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Level 3 Geography 2022

91429 Demonstrate understanding of a given environment(s) through selection and application of geographic concepts and skills

Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of a given environment(s) through selection and application of geographic concepts and skills.	Demonstrate in-depth understanding of a given environment(s) through selection and application of geographic concepts and skills.	Demonstrate comprehensive understanding of a given environment(s) through selection and application of geographic concepts and skills.

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should attempt ALL parts of the question in this booklet.

Pull out Resource Booklet 91429R from the centre of this booklet.

If you need more room for any answer, use the extra space provided at the back of this booklet.

Check that this booklet has pages 2–8 in the correct order and that none of these pages is blank.

Do not write in any cross-hatched area (▨). This area may be cut off when the booklet is marked.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

Achievement

TOTAL 03

ASSESSOR'S USE ONLY

INSTRUCTIONS

Read the resource booklet about lithium extraction in Bolivia. Integrate supporting evidence from a variety of resource materials into your answers.

Your answers should demonstrate your understanding of a range of geographic skills, conventions, and concepts. A list of geographic concepts is provided on page 2 of the resource booklet.

QUESTION

(a) Describe the geography (location, size, and extent) of the Salar de Uyuni (Uyuni salt flat).

Use specific geographic information from the resources, with precision, to support your answer.

The Salar de Uyuni (Uyuni salt flat) is the world's largest salt flat, as it is over 10,000 square kilometres in area. It is located in Bolivia, the fifth largest country in the south america continent, It is bordering the countys Peru, brazil, Paraguay & Chile. The South america continent, where bolivia is, is in the Southern hemisphere & bolivia is located in about the center of the continent but closer to the left coastline. The Uyuni salt flat is located Southwest Bolivia near the town of Uyuni. It is also near the crest of Andes & is just about 32 km apart from the Coipasa Salt lake. Seen in the map on resource C. Over the entire over 10,000 square kilometre surface of the Salt lake, the depth has the average elevation of just one meter, with lithium just a few metres below the surface.

(b) How and why is the natural and/or cultural environment of this area suitable for lithium extraction?

The Bolivia's weather plays a big part in how the Salar de Uyuni is suitible for lithium extraction. In Resorce E. It is ~~salt~~ shown ~~shown~~ that it is due to the hot & dry conditions, poor drainage & depris from Sourrading Volcano's of the Salt flat that allow the Salt flat to have lithium into an exfolible brine for lithium extraction. In resorce F: in figure 2: of the graph of the averge rainfall for Uyuni town, it shows that ~~the~~ both the Precipitation & average rainfall day's are below 10 days & 50mm of precipitation for most of the year (April - november) during the year the peaeks are during the months Dec - March with the highest amount of fainfall & rainfall days, up to 200mm of rainfall as bolivia is in the southen hemisphere, this is during winter. ~~& the~~ & the lowest is in the middle of the year in June when there is absoulty no rainfall or rainfall days. This shows the natural environment of bolivia's town Uyuni is weather creates the area where the Salar de Uyuni is localeh suitable for lithium extraction.

(c) Lithium demand is predicted to grow as people embrace 'green' (environmentally friendly) technologies that require lithium-ion (Li-ion) batteries. For example, by 2030, electric vehicles are expected to account for 75% of total lithium demand.

Considering the statement above, and the resource material, how sustainable is lithium mining in Bolivia likely to be in future?

Although lithium-ion batteries are used to create more sustainable & environmental technologies, the likelyhood of lithium mining in bolivia to be sustainible is very low. This is because of the use of water needed to mine lithium in the Salt lakes in bolivia. As shown in Resorce F: figure 2, in the graph it shows for most of the yaer, month's april - novenber, the precipitation is below 50mm, & in Resorcese 1: it is said that appoximently 2,273,000 litres of water is used per tonne of lithium, showing that rainwater can not be used as a sustainable water soree. This means to mine lithium they have to use either water from the grand or use watr from rivers. Both are not sustainable as it will change the enviroment & they arent renewable resources.

Achievement Exemplar 2022

Subject	Level 3 Geography	Standard	91429	Total score	03

Q	Grade score	Annotation
1	A3	Part (a) focuses initially on the location of Bolivia rather than the aspects of the Salar required. There is one use of measurement to demonstrate selecting and applying geographic skills. Part (b) explores one aspect of the natural environment but does not specially demonstrate understanding of why the climate conditions are suited to the extraction of lithium in the Salar. Part (c) also only considers one aspect and is minimal in terms of what was possible to fully answer the proposition that the future of extraction of lithium in Bolivia will be sustainable.