

Educator Guide

CloudCraft

EDUCATION.MINECRAFT.NET

Welcome

Welcome to **CloudCraft, a** world which explores the way datacenters work and the impact and service they provide globally. CloudCraft has been designed as a fun and creative world for students to engage with and learn about the important role datacenters play in modern society.

It offers opportunities for students to engage as active digital citizens and develop an underlining understanding about how their data is managed and the positive impact this industry has on local and global society.

This guide for teachers is designed to provide all the information you need to help your students have an enjoyable and successful experience.

Learning Objectives

As part of CloudCraft, students will:

- **Digital Identity -** Understand how the datacenter helps society to manage online identities with integrity
- **Digital Rights -** know how the datacenter works to protect people's digital rights with respect
- **Digital Literacy -** Understand how digital media is managed through the datacenter
- **Digital Communication -** Understand how the datacenter connects society
- **Digital Security -** Explain how the datacenter defends digital identity.
- **Digital Safety -** Know how the datacenter works to help detect and manage digital dangers
- **Digital Society -** Understand the opportunities and impact the datacenter has on society and the environment



Subjects

- Climate & Environment
- Careers and Management
- Computer Science



Skills

- Citizenship
- Communication
- Critical Thinking

Ages

8-18

Getting Started

If you are new to Minecraft: Education Edition there are many resources to help you get started. Many teachers find that their students know how to play Minecraft, so it's possible to involve them in helping you understand the game.

Here's some simple steps you can take to get started with Minecraft: Education Edition.

- Install **Minecraft: Education Edition** by visiting https://aka.ms/download
- It's free to download and can be installed on many different types of devices.



Theme

Whether we realize it or not, we rely on the Cloud for everything, from working remotely, to ordering deliveries from our favorite restaurants, to securely communicating with our doctors.

But what is the Cloud?

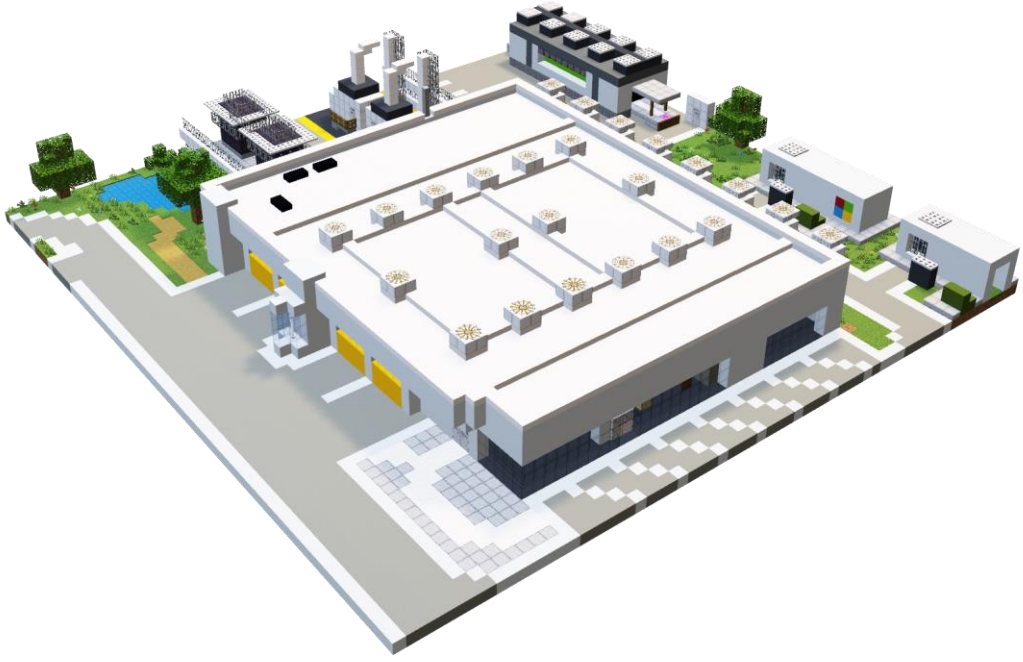
It is not nebulous magic, nor is it a single supercomputer. The Cloud is a globally interconnected network of millions of computers in datacenters around the world, which work together to store and manage data, run applications, and deliver content and services.

The Cloud keeps data protected across global datacenter regions, from the United Kingdom to the United Arab Emirates, South Africa to South Korea.

The game starts in a generic Minecraft village. The player has just woken up and is informed that it is their first day on the job. They will be working on the datacenter's emergency task force to help solve a series of problems.

