

Name:

Date:

Class:

Environmental Impact StoryMap #4: EV Batteries **Answer Key**

Instructions: Complete the following questions as you explore the [Environmental Impact StoryMap #4 EV Batteries](#)

StoryMap #4 Link: <https://storymaps.arcgis.com/stories/90f20cc459ab459a8db07932b3f9a3ee>

Think About It: Watch the [video](#) and think about what you observe:

1. What are the benefits and challenges of EV batteries?

EV batteries offer the opportunity for clean energy transportation, but the production of EV batteries has negative environmental impacts.

2. What environmental impact issues are related to EV batteries?

Mining for EV battery components.

3. What solutions exist for making EV batteries more environment-friendly?

Using cleaner sources of energy to process and produce EV batteries. Using clean energy to charge EVs instead of fossil-fueled energy sources. Also, recycling battery components to reduces the need to mine more materials to make EV batteries.

Check for Understanding #1:

4. What is the most common type of battery used to power electric vehicles?

Lithium-ion battery

5. Which metal is used in the cathode of this type of EV battery that enables it to be rechargeable?

Lithium

Check for Understanding #2:

6. Which product uses the most lithium, and which countries produce the most lithium?

EV batteries use the most lithium. Australia, Chile and China produce the most lithium.

7. Describe the impacts of mining lithium for batteries.

Lithium mining results in contamination of water, soil, and air.

Check for Understanding #3:

8. Compare and contrast the benefits of lithium-ion and alternative batteries for EVs.

Li-ion and alternative battery pros and cons depending on battery type.

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9. What ideas do you have for reducing, reusing, and recycling the impacts of lithium-ion EV batteries?

Answers vary.

Reflections on Lithium Mining in the U.S.

10. Explain the reasons for lithium mining in our country.

Most lithium is sourced from countries outside of the U.S., so options for domestically-sourced lithium are of high-interest.

11. Explain the challenges of lithium mining in our country.

Lithium deposits and mines in the U.S. are near communities and natural areas that are impacted by mining operations.

12. Describe what is valued by communities opposing lithium mining in their areas.

Mining impacts the quality of life and health of communities and ecosystems.

13. Describe what is valued by local governments and lithium companies supporting lithium mining.

Lithium mining can provide an economic boost by providing jobs and income to struggling communities.

14. What ideas do you have to bridge these differences regarding lithium mining in the U.S.?

Answers vary.

Talk About It & Engineering Connections:

15. How do lithium-ion EV batteries help us create the shift to sustainable transportation? How does this affect environmental impact-related issues?

Answers vary.

16. Describe the challenges of lithium-ion EV batteries from sourcing battery components to battery end-of-life concerns. How does this affect environmental impact-related issues?

Answers vary.

17. What ideas do you have for the next generation of EV power sources that have greater sustainability and less environmental impact than current lithium-ion EV batteries? What role can environmental impact play in new EV battery technology development and use?

Answers vary.