CORE
Full STEAM ahead

2024

SEPTEMBER QUARTERLY REPORT

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CoRE supports the implementation of the CoRE Learning Model and Gamifying Earth Science through dominantly Face-to-Face mentoring, training and coaching. The support mechanisms that are in place provide educators with ease to access CoRE's expertise.

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What developments have occurred with the CoRE Learning Model in CoRE schools? This encompasses the special learning activities, their impact, and the ongoing evolution of the Learning Model.

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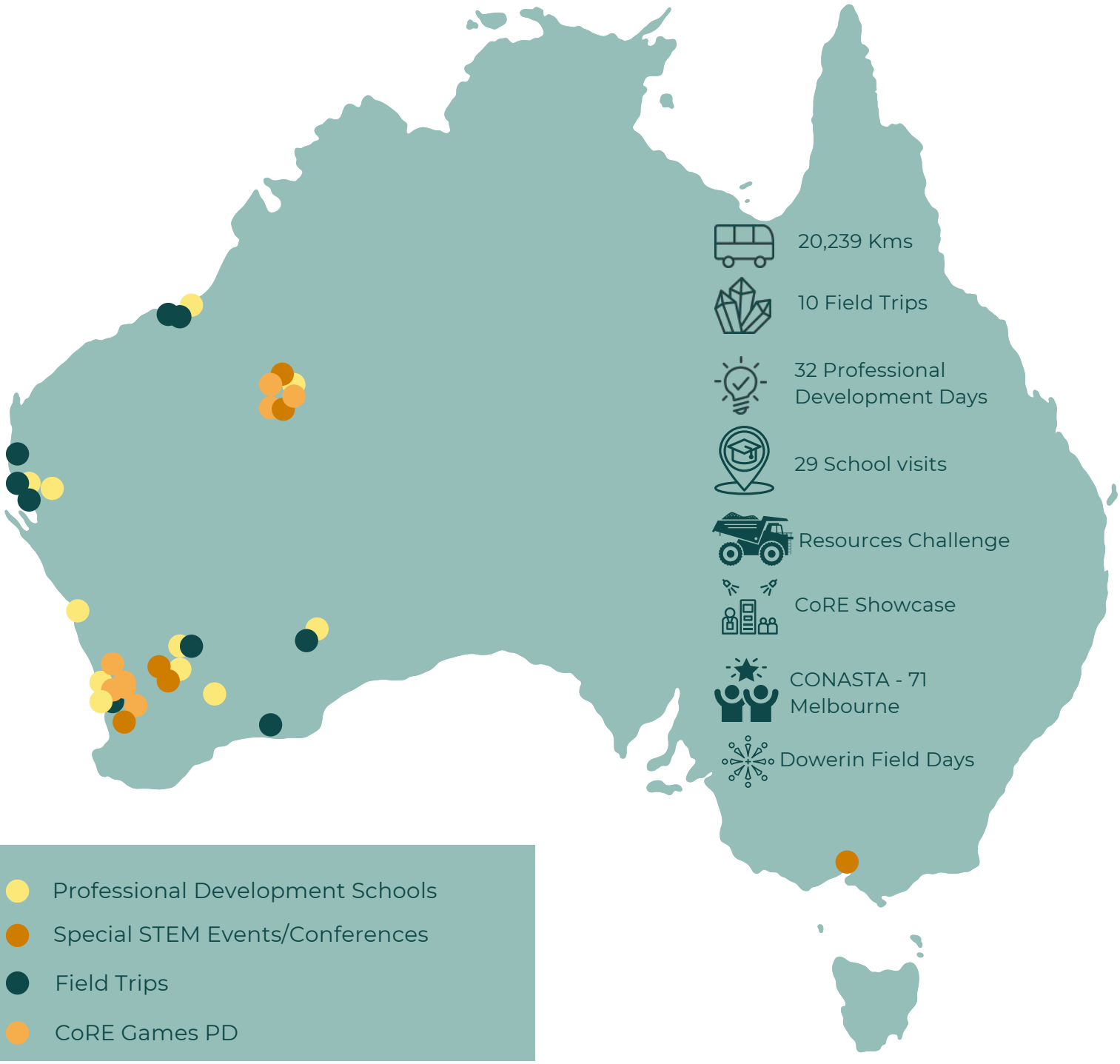
The CLF extends heartfelt gratitude to our Sponsors and Partners for their invaluable support. Their commitment enables us to fulfill our purpose of "supporting today's youth for tomorrow's world."

