



## 2021 Minecraft Challenge Rules

### 3D PRINTING CHALLENGE



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## Section 1 Minecraft Challenge

### 1.1 General Overview

#### 1.1.1 Introduction to Polycraft World

Polycraft World is a comprehensive mod for Minecraft designed by Students & Faculty at UT Dallas that introduces features ranging from petrochemical refining and harvesting of new ore types to the construction of polymers, plastics and many specialty items based on the new additions. Enterprising players can build tree taps and extract natural rubber from trees to build rubber blocks, pogo sticks and more. Adventurers can find above ground oilfields and mine custom minerals and elements including copper, tin, nickel, platinum, palladium, silver and more... Engineers can construct machining mills to make molds from metal ingots such as titanium, magnesium, manganese, cobalt, nickel, antimony, tungsten, platinum, bismuth and aluminum and from alloys such as brass and bronze. Materials scientists can create injection molders and extruders to melt process a whole range of polymers into running shoes, scuba gear, plastic bricks, a host of gripped tools and more... Aspiring chemical engineers, can advance into the age of oil through distillation columns, steam crackers, merox treatment units and chemical processors. This allows the production of increasingly sophisticated polymers and other materials that opens the door for overpowered items such as jet packs, scuba tanks, flame throwers and phase shifters. Though expensive, Polycraft World is actively played by players of all ages. We use our game to teach elementary kids all the way through college-aged students about science, chemistry, materials science, and engineering.

#### 1.1.2 BEST Minecraft Challenge

For this challenge, teams will face a never-before-seen challenge in **Polycraft World**: a humanitarian crisis has led to Refugees needing a new community to call home, and fast! Using 3D Printers, Scanners, and recycling demolished materials, teams will build a Refugee Village with 3D printed houses and Community Buildings and advance their Village from dirt huts to Carbon Fiber Condos.

Each team will have a private island where they will 3D Print their way through a series of technology levels (dirt, wood, plexiglass, LEGOs, etc.) and will accumulate points rewarding their efforts. The competition will be divided into two stages – initially, teams will 3D Print 1 and 2 story buildings made of dirt, wood, stone, and plexiglass. In the second stage, teams will return to their private island and will build skyward with 3 and 4 story buildings made of LEGO blocks, bronze, stainless steel, and carbon fiber. The highest scores will be awarded to teams that best solve the crisis by building a thriving Village for the Refugees.

There will be two rounds, a hub round and a championship round. Each round will be time-limited – while the milestones can be accomplished in-time by a single player who is also an advanced Minecraft, the expectation is that teams can work together to finish the tasks in a much shorter time. Game play will continue from the first round to the second. Teams will have 50 hours for Round 1 (Oct 2-31), and the time limit will reset for an additional 50 hours for Round 2 (Nov 1-21; ending the Sunday before Thanksgiving). Team's properties and Villages will not be reset between the two rounds, and teams will be able to pick up right where they left off once the Round 2 technologies are unlocked.

The goal is to build villages adequate and comfortable for refugees, then progressively tech-up the buildings using better materials, including more amenities, and making life much happier for the villagers. Happy villagers will be very beneficial in mining materials to continue improving the villages through 8 levels of industrial technology development progress, from dirt huts to carbon-fiber homes.

Round 1 (Hub Round) – progress your villages through levels 1-4 of development.  
Round 2 (National Round) – progress your villages through levels 5-8 of development.

Part of the game play will include in-game scavenger hunts that allow participants to explore the entire land beyond their team property, solve the clues and gain valuable equipment and materials. Details on the milestones and crafting instructions will be made available through the Polycraft World wiki at the beginning of each round.

While Minecraft knowledge will be helpful to teams, pre-existing Polycrafting knowledge will **not** be needed for teams to compete successfully.

STARTING OCT 2, 2021, [JOIN THE CHALLENGE HERE](https://www.polycraftworld.com/portal/best_landing)  
([https://www.polycraftworld.com/portal/best\\_landing](https://www.polycraftworld.com/portal/best_landing))

- Download the Game
- Login with your Minecraft ID and Password (what you used for the License and to login normally to Minecraft: Java Edition)
- Following the instructions to link your BEST Robotics avatar to your Minecraft account.
- Once you have joined the server, type “/teamspace” to be transported to your Team Space.

