MINECRAFT
EDUCATION EDITION

Classroom Build Challenges

CLASSROOM BUILD CHALLENGE
Build a Treehouse

TIME 20-30 min

SKILLS Creativity, Collaboration, Problem Solving
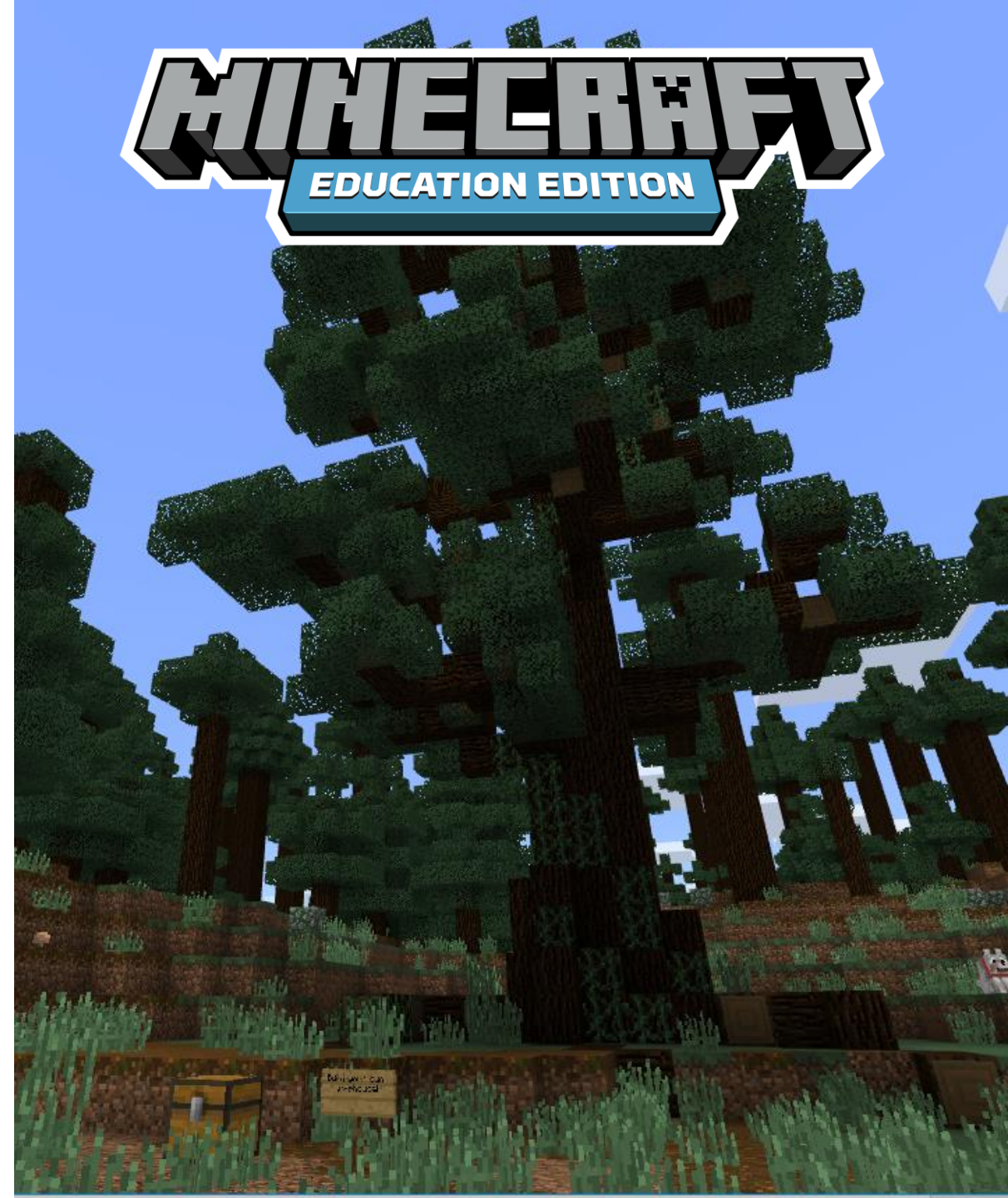
WORLD https://aka.ms/meetree

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/meeisland

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 yourslef 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/meevehicle