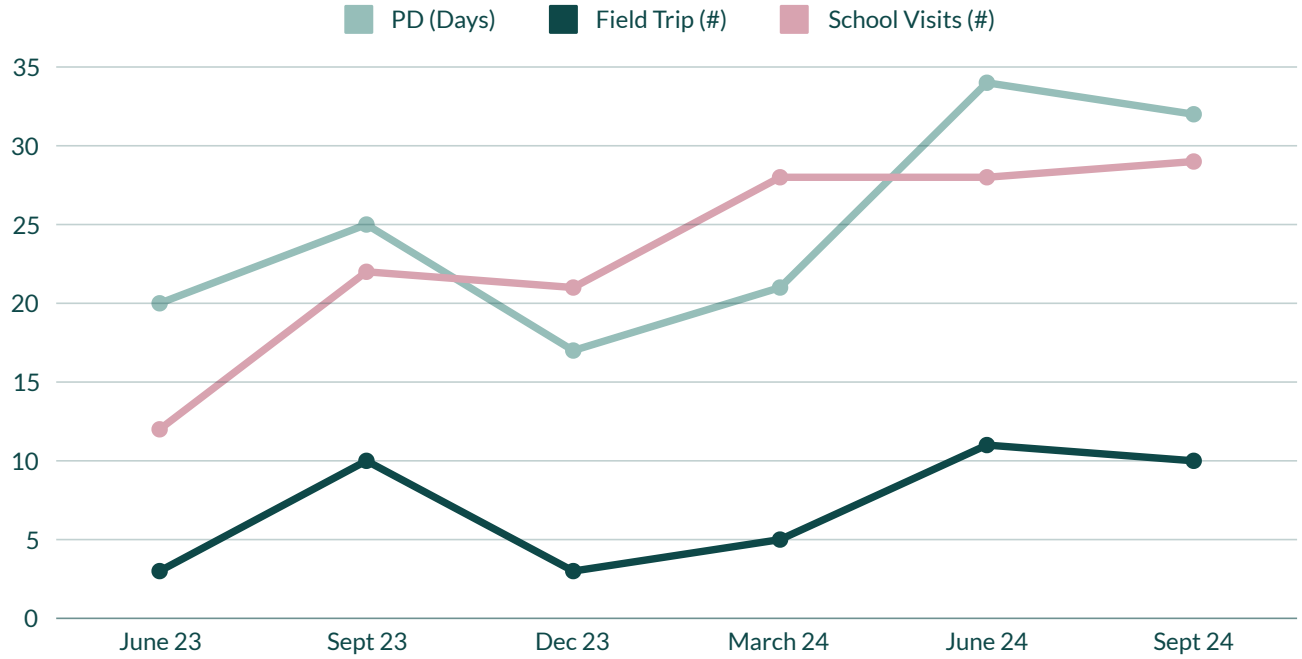
SEPTEMBER 2024 QUARTERLY REPORT

EXECUTIVE SUMMARY

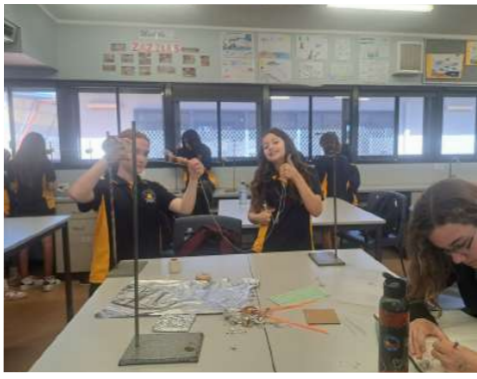


CoRE- Engagement and Impact

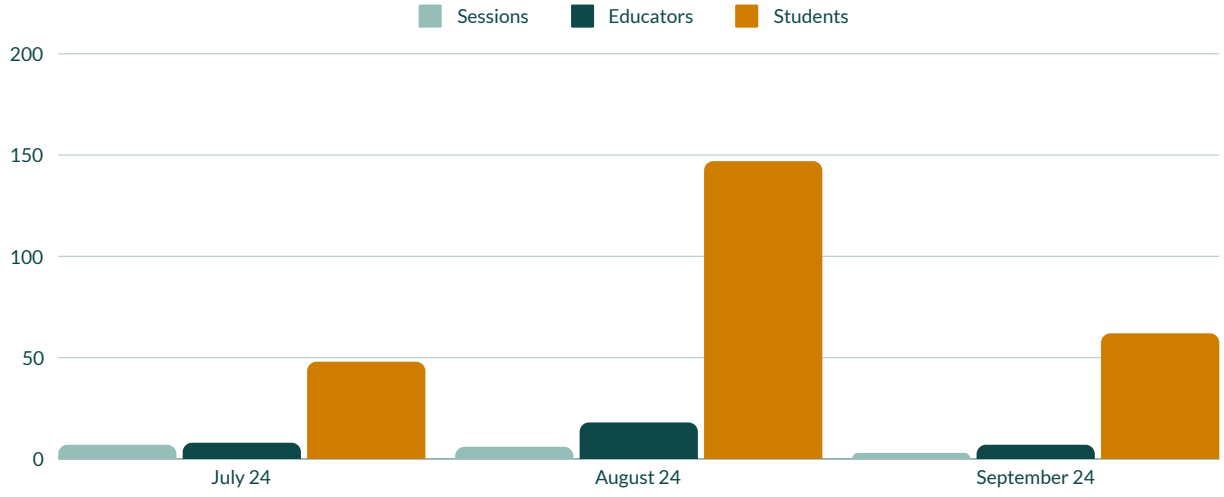
CoRE Interactions 2023-24



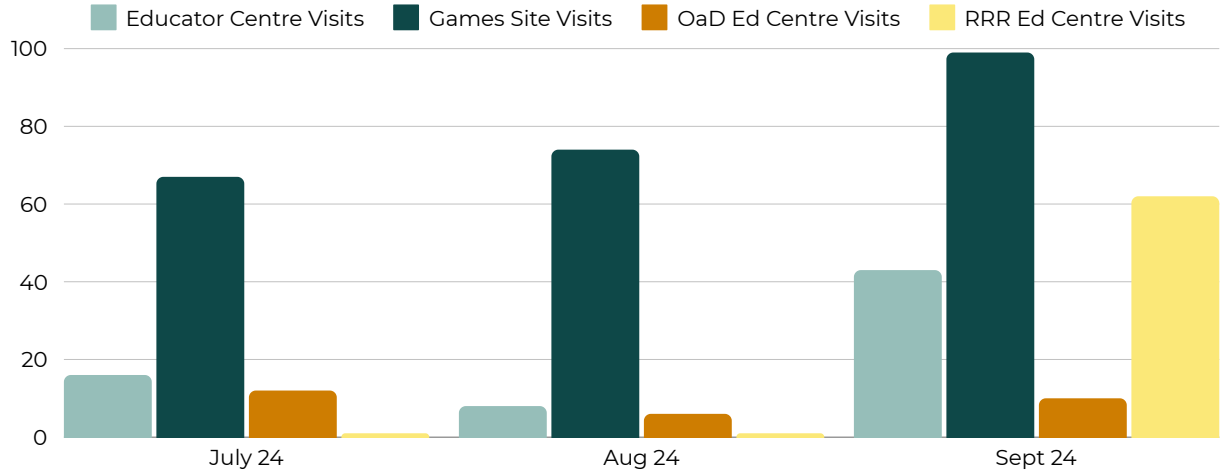
This quarter, CoRE has continued to enhance and expand its professional development sessions and programs. A key aspect of this growth has been the valuable feedback and insights gathered from both educators and students. CoRE's guiding principle has always been 'for the students, by the students.' As the CoRE Learning Model has evolved, so too has its approach to professional development, particularly in fostering strong relationships that support its mentorship and coaching efforts. As Deb from Merredin expressed during the Fitzgerald River National Park field trip, "Even though I have participated in this field trip before, the information and knowledge shared is always unique; I'm continuously learning new skills and ideas." Our professional development sessions are not organized in a specific sequence; rather, they are tailored to meet the needs of the educator, their students, and the learning environment. (two field trips were cancelled during this quarter).



