Exploring Contour Maps

Teacher Lesson Plan

Target: Years 7-8 (13-14yr olds)

Victorian Curriculum Links:

Level 7-8 Humanities

- Analyse maps and other geographical data and information using digital and spatial technologies as appropriate, to develop identifications, descriptions, explanations and conclusions that use geographical terminology (VCGGC104)

Level 9-10 Humanities (Extension)

- Select, organise and represent data and information in different forms, including by constructing special purpose maps that conform to cartographic conventions, using digital and spatial technologies as appropriate (VCGGC131)

Learning Intentions:

- Students will collaboratively create a contour map of a provided mountain and conversely create a mountain from a provided contour map.
- Students will be able to explain how and why they would traverse a theoretical mountain.

Success Criteria:

- I worked with my classmates to create the contour map and the mountain.
- I know what contour lines mean.
- I can explain what path I would take up a mountain and why.

Student Activities:

Pre-Lesson Activities (teacher only):

Download the pre-created lesson world, available here: http://bit.ly/EduelfieContours and ensure that you know how to get students to join this world once you run it during the lesson. For support with this, I recommend: https://minecrafteducation.zendesk.com/hc/en-us/articles/360001429408-How-To-Set-Up-A-Multiplayer-Game- to get you started.

Decide how many groups are going to have. To give you an idea, for your own planning, a group of 15 – 20 year 7 students effectively completed activity 1 in around 30 minutes. Assign students to groups, Group 1: Red, Group 2: Green, Group 3: Blue. Students will need to know their colour when they begin the task.

Introduction:

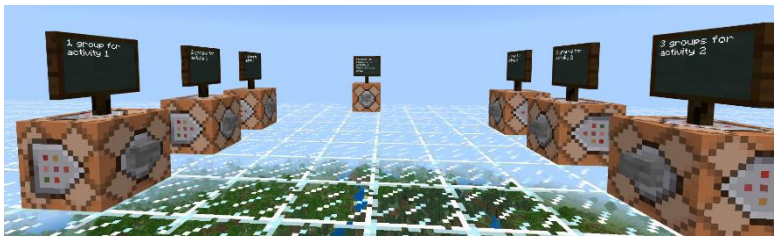
Draw a 'random' contour map on the board, ask students if they have seen something this before, what does it mean? Explain that this depicts a mountain, the slopes, the 3 dimensional mountain, if you know how to read it properly. Outline that the task ahead of them will have them creating one of these maps for a mountain in Minecraft as a team so that they can more easily understand what the contour map actually means.

Build a Contour Map Demonstration:

When students join the teacher hosted world, they join near a small tutorial mound, this is a small task, whereby the students can learn how they are going to create the contour map, it is half completed already, request that students complete the map for the rest of the 'mound'.

Activity One – Build a Contour Map:

At the conclusion of this demonstration, the teacher should press 't' on the teacher computer and then type /tp 264 224 -1452 and then press 'enter' to get to the teacher control platform.



On one side there is a row of command blocks, with signs above explaining how many groups and for which activity. Depending on the number of groups you have decided to have your class split into, right click the button on the command block that has the correct number of groups.

This will open the 'gates' below and allow students to talk to the NPC's and this will get them teleported to the proper mountain to start creating their contour map.

Students can begin creating their contour map, using a group negotiated colour scheme. Once students have completed activity one, that is, their contour map is complete, they should fly up very high and take a picture with the camera, so they can see their contour map from the top. They may also want to take some pictures from different perspectives too.

The teacher can then use the teacher control platform (/tp 264 224 -1452) to teleport all students to the "make a mountain demonstration area", it is the command block 'on its own' at the end of the 2 rows.

Build a Mountain Demo:

The teacher can explain to students the task, again the small demonstration example is half done, request that students complete the mountain creation based on this contour map.

Once students understand what is expected of them for activity 2, the teacher can use the teacher control platform (/tp 264 224 -1452) and use the command blocks that are for Activity 2, as for activity 1, there are 3 command blocks, and which button is pressed will determine the number of groups you can have. The button press opens the 'gates' and allow students access to the NPCs to teleport to their groups contour map.

Activity Two – Build a Mountain:

Students can begin the task of creating a mountain from a contour map. As students get nearer to completing this activity, it might be worth getting them to take a look at other groups mountains (if you have more than one group) as their mountains may be different. If you only have one group, have a discussion with the group about how the contour map is only as detailed as the contour lines are 'height wise' and we cannot be exact with what happens between them, we must guess, within reason and the contour lines themselves. Make sure students take some photos of their created mountain from a few different perspectives so that they can explain how their mountain was created.

Review:

Get students to export their portfolio or their book and quill, caption the images if necessary, to depict their learning or understanding about contour maps. For support with this, please see: https://minecrafteducation.zendesk.com/hc/en-us/articles/360001434727-Helpful-Items-Cameras-Portfolio-Book-Quill-

Draw a different 'random' contour map on the board, ask students to write or explain which way they would climb this mountain, explaining why they would take that path. Get students to reflect on the learning intentions and success criteria, do they believe we have met our learning intentions, and can they agree that they have been successful?

Evidence of Learning:

Images of completed contour map from activity one.
Images of completed mountain created from the contour map from activity two.
Classroom discussion/Student writing about path up the mountain and reasoning.

Incidental/Minecraft Learning:

How to join a world.
Basic controls.
How to use the Camera.
How to use the Portfolio.
How to export Portfolio/Book and Quill images/pages for assessment.
Learning in Minecraft is different to playing Minecraft.
Collaboration/communication.