Solutions

Minecraft Hour of Code: AI for Good

Activity 1: Open the Gate

on start

open gate

Activity 2: Meet the Agent

on start

agent move forward by 3

Activity 3: Agent Move

on start

agent move forward by 4

agent analyze forward
Activity 4: Gather Data

**Easy**

```
on start
agent move forward ▼ by 6
agent move right ▼ by 2
agent move forward ▼ by 2
agent move left ▼ by 1
agent move forward ▼ by 2
agent analyze forward ▼
```

**Hard**

```
on start
agent move forward ▼ by 2
agent move left ▼ by 4
agent move forward ▼ by 2
agent move right ▼ by 4
agent move forward ▼ by 2
agent move left ▼ by 2
agent move forward ▼ by 2
agent move right ▼ by 1
agent move forward ▼ by 2
agent analyze forward ▼
```
Activity 5: Eliminate all Hazards

on start
while hazards remain
  do
    if agent detect dry brush forward then
      agent destroy forward
    +

Activity 6: Field Mission

on start
while hazards remain
  do
    if agent detect dry brush forward then
      agent destroy forward
  +
    agent move forward by 1
Activity 7: Save the Village!

on start
while hazards remain
do
agent destroy forward
agent move forward by 1
if agent detect dry brush then
agent turn right

Activity 8: Reforestation!
Open-ended activity. This is one of the potential solutions.

on player walk

place \(\sim 0\sim -1\sim 0\)

spawn animal \(\sim 0\sim 0\sim 0\) at
# Coding Blocks Used:

<table>
<thead>
<tr>
<th>Block</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>On start</strong></td>
<td>Runs the code when the student clicks the “Play” button.</td>
</tr>
<tr>
<td><strong>Agent move</strong></td>
<td>Tells the Agent to move in a certain direction by a defined amount.</td>
</tr>
<tr>
<td><strong>Agent turn</strong></td>
<td>Tells the Agent to turn left or right.</td>
</tr>
<tr>
<td><strong>Agent destroy</strong></td>
<td>Tells the Agent to break a block in a defined direction.</td>
</tr>
<tr>
<td><strong>If then</strong></td>
<td>Runs code when a condition is met.</td>
</tr>
<tr>
<td><strong>While</strong></td>
<td>Repeats the code if a defined condition is met.</td>
</tr>
<tr>
<td><strong>Agent detect</strong></td>
<td>Detects if there is a block next to the Agent in a defined direction.</td>
</tr>
<tr>
<td><strong>On player walk</strong></td>
<td>Runs the code when a student walks.</td>
</tr>
<tr>
<td><strong>Spawn animal at</strong></td>
<td>Generates an animal into Minecraft at a defined position.</td>
</tr>
<tr>
<td><strong>Place block at</strong></td>
<td>Generates a block into Minecraft at a defined position.</td>
</tr>
</tbody>
</table>
**KEYWORDS**

**Agent** – The Agent is a Minecraft mob that helps students learn coding by getting them to code the Agent’s actions. The Agent can be coded to carry out tasks including moving, mining, building, planting and harvesting.

**NPC Guide** – Non-Player Characters that can be interacted with.

**Spawn** – The term used when a character, animal or mob is generated into Minecraft.

**Mob** – Mobs are living, moving, entities, such as animals and monsters.

**Relative position** – The position coordinates based on an east/west, up/down, south/north direction from the location of the character.

**Reforestation** is the process of establishing a new stand of trees on a previously forested site following a disturbance such as fire.

Natural regeneration is when you let nature handle the job of revegetating a site with trees, whereas artificial regeneration is when you bypass nature and seed or plant the site yourself.