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

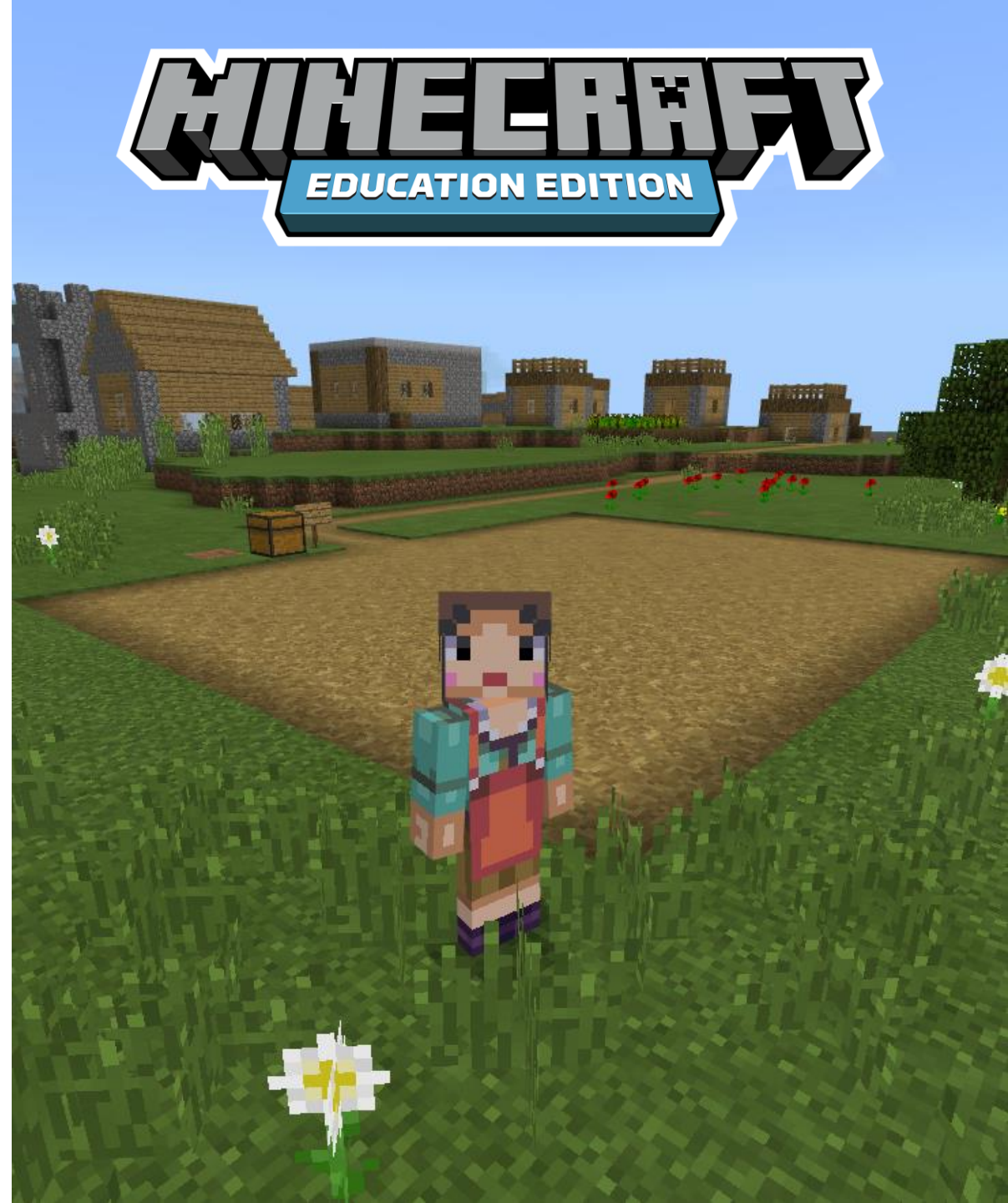### OBJECTIVES

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
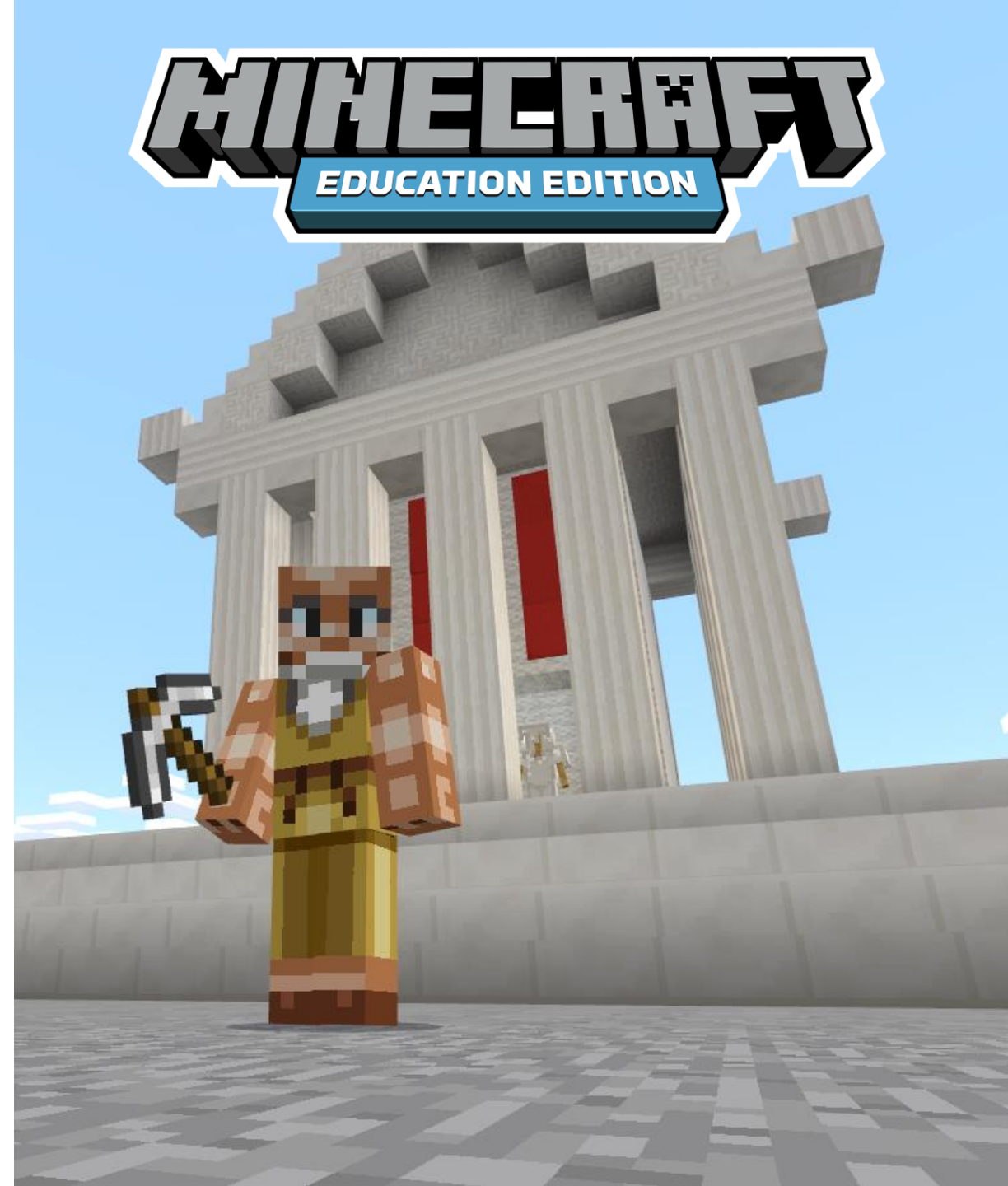
WORLD https://aka.ms/aotwarchitecture

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.

- Reseach 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

WORLD   http://aka.ms/AOTWpatterns

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/AOTWdragon

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/AOTWfishing

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
Sculpture Garden

TIME 20 - 30 min

SKILLS Creativity, Problem Sovling

WORLD https://aka.ms/AOTWSculpture

OBJECTIVES

Minecraft is all about breaking and placing blocks. Try your hand at sculpting in Minecraft. Use the supplied world and chip away at the blocks of stone to reveal the sculpture beneath.

EXTENSIONS

- After you're comfortable chipping away, create and hide your own sculpture for a classmate to reveal.