Upon finding the headquarters, the player will find their boss for more information by following a trail of particles

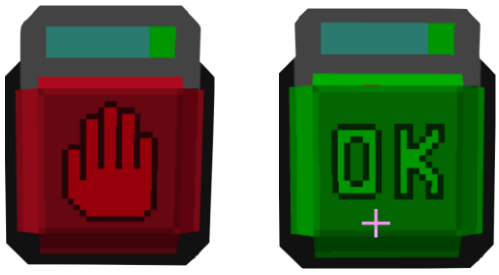
The player will speak with the boss whereby after an alarm will sound. The boss informs the player to press the button under missions panel to receive a debriefing of the problem.



Missions

The world is made up of a series of missions the students must solve. There are five in total which are themed around the following areas:

- Technician
- Architect
- Engineering
- Security
- Recycling



Upon starting a mission students will be debriefed via an animation explaining the problem each team needs help solving. After the scene is over, the player is teleported to the employee that needs help fixing the problem. That employee will tell the player about the task they need help with

Once all tasks for each mission have been completed a follow up animation showing that the problem was solved will appear and how this solution helped the villagers.

The village will also modernize.

Students then return to HQ to complete the remaining missions. These missions are completed in a random order for each student.



Missions

Missions are not linear and will be presented to each player in a random order.

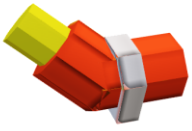
Environmentalist - Recycling

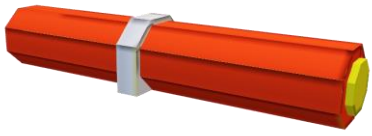
Students are required to recycle old hardware to be given back to the community. Before they can do this they must connect the recycling machine to the sites power source. First students must find where there is a break in the red cabling.

They can fix this by selecting the broken wiring.

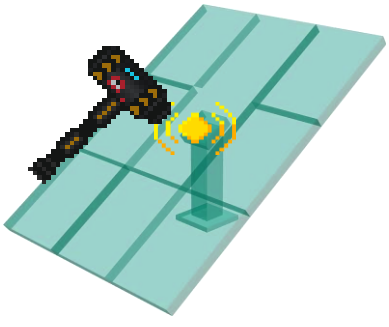








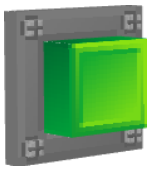
Once completed students then need to fix the solar panels and wind turbines with the creator hammer.

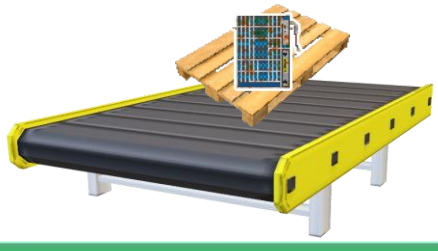




Now that the power is up and running collect the old hardware, select the green button on the machine and allocate the correct hardware to the correct conveyor belt.









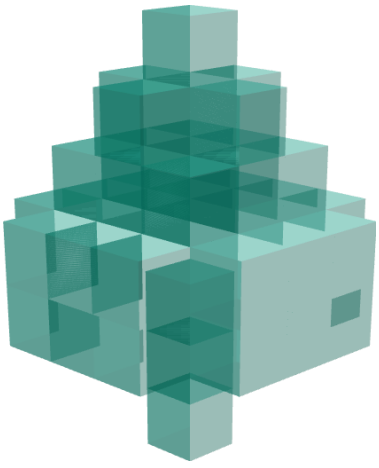
Missions

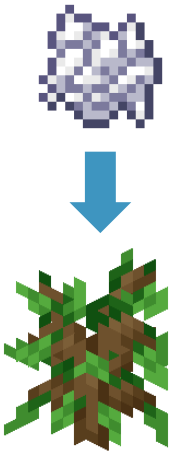
Architect - Tree Replanting



The datacenter is environmentally aware of the impact it has. To build the center, land needed to be cleared. To ensure we put back what we took, we need to plant two new trees for every tree which was removed. This planting is designed to help the community and environment.

After talking to the architect, students will be given tree saplings and bone meal. Located around the datacenter are identified locations where the trees need to be planted. Students place the sapling at the base of this location then apply bone meal to make it grow quickly.



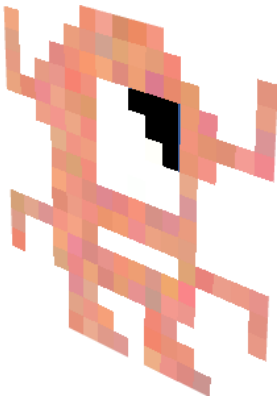




If a student loses their sapling or bone meal, they can return to the architect at any time to receive more.