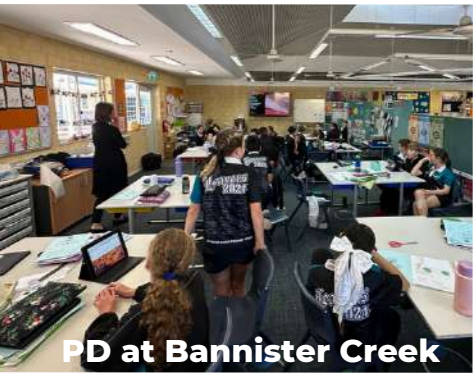
CoRE Games - Engagement



CoRE F2F Games Sessions Professional Development



GES Website Resourcing by Educators


PD at Bannister Creek

CONASTA Workshop

PD at Carlisle Primary

CoRE Games - Engagement and Impact

CoRE prides itself in offering its professional development to educators. Our one-on-one sessions are aimed at empowering the educator to empower their students, as represented by their comments.

Sarah Malacari from Kent Street:

"The games (OaD) session was great, so good seeing the students engaged and able to connect to the real-world."

Angela McLennan from Morley Senior High School:

"As a career's teacher, I'm always on the lookout for tools that can both teach important skills and encourage students to think about their future careers. This game (OaD) does a good job of that and as you saw the boys loved it!!"

In a games demonstration, Rachel Flynn of Armadale Senior High School explained her ***"school is very conservative because we have tried too many one size fits all initiatives, I am happy to hear you aren't one size fits all and work with the school to customise the solution to their resources and needs".***

Whilst onboarding a new school, Bannister Creek Primary, students played Coring and Exploring for the first time, by the end of the 30-minute session they were (vocally) requesting ***CoRE returns soon "Next week, you must!" they chanted***.

PD at North Tom Price

PD in Tom Price Primary

PD at Kent Street

CoRE's #therealclassroom

"Teaching - learning is creative and fluid. You know the end goal but the journey there is the exciting part. It's spontaneous and empathetic, taking into account the environment and it's human energy."

CoRE - #Fieldtrips

About 130 Year 3/4 students from Baler Primary School, visited Cemetery Beach to undertake four activities related to their 'Spoiling the Bank' PBL. Activities included examining the weathered rock, to building sandcastles, studying the sediments and doing a beachcomb,

Joseph Banks Year 8 students put into action their 'Golden WA' PBL by spending four days traveling the Wheatbelt and Goldfields to develop an understanding of the importance of the water pipeline and its affect on developing the mining industry in the Goldfields.

Year 1 students from Carnarvon Christian School visited the historic 1-Mile Jetty in Carnarvon for their 'Shippin Sheep' PBL. The students collected information about the historic development of the jetty, its importance to early industry in Carnarvon and how the Gascoyne River landscape was used to develop the port and to open up the Gascoyne area as a significant industry base.

CoRE - #Fieldtrips

About 80 Year 4/5/6 students from Carnarvon Community College travelled out to Point Quobba for their 'Quobba Wave' PBL. Unfortunately, the field trip was cut short by a significant cold front that brought heavy rain across the coast. Students nevertheless started to undertake their field studies, measuring honeycomb weathering in the rock. The main aim was to examine and measure the exotic boulders on the platform that were placed there by a tsunami.

Twelve Carnarvon Community College Year 7 students ventured to Pelican Point to study the purpose of dredging of the facine as a result of the causeway that was placed across the delta many years ago. The students PBL is titled 'Dredging Disasters- The Pelican Point Gateway.' Students panned the beach sediments for heavy mineral sands, examined the cross-section of the dredged material, that not only included shells and bones but also plastics. They compared and contrasted the ocean and river landscapes.

140 Year 5/6 students from Baler Primary school visited Rio Tinto's Dampier Salt Mine at Redbank to understand the natural and renewable resource driven processes of making salt from salt water. They were presented with information about the mining production process, the ecology of the area including the remarkable food chain such as the brine shrimp that clean the salt solution of algae and then the migratory Siberian birds that eat the shrimp. Students played on the salt pile, examined salt crystals and immersed their arms in salt solutions, noting the difficulty in doing so, due to the solutions density.

