scavenger hunt for a partner.

### EXTENSIONS

- Discuss techniques scientists use to determine the elemental composition of materials in the real world.
- Conduct an experiment such as making "Elephant Toothpaste" or mixing vinegar and baking soda to demonstrate the presence of oxygen in various materials.
- Research an element and create a build in Minecraft of an object that contains that element.



# CLASSROOM BUILD CHALLENGE

Area and Volume

**TIME** 20 - 30 min

**SKILLS** Creativity, Problem Solving

**WORLD** <https://aka.ms/areaandvolume>

## OBJECTIVES

Use this Minecraft world as a visual representation to help study area and volume. Find the solutions for each build and write the answers on the slate.

## EXTENSIONS

- Create your own builds and have a partner try to solve.
- Use the camera and portfolio to export your project.
- Use CodeBuilder to have the agent to create the shapes for you!



# CLASSROOM BUILD CHALLENGE

## My Machine

**TIME** 20 - 30 min

**SKILLS** Creativity, Critical Thinking, Problem Solving

**WORLD** <https://aka.ms/aotwmachine>

### OBJECTIVES

Investigate cause and effect relationships. Explore and dissect the machines in this world then create your own project, stating your goal and creating a machine to achieve the intended result.

### EXTENSIONS

- Use the camera and portfolio to create an instruction manual for how your machine works.
- Use code connection to investigate cause and effect relationships in programming by using events and event handlers.





# CLASSROOM BUILD CHALLENGE

## Physics Coaster

**TIME** 20 - 30 min

**SKILLS** Creativity, Problem Solving

**WORLD** <https://aka.ms/AOTWphysicscoaster>

### OBJECTIVES

Demonstrate the first law of thermodynamics by using the transfer of potential energy to kinetic energy with a minecart roller coaster! Create your own track and identify points at which a car has maximum kinetic energy and maximum potential energy.

### EXTENSIONS

- Work with a partner and have them find the key points of maximum energy on each other's track.
- Use the camera and portfolio to export your project, or record a video of riding the roller coaster.
- Work as a class to create a physics theme park.



# CLASSROOM BUILD CHALLENGE

Architecture

**TIME** 20 - 30 min

**SKILLS** Creativity, Collaboration

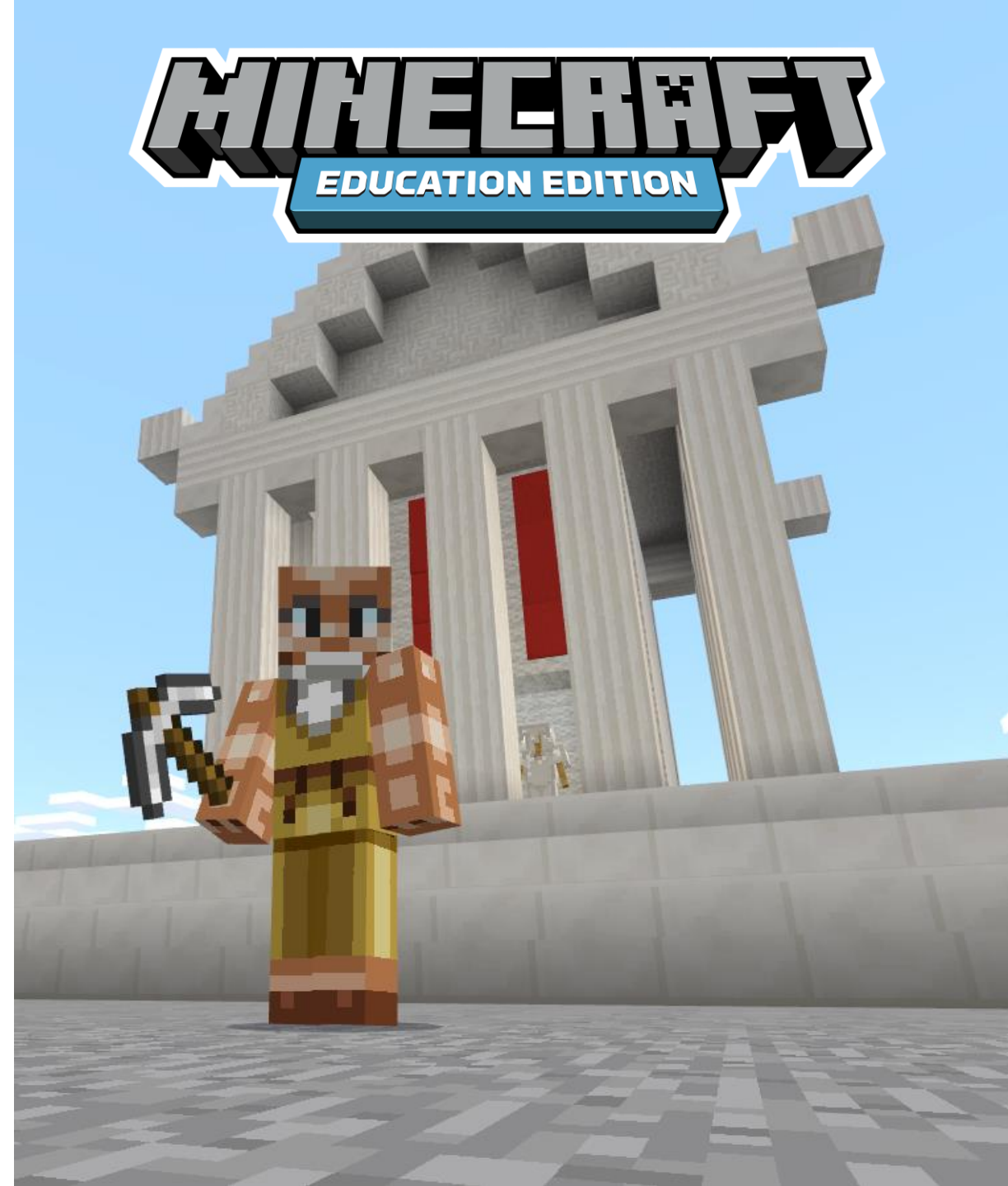
**WORLD** <https://aka.ms/aotwarchitecture>