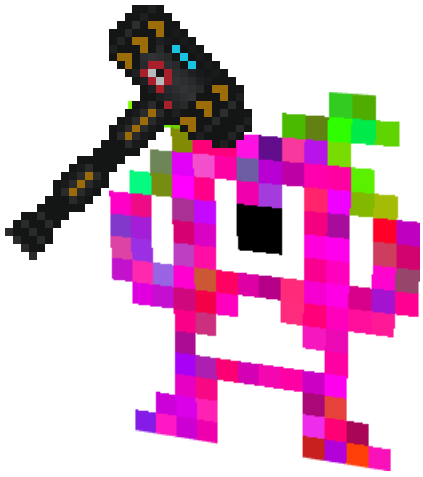
Missions

Engineer - Data Security Breach



The datacenter is being attacked by a virus. The animation depicts a criminal attempting to embed a virus via the town's ATM. The villagers becoming increasing concerned.

Players must help to protect online personal information by fighting the bugs being implanted into the datacenter. The chief engineer will shrink the students down so that they can be teleported inside the computer. From here, they must fight the bugs until they have all disappeared. They do this be hitting the bugs with the creator hammer. The bugs will come in several waves gradually getting harder each time.





If a student is stuck or wishes to leave this challenge, they can locate a button found on the corner of the room which will abort the mission.



Missions

Security - Intruder Alert



The datacenter has detected some unusual activity around the outside of the building. It appears that the physical security of the building may be compromised. The Iron Golem security team requires assistance in apprehending the intruders.

Students must walk behind the front security desk and select the monitor. Once selected. they will be shown nine security images whereby there is unusual activity happening in randomly selected screens. Once the students noticed something unusual, they must select the space bar to inform the Iron Golems.





Students can repeat this activity as many times as possible until they are successful.

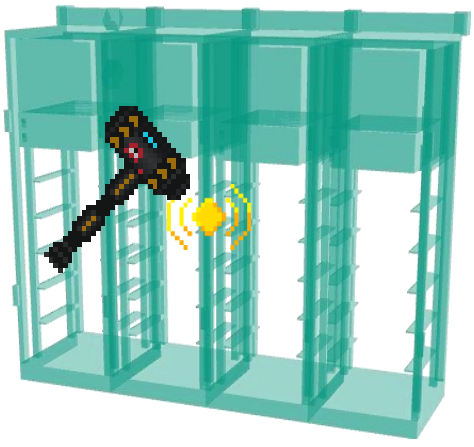
Missions

Technician – Connecting to the grid



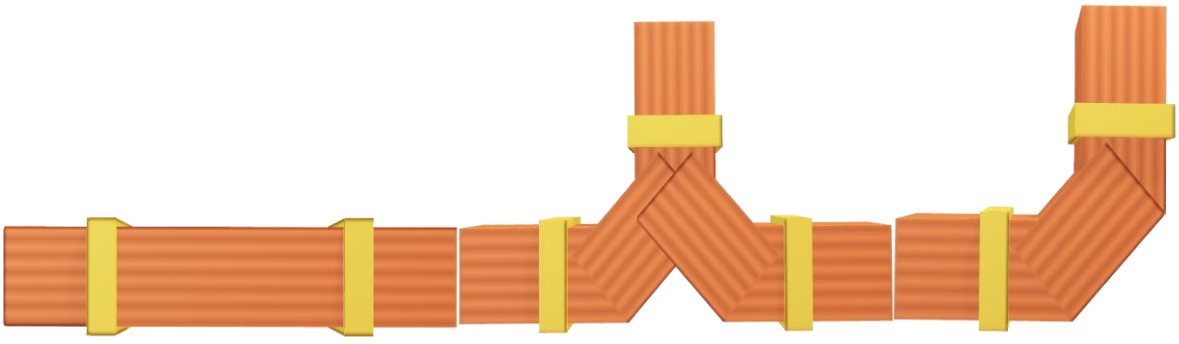
It appears that some of the villagers are struggling to connect to the cloud. The datacenter team requires some help to finish installing the remaining hardware. There are two task to complete in this mission.

First students must install the three remaining server racks followed by the JBODS. The technician will give the students a creator hammer whereby they tap on the light blue server racks to install them. They must then collect the JBODs and click to insert them into the server racks.





Once completed students move to the second room to connect the switch boxes. Once active they must turn the wiring on the ground until each component connects to each switch box and each other. Click on the wiring to turn each one.



Additional Resources

In-Game

Once students have completed each mission, they are free to explore the rest of the Datacenter and village. There are two extension activities students could engage with.

First you may ask them to observe additional information and features of the datacenter. The datacenter has a series of information points providing additional information about the Datacenter. They can also explore the village to see how it has changed since they first arrived.

You may ask students the following:

- What impact has the datacenter had on the local community?
- What other security measures are in place to protect people's data?
- What services will the Datacenter provide on a local and global scale?
- What employment opportunity does the Datacenter offer the village?

