

# LESSON NAME: Natural Carbon Capturing



## PREP

- A3 or A4 Poster Paper (social media post activity)
- A3 or A4 Graph paper
- Minecraft Education App
- One to two devices per team with the Minecraft Education app installed and ready for use

## VOCABULARY

- |                |              |
|----------------|--------------|
| • Carbon       | • Capture    |
| • Oxygen       | • Release    |
| • Storage      | • By-Product |
| • Fossil fuels | • Atmosphere |
| • Cycle        |              |

## RESOURCES

- Minecraft for Education App
- YouTube Video - How trees capture and store carbon - <https://www.youtube.com/watch?v=vJY3DTaE0sI>

## CURRICULUM OBJECTIVES

### Curriculum for Wales: Areas of Learning Experience

#### Progression Steps 2 & 3:

- Science and Technology: Design thinking and engineering offer technical and creative ways to meet society's needs and wants
- Languages, Literacy and Communication: Expressing ourselves through languages is key to communication
- Humanities: Enquires, exploration and investigation inspire curiosity about the world, its past, present and future

### DCF:

- Citizenship (online behaviour)
- Interacting & Collaborating (teamwork)
- Producing (constructions)
- Data/Comp. Thinking (problem solving & debugging)

### LNF:

- Oracy across the curriculum
- Using measuring skills
- Using data skills

### ALN:

- Break processes, text and spoken language down into small steps
- Ensure that key concepts and vocabulary are revisited and reused

## LET'S GET STARTED

Show the Youtube video with the learners. Then ask the following questions –

- *What is the carbon cycle?*
- *Why is it important for us to know about it?*

Break students into teams of three (four maximum) - Let's look at the roles you will take on for the activity today? (Show role definitions) Decide who will be doing what when we go to over the activity for today?

Check for understanding and move on to the *Discover* portion of the lesson

# DISCOVER

Share the LO's for the session with the learners.

Work in teams of three (four maximum) with students taking on the following roles:

- Carbon Cycle Expert
- Designer
- Project Manager

Using the web pages and YouTube video (See *Resources* section) teams will create a mock social media post utilizing words and definitions for the vocabulary words above from the pers perspective of the job roles listed above.(See *Vocabulary* section).

**Helpful Question: Which team member(s) would be best to research this? Which social media platform will you mimic on your poster?**

Research the carbon cycle in detail, and take notes, use those notes to complete the activity above and to consider what materials can be used within Minecraft to create the carbon cycle.

Think of interesting ways to explain why carbon sequestration is important.

Collect interesting facts in readiness for use in their build

Use the A3/A4 paper provided to design plan their design before moving on to the Minecraft app.

# DESIGN

**Using your researched information your team must construct a sustainable school that has the following features. Incorporate all of the features on the rubric to help your team become Minecraft Masters!**

Features to include	Good	Excellent	Minecraft Masters
<b>NPC guides (using job roles listed below)</b>	NPC guides for 1/3 listed job roles Each NPC explains their job role 1 x URL button for more information	NPC guides for 2/3 listed job roles Each NPC explains their job role 1 x URL button for more information 1 x command button to teleport user to a feature of the sustainable school	NPC guides for 3/3 listed job roles Each NPC explains their job role 2 x URL button for more information 1 x command button to teleport user to a feature of the sustainable school
<b>Design (A5 grid paper)</b>	<b>Includes:</b> Key for materials used Basic Carbon Cycle Location of NPCs	<b>Includes:</b> Key for materials used Basic Carbon Cycle How will they show the explanation of Carbon Sequestration. Location of NPCs	<b>Includes:</b> Key for materials used Basic Carbon Cycle How will they show the explanation of Carbon Sequestration. Notes on each different aspect Location of NPCs
<b>Build</b>	<b>Must include</b> Basic Carbon Cycle 1 x NPCs	<b>Must include</b> Basic Carbon Cycle A way of explaining Carbon Sequestration 2 x NPCs	<b>Must include</b> Basic Carbon Cycle A way of explaining Carbon Sequestration Chalkboards to explain each step of the process 3 x NPCs
<b>Book &amp; Quill</b>	Documents the building of the Net Zero Village Must include each teammates contribution to the build Minimum of two pages Minimum of two photos	Documents the building of the Net Zero Village and Recycling Centre Must include each teammates contribution to the build Minimum of three pages Minimum of three photos	Documents the building of the Net Zero Village and Recycling Centre with carbon neutral transportation Must include each teammates contribution to the build Minimum of four pages Minimum of four photos

**Job Roles:** 1. Carbon Cycle Expert 2. Designer 3. Project Manager

# DEVELOP

## Check in plenary questions.

Check in plenary questions. The first list (1) is to be asked before the **Design** section is introduced and the teams have discussed how they will complete the assignment.

### 1 - Before build challenge

- Do you understand what you need to do?
- Who will be in charge of time management?
- Who will use the device first to attempt the challenge?

### 2 - During challenge

- Has your designer completed the design? Are you following it to build your school?
- Is it a good time to switch roles and let your partner use the device?

### 3 - Near completion time

- Has anyone had to make changes to the design? Is it reflected in the build?
- **Have a team who has completed the challenge assist others that are struggling**

# DELIVER

## EXTENSIONS:

### Mild

Use of Redstone in build

### Spicy

Use of pistons or floating structures

### Hot

Use of coding or command blocks

# DISCUSS

## BE PREPARED TO ANSWER THE FOLLOWING QUESTIONS AS A TEAM AT THE END OF YOUR BUILD:

1. Did your team complete the challenge?
2. Did your team complete the mock social media posts for each job role (on their poster)?
3. How did you perform together as a team (1 -10)?