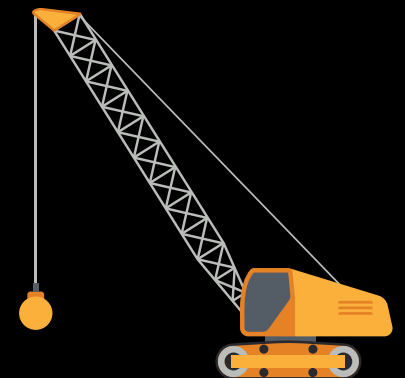Skillscraft minigame

SUSTAINABLE CONSTRUCTION

(BGE 2nd, 3rd and 4th level)

LEARNING INTENTION AND SUCCESS CRITERIA

Learning intentions

Use the world of Minecraft to explore sustainable construction. Consider building or renovating buildings using less energy, water, and materials than typical construction practices and generating less waste.

Success looks like

- ✓ I can give examples of careers in sustainable construction
- ✓ I can identify meta-skills used in these careers
- ✓ I can list the steps involved in rebuilding a storm damaged building and replanting a forest
- ✓ I can be creative with technology to build a sustainable tourist destination in Minecraft

CURRICULUM OBJECTIVES

Technologies: TCH 2-06a, TCH 3-07a, TCH 4-05a

Sciences: SCN 2-04b, SCN 3-04b, SCN 4-04a

Literacy: LIT 2-02a, LIT 3-02a, LIT 4-02a

Maths: MTH 2-12a, MTH 3-12a, MTH 4-12a

META-SKILLS

- **Self-Management:** Adapting
- **Social Intelligence:** Leading
- **Innovation:** Critical Thinking

USEFUL SPACE LINKS

Construction and built environment | My World of Work

Green careers | My World of Work

Napier University – Institute for Sustainable Construction

Zero Waste Scotland – Construction

Scotland.Org – Building a better future

BE-ST Sustainable Scottish Construction

Scottish Government – Encouraging Sustainable Construction

Scottish Forestry – Scottish Government Agency

Scottish Forestry – Engagement Programme

Forest and Land Scotland

Forest and Land Scotland – Learn

LANTRA – Introduction to Forestry & Arboriculture

Go Construct – Construction Careers

VOCABULARY

- Sustainability
- Sustainable Construction
- Forestry
- Project Manager
- Architect
- Materials Engineer
- Forest Manager
- Forestry Worker

(this can be think-pair-share or rapid response in groups)

GET THINKING

- What do we know about sustainability?

- What is sustainability and what makes a material sustainable? How many sustainable items are in your classroom?

- What Minecraft building materials are sustainable? Name three.

- Which United Nations Sustainable Development Goal (UN SDG) would sustainable construction fall under? Use this link to show on your class screen for quick fire responses.

DISCOVER

5-10 mins

- Pupils can work in teams of two or individually.

- Go into the world and navigate your way to the Sustainable Construction area and NPC, without using the portals in the main building.

- Once you find the NPC, click on the URL link.

- Be ready to create a three question quiz (with answer key) about Sustainable Construction using Green Careers.

- Create the quiz in your books or use Microsoft Forms.

- Be ready to add more questions to your quiz later.

TEACHER TIP:

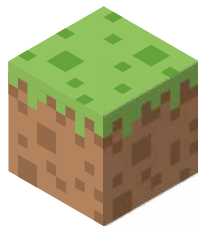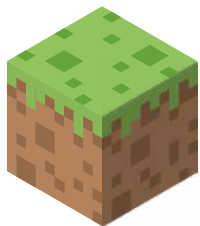**Suggest pupils write down what they learn from each NPC they meet.**

DESIGN

Sustainable Construction: Rebuild Challenge

20-25 mins

- **Pupils can work in groups of 2-3 or individually.**
- **One device is encouraged to allow for maximum collaboration. Pupils can swap roles at any time.**

REBUILD CHALLENGE

Your team will use the following steps to rebuild the cabin sustainably and safely after it has been damaged by a storm and replanting trees:

1. Player starts in the Grampian Lodge, and speaks to three Non-player Characters (NPC) to learn about their careers.

2. Player walks to the cabin to investigate missing blocks caused by a storm.

3. Player is given an axe by a Forester, who asks them to obtain some logs from the storm-damaged trees.

4. Player returns to the Grampian Lodge to craft the tree logs into building materials (planks, door).

5. The players' next task is to replant the three trees that were damaged in the storm, by placing saplings on the highlighted blocks.

6. **Rebuild:** now with the materials at hand, players can place the missing blocks to complete the structure. Once the building is 100% complete, a message will appear on screen, the minigame will end and players will teleport to the Sustainable Construction build plot. If the player has not rebuilt the cabin correctly, it will be reset and players will try again with a new set of materials.

DEVELOP

20-25 mins

Check in plenary questions. The first list (1) is to be asked after the rebuild challenge above is introduced and the teams have discussed how they will complete the assignment.