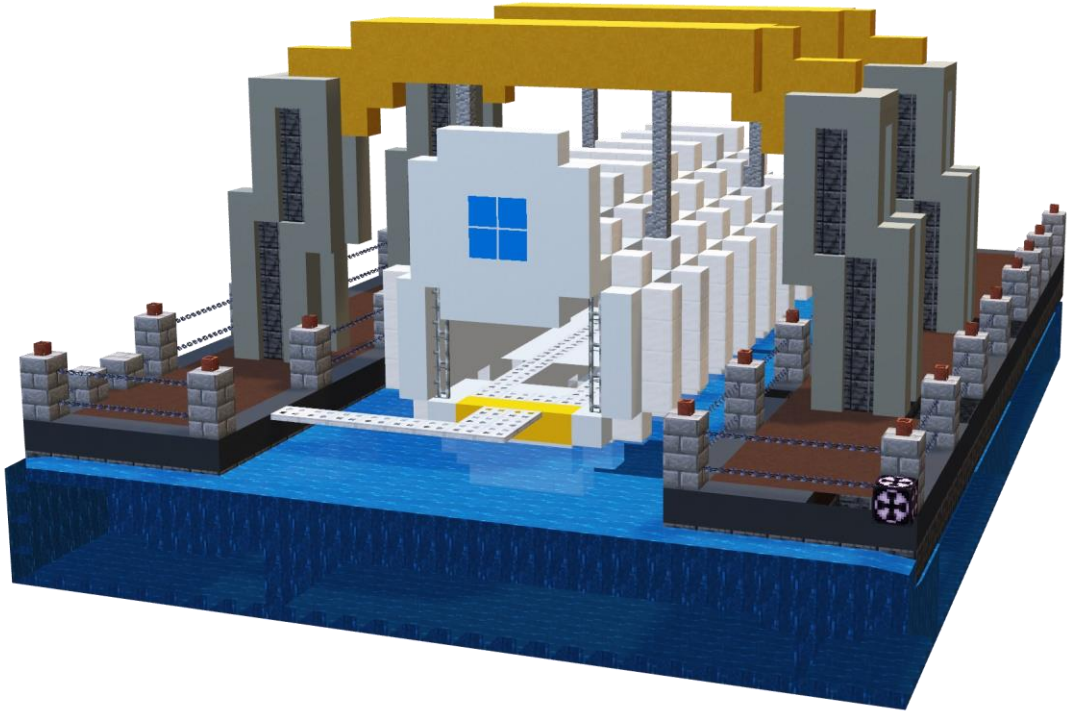


Additional Resources

In-Game

Students may also discover the underwater data centre. This can be located by finding the hidden room within the Data Centre. Here students can see how Datacenter employees are working to develop more sustainable ideas around cooling Datacenters whilst providing better services to remote locations.

Story Labs 360 – A VR Video Series from Microsoft Story Labs



Resource Pack

The following resource materials are designed to support the teaching and learning experience in the classroom. Each resource can be downloaded individually and be printed or completed digitally. These resources will help students to think critically about the learning objectives designed to be addressed throughout this world.

Lesson Plan

Activity 1 – Think Pair Share Activity 2 What is

the Cloud?

Activity 3 – The how and why?

Activity 4 – Why Datacenters?

Activity 5- Environmental Impact (Four Groups)

Activity 6 – Missions Worksheets

Reflection



Educational Standards

CSTA Standards:

3A-IC-27 Use tools and methods for collaboration on a project to increase connectivity of people in diverse cultures and career fields.

1B-NI-05
Discuss real-world cybersecurity problems and how personal information can be protected.

2-NI-05 Explain how physical and digital security measures protect electronic information.

3A-NI-05
Give examples to illustrate how sensitive data can be affected by malware and other attacks.

3A-NI-06
Recommend security measures to address various scenarios based on factors such as efficiency, feasibility, and ethical impacts.

3A-NI-07
Compare various security measures, considering tradeoffs between the usability and security of a computing system**.**

Australian Curriculum:

(ACTDIP021)
Explain how student solutions and existing information systems are sustainable and meet current and future local community needs

(ACHASSI102)
Work in groups to generate responses to issues and challenges

(ACTDIP032)
Plan and manage projects that create and communicate ideas and information collaboratively online, taking safety and social contexts into account

ACTDIP042
Evaluate critically how student solutions and existing information systems and policies, take account of future risks and sustainability and provide opportunities for innovation

(ACTDIP043)
Create interactive solutions for sharing ideas and information online, taking into account safety, social contexts and legal responsibilities

(ACTDIP044) Plan and manage projects using an iterative and collaborative approach, identifying risks and considering safety and sustainability

UK England

(Computing : Key Stage 1)
Recognize common uses of information technology beyond school

(Computing: Key Stage 2)
Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration

(Computing: Key Stage 2) Use technology safely, respectfully and responsibly; recognize acceptable/unacceptable behavior; identify a range of ways to report concerns about content and contact

(Computing: Key Stage 3)
Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems

(Computing: Key Stage 4)
Understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to report a range of concerns