## OBJECTIVES

In this build challenge with a partner to choose a style of architecture from history to emulate. Examples could include classical, gothic, brutalist, medieval, etc. Research examples and create your own building in Minecraft using similar elements.

## EXTENSIONS

- Look at your school or other local buildings and discuss the architectural style and elements.
- Use the camera and portfolio to export your project and share back with your class.
- Work in the same world as you classmates to create a small town featuring different types of buildings in the same architectural style.



# CLASSROOM BUILD CHALLENGE

## Story Setting

**TIME** 20 - 30 min

**SKILLS** Creativity, Collaboration

**WORLD** <https://aka.ms/aotwstorysetting>

### OBJECTIVES

In this build challenge, choose a book you have read and use Minecraft to create a setting found in the work. Choose a biome that best fits the book or use the supplied world which features a flat area for students to get started building right away.

### EXTENSIONS

- Work in a group to create several different settings from the same book.
- Do a Minecraft book report. Do a walkthrough of your world with you class.
- Use the camera and portfolio to export your project and share with your class.



# CLASSROOM BUILD CHALLENGE

## Pixel Portraits

**TIME** 20-30 min

**SKILLS** Creativity

**WORLD** <https://aka.ms/aotwpixelpics>

### OBJECTIVES

Create a self portrait in Minecraft! Review examples of pixel art in Minecraft and classic video games. Use a laptop or phone camera to take a selfie. Use the provided world to transform the selfie into a 16x16 or 32x32 pixel portrait.

### EXTENSIONS

- Record and share challenges you faced in creating a small and large portrait.
- Create portraits of famous people as part of a biography project or book report.
- Use the grid method to enlarge their image and create a painting or drawing.



# CLASSROOM BUILD CHALLENGE

## Green Building

**TIME** 20 - 30 min

**SKILLS** Creativity, Problem Solving

**WORLD** <https://aka.ms/AOTWGreenBuilding>

### OBJECTIVES

Investigate innovations in building that help to save energy and protect the environment. In a group, build a new home that uses some of these techniques.

### EXTENSIONS

- We don't all live in green buildings. Help out the family by making a list of things they can do to be more environmentally friendly!
- Look at a list of common items that are compostable, recyclable, then help the family sort their trash.
- Do a home audit of common ways you can help to save energy and conserve water.
- Use Minecraft to make a plan for new school garden.



# CLASSROOM BUILD CHALLENGE

## Campsite

**TIME** 20 - 30 min

**SKILLS** Creativity, Problem Solving, Collaboration

**WORLD** <https://aka.ms/AOTWCampsite>

### OBJECTIVES

Choose an open area and build your own campsite! Plan ahead and make a list of all the things you might need on your trip.