## 1.2 Rules

1. The Minecraft Challenge is completed entirely online.
2. Any team can compete in the Minecraft Challenge.
3. System requirements: Each player must have a desktop/laptop computer or mobile device and access to the internet.
4. Licensing requirements: Each student player must have a Minecraft license to play Minecraft. Such license is acquired independently from BEST Robotics. It must be the Java Edition license. Reference <https://www.minecraft.net/en-us/store/minecraft-java-edition>.

5. The Minecraft Challenge is a custom scenario built using the Minecraft video game.
6. The description of the game, its objectives, methods and controls are described at the following wiki page when game play opens: <https://polycraft.utdallas.edu/> (see the 3D Printing Challenge link)
7. The Minecraft challenge can be played by any student team members at any time during the specified challenge period.
8. This is a multi-player game. Any number of students can login and contribute to solving the challenge. Any student that is actively participating in the challenge will accumulate inventory, points, milestones for their team. Team collaboration is important.
9. During the game, a player may encounter players from their own team, players from other teams, and non-character players whom they may interact with.
10. Each team will have 50 hours of login time to accomplish as many of the objectives as possible in each round.
11. Each student logged in accumulates individual login time that subtracts from the total hours of login time available for the team.
12. The team login hours and score accumulation is all managed by the Minecraft app.

### 1.3 Game Play & Objectives

1. **Private Team Properties:** Teams will have a private property within the Minecraft world where only their team can modify the environment and other teams can not interfere with their progress.
2. **Team Scoring:** Teams scores will be based on balanced progress of village population, housing technology level and happiness of the villagers.
3. **Scavenger Hunts:** There will be a special scavenger hunt to challenge teams to solve various problems in the environment outside of the team's private property and earn valuable rewards to help speed construction progress within your team's private property.
4. **Round 1 (Hub Round):** Round 1 will take place from October 2-31 and include technology levels 1-4.
5. **Round 2 (National Round):** Round 2 will take place from November 1-21 and include technology levels 5-8.
6. Students will login to the Minecraft app using their BEST National Registry credentials; the student avatar username and password defined in their Student Profile.
7. Students control their login time; staying logged in while the game is paused or with no activity WILL NOT automatically log the student off and challenge hours accumulated WILL STILL be affected.
8. Your team will have 50 hours of login time to complete the challenge as best you can. That means, anyone on your team that is logged in will decrement the time by however long they remain logged in. **IMPORTANT:** *Do not accidentally stay logged into the Minecraft site or your hours will be quickly evaporated!!*

9. The team is expected to collaborate and manage their own login time efficiently.
10. If the 50 hours of login time are exhausted, the challenge will end for your team and no further score will be accumulated. Students may continue to play but no additional score will be accumulated.
11. Teams will have one Round 1 score for the Hub Round and then a separate Round 2 score for the National Round. The Hub Round score will remain visible on the Leadership Dashboard, but will not change during the National Round.

## 1.4 Scoring and Leaderboard

1. Scoring will be automatically accumulated during the challenge itself. You will be able to see the number of points and milestones that your team has achieved. There will be a daily leaderboard that will show your team's standings against others.
2. Your final team ranking will consider:
  - a. Milestones achieved
  - b. Total Number of points acquired
  - c. Amount of (login) time required to achieve each milestone
  - d. Other game-specific criteria
3. At the end of the Hub Round, your final team ranking results vs. teams in your hub will become visible on the BEST Leaderboard (<http://game.bestrobotics.org>).
4. At the end of the National Round, your final team ranking results vs. ALL BEST Robotics teams will become visible on the BEST Leaderboard (<http://game.bestrobotics.org>).
5. Scores/rankings from the Minecraft Challenge will not be combined with any other Skills Challenges.
6. Teams will have the opportunity in the final week of Round 2 to show off their Team's 3D Printed Village by taking a picture or short video of their team property, posting it on YouTube, and then sending the link to BEST Robotics. Team videos will be posted on the BEST Robotics/Polycraft YouTube channels for teams to see each other's creations. Details on how to submit your video will appear on the Polycraft Wiki Page near the end of Round 2. Feel free to take images throughout if you want to show a time-lapsed view of your Village building skyward.

## 1.5 Awards

- Minecraft Challenge Hub Award will be presented to the highest ranked team who participated in the challenge in your hub.
- Minecraft Challenge National Award will be presented to the highest ranked team at the end of Round 2 (National Round).