- Look at famous examples of sculptures in different artistic styles.

- Work in a shared world, to create a sculpture garden with you class.

CLASSROOM BUILD CHALLENGE
Museum of Me

TIME   20 - 30 min

SKILLS Communication, Character, Citizenship

WORLD https://aka.ms/AOTWmuseum

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.

CLASSROOM BUILD CHALLENGE
Shipwreck Narrative

TIME   20 - 30 min

SKILLS Creativity, Communication
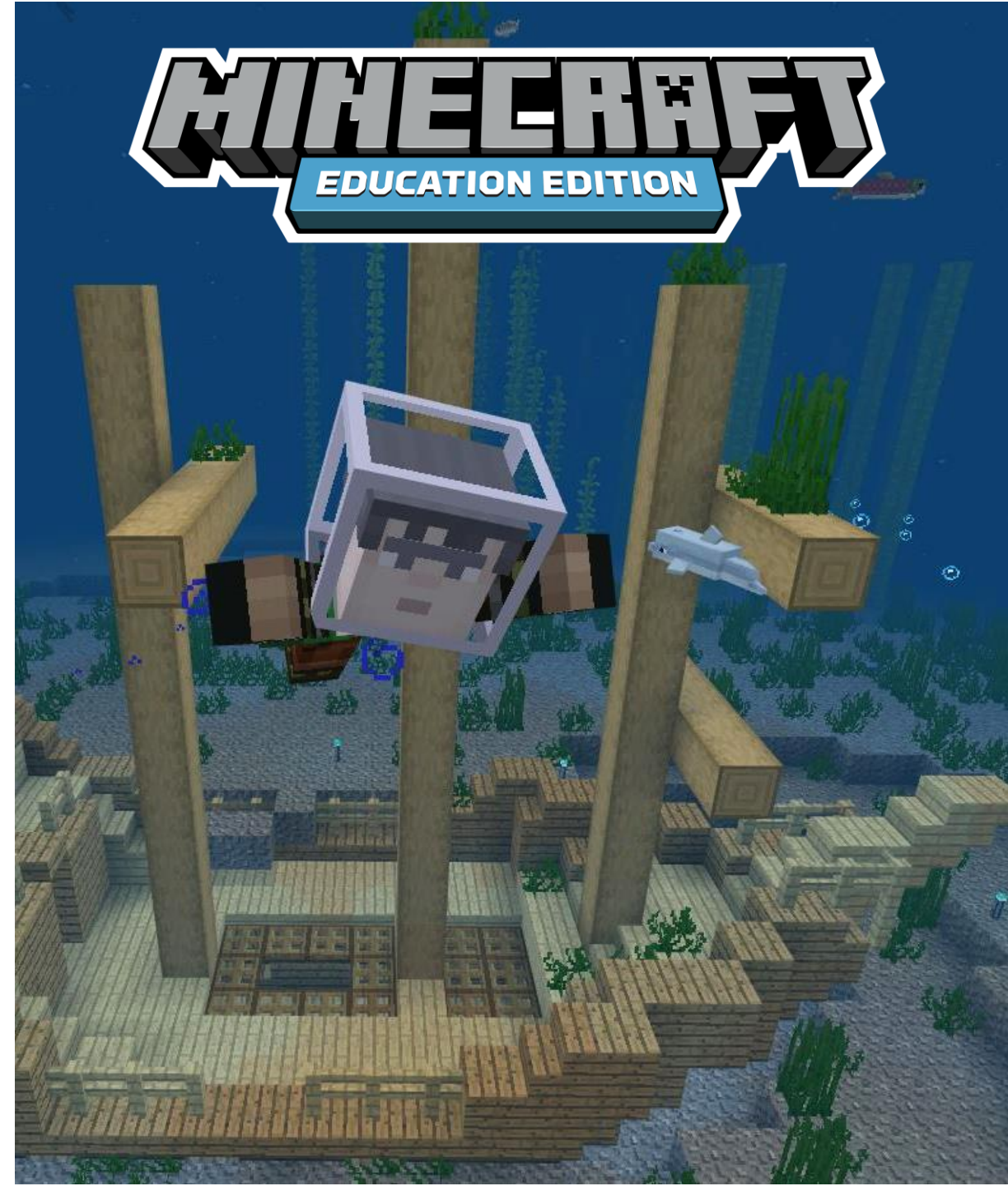
WORLD https://aka.ms/AOTWShipwreck

OBJECTIVES

Load the supplied shipwreck world. Observe the details and take notes on what you see. Write a narrative about how this ship ended up in this condition. Who might have been on this ship? Where might the ship have been headed?