### EXTENSIONS

- Work together with your classmates to build additional buildings or resources you might need at the campground.
- Choose a different biome to camp in and talk about how elevation and locale affects climate.
- Research Leave No Trace and the ethics and implications of outdoor conservation efforts.
- Determine the numeric details of the food, water, and other supplies you would need for one day camping. Multiply the necessary amounts based on the length of the trip.



# CLASSROOM BUILD CHALLENGE

Patterns, Repetition, and Rhythm

**TIME** 20 - 30 min

**SKILLS** Creativity, Problem Solving, Collaboration

## OBJECTIVES

Patterns are all around us, both in the designed and natural world. Consider how patterns affect our daily lives then use Minecraft to create their own repeating pattern.

## EXTENSIONS

- Look at artwork from around the world that incorporates patterns, repetition, and rhythm.
- Use your Minecraft design as a draft for an art and design project.
- Work with a partner. Start a pattern and have your partner try to figure out the pattern and complete the design.
- Use your favorite coding program to have the Agent create a pattern for you.



# CLASSROOM BUILD CHALLENGE

## Minecraft Color Wheel

**TIME** 20 - 30 min

**SKILLS** Creativity, Problem Solving

**WORLD** <http://aka.ms/AOTWcolorwheel>

### OBJECTIVES

Study the color wheel and identify primary, secondary, and tertiary colors. Using the Color Wheel world, find objects from Minecraft to fill out a color wheel. Use the creative menu, or for a challenge find things from the world around you to complete the task.

### EXTENSIONS

- Snap a picture of your color wheel with the in-game camera and share with your class.
- Use the nearby cauldron to experiment with mixing colors. Do they behave the same way in our world?
- Try completing the color wheel by dyeing sheep different colors and shearing their wool.





# CLASSROOM BUILD CHALLENGE

## Comic Books

**TIME** 20 - 30 min

**SKILLS** Creativity, Communication

**WORLD** <https://aka.ms/AOTWComics>

### OBJECTIVES

Use the world provided to help build your own visual narratives. Before building, create story boards for each panel and write out a the dialogue. Build the scenes in Minecraft then take a screenshot to share with your class.

### EXTENSIONS

- Work with a group to create multiple panels.
- Print out the screenshots of your work and collect into a comic book.
- Use a digital art program to create word bubbles, or write by hand and combine on a photocopier.



# CLASSROOM BUILD CHALLENGE

Dragon!

**TIME** 20 - 30 min

**SKILLS** Creativity, Communication

**WORLD** <https://aka.ms/ATOWdragon>

## OBJECTIVES

A dragon has appeared near the village. Why is it here? Is it a friend or foe? Should we build defenses or try and talk it out? Explore the featured world. Discuss what you discover and use it as a prompt to write and build to finish the story.

## EXTENSIONS

- Use the camera to take pictures in Minecraft to illustrate your story.
- Share your stories with the class by reading your story and showing pictures of your build.
- In pairs, create your own Minecraft world to use as a prompt for a partner to write a story.



# CLASSROOM BUILD CHALLENGE

Gone Fishing!

**TIME** 20 - 30 min

**SKILLS** Problem Solving, Critical Thinking

**WORLD** <https://aka.ms/ATOWfishing>

## OBJECTIVES

Grab your fishing rod and head out onto the water! Use this Minecraft world to get started tracking your fishing successes. Record what you caught, then combine the your numbers with your classmates to determine the probability of catching fish, junk, or treasure.

## EXTENSIONS

- Learn to express probability numerically as a fraction, decimal, and percentage.
- Develop and test your own hypothesis in Minecraft. Does the weather affect fishing? Does the type of biome change what you'll catch?



# CLASSROOM BUILD CHALLENGE

## Museum of Me

**TIME** 20 - 30 min

**SKILLS** Communication, Character, Citizenship

**WORLD** <https://aka.ms/ATOWmuseum>

### OBJECTIVES

Create your own museum in Minecraft! Write a list of important events in your life and think about what objects you could build in Minecraft to represent these events. Use the supplied world as a base to build your museum. Plan the layout on graph paper before building, and consider the materials and colors used in each room.

### EXTENSIONS

- Act as a curator and give a tour of your museum to your class to create your own personal narrative.
- Think about and research what was happening in the world during these times of your life.