CoRE - #Fieldtrips

For their 'Golden WA' PBL, 25 Year 7 students from Australian Christian College - Darling Downs ventured to Mundaring Weir to develop an understanding of the importance of the Goldfields Pipeline, a global engineering feat for its time and its impact on the development of the Western Australian Gold Mining Industry during the turn of the 20th century. Students learned about the structure of the dam, the use of steam engines in the pump stations, an analysis of the rocks that make the dam and the ecology of the area, including the Marri tree.

Fourteen Year 3 - 6 students from Beacon Primary School revisted Tammi Downs to study wheat and barley growth following the wet season rains. Students used their maths skills to examine the crop within a 1m2 area to determine the yield from the paddock. To start the day off, students used their STEM skills to problem solve 'the daisy chain' design within a timed activity. Many students hadn't done this activity before and thoroughly enjoyed it. The skills they named definitely contributed to their STEM skills. The PBL is titled 'Paddock to Plate.'

Twenty-four Merredin CoRE Year 10 students visited Hopetoun and Fitzgerald River National Park as part of their 'Resourcing the Resources' PBL. Students honed in on the concept of resources from rock, namely the BIF and volcanic sequences of the Ravensthorpe Terrain that contains the Au, Cu and Li wealth in the rock. The younger rocks of the Albany Fraser Orogeny set the scence for the dynamic Earth, plate tectonics and the biogeochemical cycles that define these planetary processes. The heavy mineral sands were examined at 2-mile beach.

CoRE Schools

'**Koorda Primary School** - "The CoRE Learning model emphasises collaborative learning, where students work together in business units to research and explore topics in-depth. I have found that the CoRE Learning Model has nurtured a natural curiosity in my students as they ask more questions, seek their own answers and solutions, and engage in conversations to share their findings. By actively engaging in the learning process, my students have become more invested in the subject matter, which in turn boosts their overall engagement. Here are some of the key benefits observed:

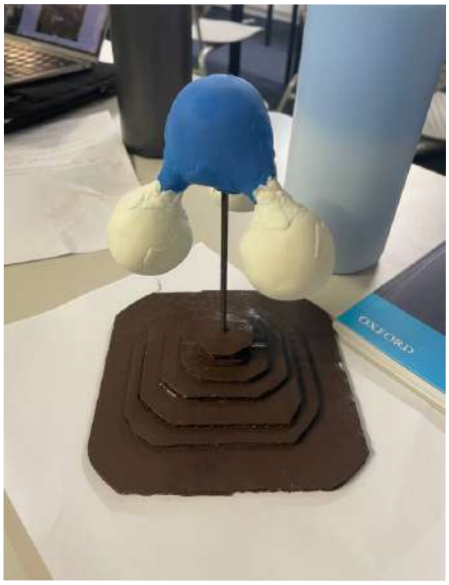
- My students are more inclined to ask questions and seek out information independently.
- The collaborative aspect ensures that all students are actively involved, sharing ideas and contributing to group tasks.
- By exploring topics that interest them, students are more motivated to learn and participate."

Sarah Noakes, CoRE Educator

Australian Christian College - Darling Downs "Year 8 and 9s

"The students were busy creating their static model of the production of ammonium nitrate through the green ammonia process, which is used to sustain food production in a decarbonising world. Each Business Unit (BU) created creative designs for their models. ***PBL - Feeding the Future - Hydrogen Energy'***

Year 5 & 6 - As part of preparing for their new Project Component (PC) of creating the ***ACC DD's Heavy Mineral Sands mine PBL*** by researching and creating an infographic about heavy mineral sands mine including titanium dioxide which is very important to Western Australia."



Year 8/9 - A molecular model of Ammonia

CoRE Schools

Golden Discoveries: Exploring WA's Gold Rush and Water Wonders

"During their field trip to Mundaring Weir, students gained insights into the importance of water in WA's economy and explored the engineering behind dams and pump stations. This experience tied into their curriculum, covering science topics like distillation, simple machines, the water cycle, and the historical development of WA's communities. Through this hands-on journey, students discovered how gold and water shaped WA's past and continue influencing its future.

