Minecraft: Education Edition Lesson Template

Please use the following template as a workspace for your Minecraft: Education Edition lesson plan. When you are ready, you can submit your lesson to the community site by heading to education.minecraft.net/create-lesson and don't forget to create your educator profile. Thank you for your contribution to Minecraft for learning.

Lesson Overview

Lesson Photo (accepted file types are JPG or PNG. Minimum dimensions are 750px by 368px. This image will be cropped slightly in some views on the site. Please make sure to center your area of focus in this image.)

Title (30 characters)

Sustainable Home

Short Description (50 characters)

Students explore a sustainably built home.

Student Ages

8-10 11-13 14-18

Subjects

- [x] Math
- [x] Science
- [ ] Government and Politics
- [x] Technology
- [ ] World Languages
- [x] Art and Design
- [ ] Geography

- [ ] Reading and Writing
- [ ] Animals
- [ ] Business & Entrepreneurship
- [x] Climate & Environment
- [ ] Digital Literacy
- [ ] Dramatic Arts/Theater
- [ ] Gaming
- [ ] History
- [ ] Music
- [ ] Physical Health & Wellness
- [ ] Religion & Philosophy
- [ ] Safe & Civil Schools
- [ ] Service Learning & Social Good
- [ ] Social and Emotional Health
- [ ] Computer Science
- [ ] Careers and Management
- [ ] Special Education
- [ ] Leadership

Skills

- [ ] Character
- [ ] Citizenship
- [x] Collaboration
- [ ] Communication
- [x] Creativity
- [x] Critical Thinking
- [ ] Project Based Learning

Lesson Plan

Learning Objectives (3000 characters)

Students will…

- explore a home that has been built with sustainable materials.
- discover what materials are sustainable and where those materials come from.
- understand what can be done to a home to help it be efficient.

Guiding Ideas and Questions (3000 characters)

Introduction

In this lesson, students will explore a home that has been built using sustainable materials and includes certain items to help with efficiency. Students will make connections with other areas of the city where materials come from.

Guiding Questions

- What does it mean if a material is **sustainable**?
- Which materials in this home would be considered sustainable? Why?
- What can help with heating/cooling **efficiency** in a house?

Teacher Preparation & Notes

- Possible NGSS standard(s):
  - **MS-ESS3-3:** Apply principles to design a method for monitoring and minimizing a human impact on the environment.
- The teacher will need to prepare "kits" with various materials for the closing project. The materials will need to offer, at minimum, items that could be used for solid surfaces (*walls, floor, roof*) and insulation. Each kit will also need a thermometer and items to put the project together (*glue, tape, scissors, etc.*)
- The following vocabulary will be used in this lesson and the teacher may want to introduce these to the students beforehand.
  - ducts
  - insulative
  - surplus

Student Activities

Note: Performance expectations (PE) are mentioned in parentheses throughout the activities and connected to the expectations listed after the activities.

Introduction:

- The teacher will share a video that tells a story about sustainability (*see link*). After viewing the video, students will discuss what they think the word **sustainable** means. After allowing them to discuss this word in small groups, the teacher will write down student answers. Then s/he will ask what the word **efficiency** means.
- The teacher will tell students that sustainable means *causing little or no damage to the environment and therefore can continue for a long time*. Once s/he has given the definition, she will ask students to compare it to what they thought it meant. She will repeat this with the word efficiency (*the good use of energy so little to none is wasted*).

- With students in small groups, the teacher will ask them to make a list of materials in their home that might be considered sustainable/sustainably sourced and/or efficient. After groups are done with their lists, they will return to the whole group and share out.
- The teacher will explain to students that today they will be exploring a sustainable, efficient home in Minecraft, and then they will attempt to build one of their own with a small group of students.

Minecraft World Exploration:

Students should take notes on what they learn as they complete this exploration.

- Students will begin their exploration to the right of the garage where someone will tell them about how the house contains sustainably sourced materials (*bottom ash, lumber, glass*) (*PE1*). Then, they will head to the front of the house and find out why having an energy-efficient home is important.
- As they enter the side door, students will head to an NPC and learn about the home's insulation. Students should take note of the blue droplets representing air and what happens to them when they hit the insulation. *How does insulation help keep a home energy-efficient?* (*PE2*)
- Next, they will speak to the ventilation NPC and understand how ventilation ducts in a home can help with keeping an energy-efficient home (*PE2*).
- Also, upstairs there will be an NPC that talks about window film and smart blinds (*PE2*). At this point, students might be interested in searching for other "smart" features one can find in modern homes.
- After speaking to the NPCs upstairs, students will head downstairs and outside. They will climb up the scaffolding on the front, left side of the home and learn about how solar panels support both sustainability and efficiency in a home (*PE1, PE2*).
- The last stop will be the basement to meet the furnace NPC. He will explain how the home gets energy from the local power plant as well as how the other features in the home reduce the need for the furnace to run. Students should connect this with the concept of efficiency (*PE2*).
- Students will then board the bus to return to town.

Closing:

- As a class, students will discuss what the elements of a sustainable, efficient home are based on what they learned in their world exploration.

- The teacher will then explain that they will work in small groups to make their own model of a sustainable, efficient home. The goal will be to create a house that can keep an indoor temperature low (*if doing this activity in warm weather*) or warm (*if doing this in colder weather*). Students will need to think of what materials would serve as the best insulation to hold in, as well as keep out, heat, depending on the weather. Groups should have access to items such as cardboard for the house structure, cotton for insulation, and black construction paper for "solar panels" on the roof.
- Students should be creative with their design and attempt to use their knowledge from the Minecraft exploration to create their house.
- Once all homes are completed, the students will place thermometers inside of them and record the initial temperature. The houses should then be placed outdoors. Temperatures should be checked and recorded each hour of the day, along with the outdoor temperature.
- After all the data is collected, students will analyze it and determine if their homes were sustainable and efficient. Groups will create a short presentation on their house with the collected data for the rest of the class.

Performance Expectations

Students will be able to…

- determine what materials and practices could be sustainable when building a home and where those materials come from (PE1).
- understand what makes a home energy efficient (PE2).
- create a model sustainable, efficient home by using everyday materials (PE3).

External References

- A Story About Sustainability (*video*)

Supporting Files

Supporting File (recommend no more than five, file formats supported are DOC/DOCX, GIF, JPG, MP3, PDF, PNG, PPT, PPTX, TXT, WMA, XLS/XLSX, XPS, and ZIP)

- Make PDF rubric