EXTENSIONS

- Build onto the ship to add details and evidence to your narrative.

- Use the camera and portfolio to document your discoveries.

- Use the slash command /locate to find your own shipwreck in Minecraft.

CLASSROOM BUILD CHALLENGE
Pumpkin Carving

TIME 20 - 30 min

SKILLS Creativity, Problem Solving

WORLD https://aka.ms/MEEpumpkin

OBJECTIVES

Carve a pumpkin in Minecraft! Use grid paper to plan out the face, then build your creation in the game. Use the pumpkin in the provided world to get started or create your own.

EXTENSIONS

- Use Redstone to create a lighting system for your pumpkin so it glows at night.

- Code the agent to add effects to your display.

- Carve a real pumpkin based on your design.

CLASSROOM BUILD CHALLENGE
Minecraft Monster Mashup

TIME   20 - 30 min

SKILLS Creativity, Collaboration

WORLD   https://aka.ms/MEEMonsters

OBJECTIVES

Work in a group of three to collaboratively build a monster in Minecraft. Each student begins by creating the lower half of the body, students switch, then create the torso, then switch once more and create the head.

EXTENSIONS

- Write a short story about your creature.
- Research and build creatures from ancient myths.
- Export your build with a structure block and take a selfie with Windows Mixed Reality viewer.

CLASSROOM BUILD CHALLENGE
Solar Model

TIME 20 - 30 min

SKILLS Critical Thinking, Collaboration

WORLD https://aka.ms/MEESolar

OBJECTIVES

The Sun is 286 times the size of the smallest planet in our solar system, Mercury. If Mercury were the size of one Minecraft block, try to build a scale model of Mercury and the rest of the planets. You may have to round up or down to the correct number of blocks. To get you started, we've created a world with a Minecraft block scale sun!

EXTENSIONS

- Research each planet and create a build of something that represents each one.
- Use Code Builder commands to help build the planets. Search for the "sphere" command, set the radius, and location to start building.
- Label part of the sun such the corona and convection zone.

CLASSROOM BUILD CHALLENGE
Character Study

TIME   20 - 30 min

SKILLS Creativity, Communication

WORLD   https://aka.ms/MEECharacters

OBJECTIVES

Choose a character from a story you have read. Create a home for this fictional character in Minecraft. Decorate the home with items and build objects that represent their character traits.

EXTENSIONS

- Take pictures of your creations to illustrate a written character study.
- Use the Book & Quill to create a diary the character may have written and place it in the house.
- Make a pixel portrait of the character.

CLASSROOM BUILD CHALLENGE
Time Machine

TIME   30-60 min

SKILLS Creativity, Critical Thinking, Collaboration

WORLD https://aka.ms/TimeMachineChallenge

OBJECTIVES

Choose a space in your community, school, or home then use Minecraft to reimagine the space. What will the space look like 100 years in the future? What did the space look like 100 years ago? How can the space change to meet a current or future need? What necessitated the changes over time?

EXTENSIONS

- Use the Book & Quill to write a short essay to accompany your build about the changes you foresee or those you researched.
- Use the structure block and mixed reality viewer to photograph your creation next to the real location.
- Share your project with us! @playcraftlearn #timemachine

CLASSROOM BUILD CHALLENGE
Time Machine

TIME 30-60 min

SKILLS Creativity, Critical Thinking, Collaboration

WORLD aka.ms/ZeroWasteChallenge

OBJECTIVES

Did you know that every year roughly one third of the food produced in the world for human consumption gets lost or wasted? That's 1.3 billion tons of food! Use this starter world and challenge yourself to build and document ways you can reduce food waste in your home, school, and community. Let's build a better world together!

EXTENSIONS

- Research the problem and proactive steps you can take.
- Use tools like the board and camera or take a video to document your work.
- Share images of your plan with the community at #minecraftedu or with a video on Flipgrid and encourage others to do the same!