Some feedback from the Year 7 students:

- 'We came here to look at the pipeline and the water the dam holds. To see the dam and its significance and the story behind it. Three things I didn't know and now I know:
  - the dam holds the Helena River
  - of what the steam engine does and what it is
  - about the Marri trees that have red sap in it'
  -
- 'Today, I greatly enjoyed and was deeply amused with the experience of the Mundaring Weir and dam. I really liked the activities we were able to conduct because I have a personal interest in discovering rocks and interest in stones and other topics of geology.'

- 'I didn't like it because I hate walking upstairs. I did like it because we get to eat, we get to look at rocks like geologists do and learn something new'

Mitch Lastrilla, CoRE Coordinator

CoRE Schools

Joseph Banks

“The Year 7 CoRE classes went on a field trip to Yanchep National Park. The Year 7s also delivered their second town hall presentation of the year, and it was amazing to see the improvement not only in the quality of the presentations but also in each student's confidence with public speaking. We are excited to see how their confidence continues to grow throughout their CoRE learning journey at Joseph Banks Secondary College.

Year 8 - ***Mining Mars PBL*** The Year 8 students have been working in the West Australian Space Science Education Centre (WASSEC), completing an exciting Mars surface project. In their collaborative business units, students have taken rock core samples and used an infrared spectrometer to identify the composition of the rocks. They have also utilised Dino-lites to distinguish between Mars rocks and meteorites, and a Hanna Metre to detect dissolved salts on the Mars surface. This hands-on project has provided students with valuable scientific skills, fostering teamwork and deepening their understanding of planetary exploration.

Year 9 - ***Asteroid Mining - An Extraterrestrial Economy PBL*** The Year 9 students have been exploring the composition of Near-Earth Objects and the future industry of asteroid mining. Students have tracked the path of NASA's OSIRIX-Rex mission to understand the process of reaching an asteroid, and utilised augmented reality to get up close with various asteroid exploration and data collection satellites. Through developing an understanding of our Near-Earth Objects; their path and composition, business units are able to carefully select target asteroids and design a mission to retrieve a sample from them."

Nathan White, CoRE Coordinator

Merredin Primary - PBL - Merredin Migration

“At Merredin College, our Years 5 and 6 students have been exploring how solar panels produce energy over the last few weeks. Students worked with their business units to explore conductors of energy which led to further development of their hypothesis and variables used. As August progressed, rain was inevitable which paused our investigation, however increased student building time to assemble their cars and make last minute changes. The classes got together and raced their completed solar cars three times along a 6m track and made necessary changes. Their results will be graphed and an evaluation will occur. The students were in awe of how fast their car could race, depending on the angle of the solar panel and with other significant changes!”

Amber Kernaghan, CoRE Educator

CoRE Schools

“**“CoRE at Geraldton Senior has kicked off with students all finished the first PC #1**
Students have achieved the following:

- Completion of their business unit identity students have been extremely creative in making their logos tell a story around their field trip and the PBL
- Students have worked effectively in teams to complete their first PC this has resulted in students either creating an informative poster or PPT to present their findings from the field trip
- We are now moving onto PC #3 which involves students utilising their knowledge to creative and investigate HMS deposits.”

PBL - Glorious Sands

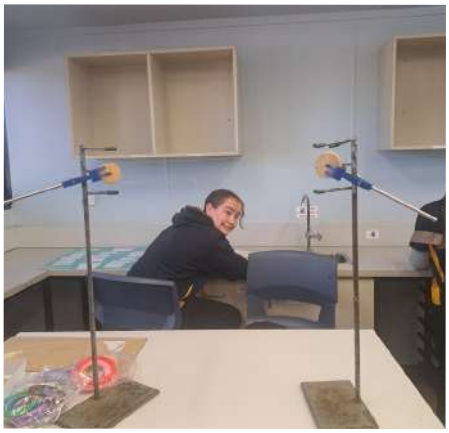
Kayleigh Kimber, CoRE Educator

Kalgoorlie Boulder Community High School

“At KBCHS, we have started our ***PBL ‘An Oasis in the Desert’***, a project which aims to revitalise Kalgoorlie in the future by minimising it’s reliance on mining. The students have started the first PBL, where they have to find out the history of the Super Pit, it’s importance for the local and national economy and its possible uses once the mine life is over. As part of this PBL, they are also designing cable cars to traverse the Super Pit, this incorporates the forces topic from the Year 7 curriculum.