1 BEFORE REBUILD CHALLENGE

- Do you understand what you need to do?
- Who will oversee
    - ☐ Storm damage management
    - ☐ Note the missing blocks
- Who will use the device first to attempt the challenge?

2 DURING CHALLENGE

- How far have you gotten?
- Is it a good time to switch roles and let your partner use the device?

3 NEAR COMPLETION TIME

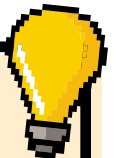- Has anyone starting rebuilding or planting trees? What happened?

Have a team who has completed the challenge assist others that are struggling.

IF PLAYERS ARE STRUGGLING

- If players are unable to complete the minigame, you can skip to the build area using the following:
    - ☐ First, ensure cheats are enabled (press Escape to access settings, then scroll down to the 'Activate Cheats' button and select it).
    - ☐ Once you've started a minigame, press 'T' to open the command box. Then type in one of the following commands and press enter: **/function scripts/levels/construction/skip**

TEACHER TIP:

Those who finish early may move on to part two – build challenge. You may also wish to run part two as an additional lesson itself.

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 we find the definitions for all of the job roles/vocabulary?

   - Project Manager
   - Architect
   - Materials Engineer

3. How did you perform together as a team?

4. What meta-skills did you develop during the lesson and the challenge?

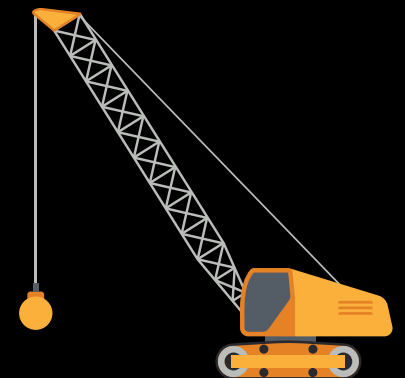5. What new information can we add to our Microsoft Form/Quiz? (Allow time for this)

PART
TWO

Skillscraft build challenge

SUSTAINABLE
CONSTRUCTION

(BGE 2nd, 3rd and 4th level)

DELIVER

BRIEF

Create a sustainable resort and tourist destination.

- Once pupils complete the rebuild challenge, have the teams build a tourist destination that MUST relate to the information they have learned in the minigame.
  - ☐ Think about your favourite places and how they could be made sustainable.
  - ☐ Consider how this will work in harmony with the local wildlife, whilst remaining a fun experience for everyone who visits.
  - ☐ Think about the materials you're using to build, as well as what will make an attractive destination for tourists and visitors alike.

A detailed guide on what makes a successful build is included on the next page.

You may wish to assign roles to each individual, i.e. designer, project manager, builder.

Questions for teams during build challenge

1. **During challenge**
   - How far have you got?
   - Have you finished the design?

2. **Near completion time**
   - Is your build following the rubric?
   - Does your tourist destination:
     - ☐ Match what your team designed?
     - ☐ Include the materials suggested by your team?

BUILD CHALLENGE RUBRIC

FEATURES TO INCLUDE	GOOD	EXCELLENT	MINECRAFT MASTERS
NPC GUIDES	■ NPC guides for 1/3 listed job roles ■ Each NPC explains their job role 　o 1 x URL button for more information	■ NPC guides for 2/3 listed job roles ■ Each NPC explains their job role 　o 1 x URL button for more information 　o 1 x command button to teleport user to a feature of the main tourist attraction	■ NPC guides for 3/3 listed job roles ■ Each NPC explains their job role 　o 2 x URL button for more information 　o 1 x command button to teleport user to a feature of the main tourist attraction
DESIGN (AS GRID PAPER)	■ Includes: 　o Key for materials used 　o Main tourist attraction 　o Location of NPCs	■ Includes: 　o Key for materials used 　o Main tourist attraction 　o Children's activity area 　o Location of NPCs	■ Includes: 　o Key for materials used 　o Main tourist attraction 　o Children's activity area 　o Workshop space 　o Location of NPCs
BUILD	■ Must include 　o Main tourist attraction 　o 1 x NPCs	■ Must include 　o Main tourist attraction 　o Children's activity area 　o 2 x NPCs	■ Must include 　o Main tourist attraction 　o Children's activity area 　o Workshop space 　o 3 x NPCs
BOOK & QUILL	■ Documents the building of the main tourist attraction ■ Must include each teammates contribution to the build ■ Minimum of 2 pages ■ Minimum of 2 photos	■ Documents the building of the main tourist attraction and children's activity area ■ Must include each teammates contribution to the build ■ Minimum of 3 pages ■ Minimum of 3 photos	■ Documents the building of the main tourist attraction, children's activity area and workshop space ■ Must include each teammates contribution to the build ■ Minimum of 4 pages ■ Minimum of 4 photos
MINECRAFT SUPERSTAR BONUS POINTS	■ Use of 　o Redstone 　o Pistons 　o Coding 　o Floating structures		