

# What Can Kesler Science Do for You?

4th - 8th grade science teachers love our Life, Earth, and Physical Science materials! With these easy and engaging materials, teachers can save planning time and put their focus back on the teaching that really matters.



## 5E LESSONS

Two-week lessons with over 100 topics



## ESCAPE ROOMS

Engaging activities for review



## INQUIRY LABS

Three different levels to fit every student



## AMAZING ANCHORS

Anchoring phenomenon to book-end your lessons



## SUB PLANS

Never worry about planning for a sub again.



## WARM-UPS

Bellringers for the entire year



## STATION LABS

Student-led exploration



## INTERACTIVE NOTEBOOKS

Bring science journals to life.



## WIKI TICKETS

Quick formative assessments



## STEM CHALLENGES

Real-world STEM problem-solving



## GRAPHING

Table and charts and graphs ... OH MY!



## SCIENCE READING COMPREHENSION

Leveled reading passages with mini-activities



## SPANGLER COLLABORATION

Exclusive Steve Spangler lessons and videos



## WRITING PROMPTS

Writing activities covering 100+ topics

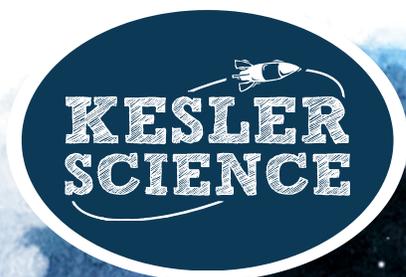


## EXPLORIES

Story-driven units with integrated activities



The Kesler Science Professional Learning Network (PLN) group on Facebook has a huge community of engaged and supportive science teachers - come join us!



## Underwater Riches and Natural Resources

I get really excited about the future of electric vehicles. I think about urban smog and fossil fuels and hope we're on the right track. Doesn't it feel like there's always a catch, though? In this case, one issue is the batteries. The power sources for electric vehicles rely on a cocktail of raw materials, which can open a great discussion in your classroom about synthetic materials and natural resources. There's a "goldmine" of connections. 😊

Traditional land mining for materials like lithium, cobalt, and nickel is costly and complicated, so mining companies are eyeing up the vast ocean floors and the bizarre objects called polymetallic nodules.

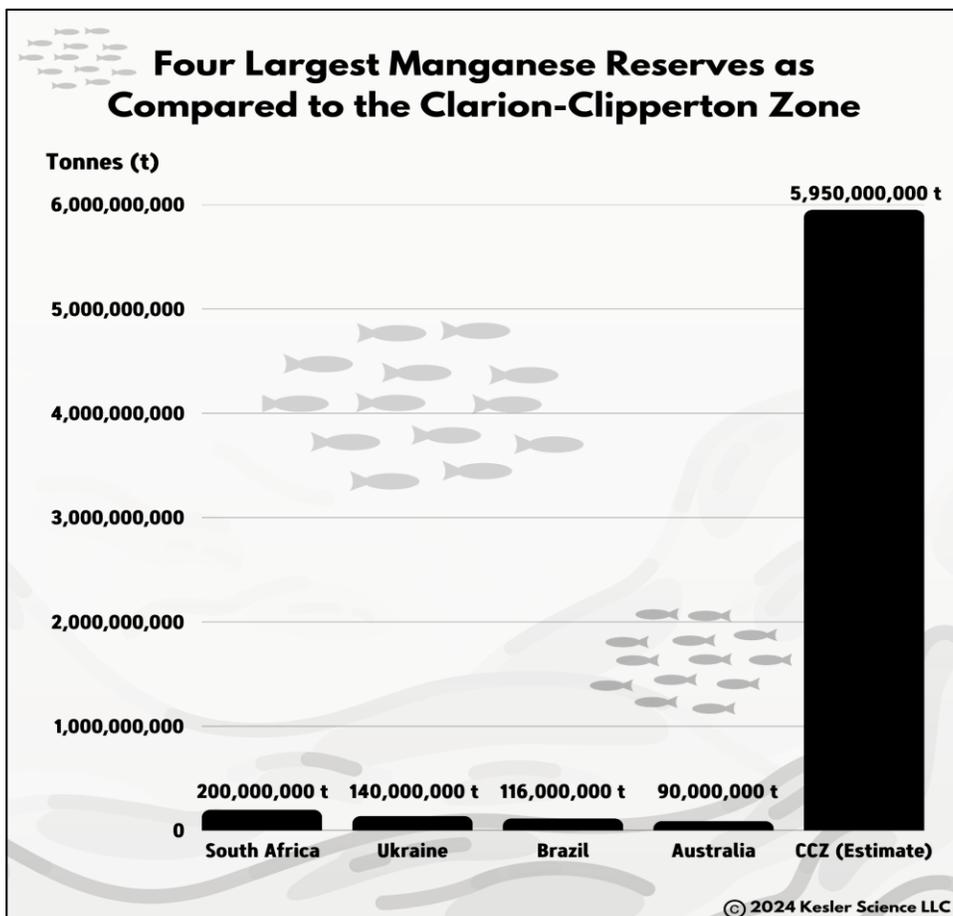
Deep beneath the waves, polymetallic nodules are rich in the elements needed to run electric vehicles. The areas of the seafloor that they cover almost looks alien!

A new crop of ocean mining ventures are brainstorming ways to mine these nodules, but, here again, it's complicated. Stirring up deep-sea sediment could disrupt the delicate marine ecosystem.

Why are deep-sea mining companies racing to reach these deposits? Take a look at the graph on the next page for the answer!



