

Task: Why is the Tundra such a challenging place to live?

1. Cut out the the diagram below (cut around the outside of the whole shape).
2. Each of the six hexagons around the outside relates to the one in the centre. Annotate each one with how it links to the one in the centre.

The central hexagon features a climate graph for Hebron, Canada. The graph shows monthly temperature and rainfall. The temperature scale ranges from -25°C to 10°C, and the rainfall scale ranges from 0 to 70 mm. The temperature curve peaks in July at approximately 10°C and reaches its minimum in January at approximately -20°C. The rainfall bars show a peak in July at approximately 65 mm and a minimum in January at approximately 10 mm. The range of temperature is noted as 28°C.

Month	Temperature (°C)	Rainfall (mm)
J	-20	10
F	-18	15
M	-15	20
A	-10	25
M	-5	30
J	0	40
J	10	65
A	5	50
S	0	40
O	-5	30
N	-10	20
D	-15	15



Teacher notes:

Starter:

Where is the tundra? Student to guess where the Tundra is, they can come and point to the board or simply suggest countries that they think are in the Tundra. Students should then write a full locational description of where the Tundra is.

Main:

Talk through the next two slides to give an overview of the landscape and seasons. Use this as an opportunity to ask questions based on the challenges of living there. For example: how could an animal survive in the Tundra? Thick fur, large feet, hibernation etc.

Talk through the climate graph. Students to then answer questions on the climate graph. Students must write in full sentences.

Talk through the ground in the Tundra. Students to draw and label a version of the diagram into their books.

Students to then fill in the cloze exercise related to permafrost. Answers below:

Permafrost is any **ground** which has remained frozen solid for at least **two** years. Countries such as Canada, **Greenland**, Russia and China all have areas with permafrost. Almost a **quarter** of the land in the Northern Hemisphere has permafrost underneath. Permafrost is made from soil, rocks and **sand**. This is held together by ice. The soil can also contain **organic** material from dead **plants** and animals that haven't decomposed due to the lower temperatures.

Global **warming** is causing the permafrost to begin to **thaw** out. This can cause huge problems, especially in areas where homes have been built on permafrost soil. The land begins to **sink** and holes can open up in the ground where the ice has melted.

Any ancient **bacteria** or viruses that were frozen into the soil can also begin to thaw - these unfrozen microbes could potentially make humans and animals very sick.

Scientists have discovered plague **microbes** in some ice cores!

Students to then consider the challenges of life in the Tundra. They should complete a think, pair, share exercise to gather ideas on the challenges. These could be written up onto the board as a step for the next task.

Hand out the Hexagons sheet. Students to cut around the whole shape and stick this into their book. They are then to describe what each hexagon shows and explain how it links to the middle shape. This can be done by annotating the hexagons or numbering them and writing descriptions to go with the numbers.

Give students 10-15 minutes to get down their ideas. Then share ideas with the class. Students can then add to their hexagon annotations.

Students to then use their hexagons to help them write the answer to one of the questions on the board depending on their level. GCSE levels are given in each column.

Plenary:

True or false. Students can write these into their books or use mini whiteboards. If the answer is false they should challenge themselves to write the correct version of the answer down.

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