*Manganese nodules from the seafloor*



1. Which country has the greatest manganese reserves on land? How many tons does this country have?  

---

---
2. What is the total amount of manganese available in the top four producing countries? How does this compare to the amount available in the CCZ?  

---

---

---
3. Scientific notation is used to express very large numbers. The number 100 written in scientific notation is  $1 \times 10^2$  and 2,500 in scientific notation is  $2.5 \times 10^3$ . What is the amount of manganese in South Africa in scientific notation? What is the amount of manganese in the Clarion-Clipperton Zone in scientific notation?  

---

---

## Underwater Riches and Natural Resources

I get really excited about the future of electric vehicles. I think about urban smog and fossil fuels and hope we're on the right track. Doesn't it feel like there's always a catch, though? In this case, one issue is the batteries. The power sources for electric vehicles rely on a cocktail of raw materials, which can open a great discussion in your classroom about synthetic materials and natural resources. There's a "goldmine" of connections. 😊

Traditional land mining for materials like lithium, cobalt, and nickel is costly and complicated, so mining companies are eyeing up the vast ocean floors and the bizarre objects called polymetallic nodules.

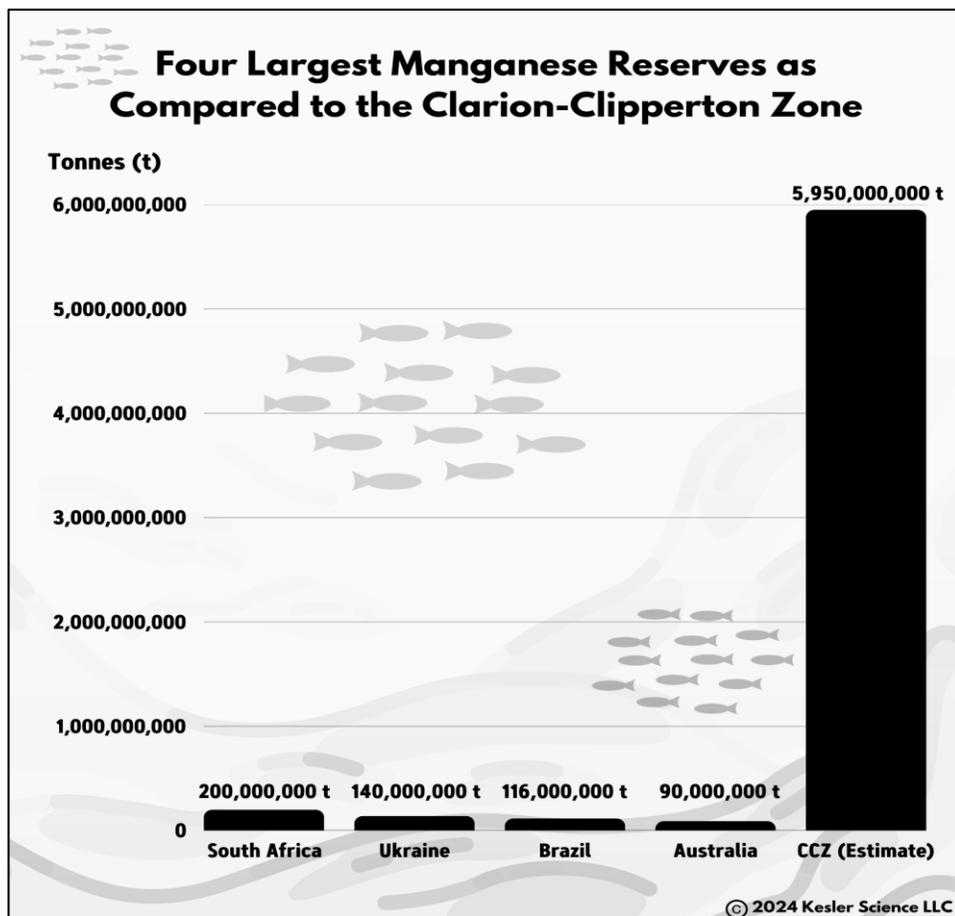
Deep beneath the waves, polymetallic nodules are rich in the elements needed to run electric vehicles. The areas of the seafloor that they cover almost looks alien!

A new crop of ocean mining ventures are brainstorming ways to mine these nodules, but, here again, it's complicated. Stirring up deep-sea sediment could disrupt the delicate marine ecosystem. *There's plenty for your students to research and debate here!*

Why are deep-sea mining companies racing to reach these deposits? Take a look at the graph on the next page for the answer!



*Manganese nodules from the seafloor*



1. Which country has the greatest manganese reserves on land? How many tons does this country have?

*South Africa has the greatest amount of manganese reserves at 200,000,000 tons.*

2. What is the total amount of manganese available in the top four producing countries? How does this compare to the amount available in the CCZ?

*South Africa has 200,000,000, Ukraine has 140,000,000, Brazil has 116,000,000 and Australia has 90,000,000, which totals 546,000,000 tons. The CCZ has about 10 times more manganese available.*

3. Scientific notation is used to express very large numbers. The number 100 written in scientific notation is  $1 \times 10^2$  and 2,500 in scientific notation is  $2.5 \times 10^3$ . What is the amount of manganese in South Africa in scientific notation? What is the amount of manganese in the Clarion-Clipperton Zone in scientific notation?

*The amount of manganese in South Africa is  $2 \times 10^8$  tons and the amount of manganese in the CCZ is  $5.95 \times 10^9$  tons.*