The students have been really engaged and excited about this project and have been using their problem solving skills to come up with the best economical, efficient and effective designs. Some of the students have used 3D printing to design their cable cars and we’re all excited for our next PC (Project Component), which includes a trip into the super pit, so that they can see Science in action.”

Pat Gyambibi-Barnett, CoRE Educator



CoRE Schools

"This term our ***Kent Street*** Year 9 CoRE class was lucky enough to have a visit from Suzy to show us how to play the Old as Dirt games, with the Archaean Adventure linking in perfectly to their ***PBL#3 THE EVOLUTION OF GEOSCIENCE TECHNOLOGY: DIVING DEEP INTO EXHALATIVE HYDROTHERMAL DEPOSITS.*** It was great to see the student's enthusiasm in the game as they had to work together to discover the hydrothermal vents, working on their communication skills, whilst learning what conditions are required to find the vents. Seeing how to incorporate so much learning in an engaging real-world scenario, with discussions of chemistry, economics, material selection, logistics and data collection intertwined was extremely valuable. Students referred back to the game throughout their PBL, and it definitely enriched their project components.

In September, 30 CoRE students from years 7-9 participated in the Big Ideas Challenge. This day showcased the skills that students are learning in CoRE, their ability to communicate, break down a problem, brainstorm effectively and work with students from other schools was great to see. One Year 9 student was on the winning team of the day, where they had to pitch their idea to the whole room, using the confidence gained in Town Hall presentations to express their idea clearly.

Sarah Malacari - CoRE Educator

Tom Price Senior High School

"Our year 7-10 CoRE students have presented their "Town Halls", where they shared their exciting knowledge, discoveries, and scientific ingenuity with their peers. The 'project components' they shared have included:

- 3D printed space craft,
- Working hydrogen fuel cells made through electrolysis,
- Star bodies that show the stellar atoms that make up our bodies,
- River Tamarind invasive tree surveys,
- Pilbara plant and animal guidebooks,
- Supernova models, and
- Videos detailing the chemical science behind cooking gingerbread men.

As you can see, there is great variety here! We are very proud of our TPSHS students' learning and efforts in CoRE this term."

Liam Wesson, Science HoLA & CoRE Educator

CoRE Schools

North Tom Price Primary

PBL - 'Summer Storm'in'

"This month the students have completed their stop motions on either the Water Cycle, the History of Storms or the Irreversible damage from storms. While there was a lot of fun had, there was also a lot of learning moments such as when students realised their chosen materials were not easy as they had imagined to work with eg: clay or when adding a voice over they needed to add more clips so their message would fit. Today we experimented with what happens when you eliminate one of the three requirements for fire. Using a tea candle and 3 different sized jars, students timed the differences. Once we knew who not to give the matches to (our pyromaniacs) students enjoyed their specific roles and going through the scientific method to produce an outcome they could explain."

Val Aben, CoRE Educator

Carnarvon Christian School

Kindy/Pre-Primary

"As part of their inquiry ***PBL - 'Rock n River'*** the children in kindergarten and pre-primary at Carnarvon Christian School have been enjoying investigations about the theropod species of dinosaur that roamed their backyard in Western Australia long ago. Students discussed the evidence we have during the present day that helps us learn about dinosaurs such as fossils. As a lead in to their upcoming field trip to the local river the students also discussed types of evidence they might find of living things such as footprints. Children then examined theropod footprints and made models of these out of clay which will be displayed out our upcoming art show and open night in term 4."

Sophie Garing, CoRE Educator

CoRE Highlights & Events

National Science Week served as the backdrop for the Tom Price Showcase and Resources Challenge. This community event, which includes parents and industry professionals, has flourished over its six-year history, with attendance steadily increasing each year. Students are eager to share their CoRE Learning and enthusiastically respond to questions about their project-based learning (PBL) work. The community feedback has been overwhelmingly positive, with many expressing their amazement at the students' ability to articulate their projects and relate them to real-world scenarios, showcasing their confidence and understanding. During the event, Michele Walker, the Principal of Tom Price SHS, announced the launch of the Tom Price CoRE Academy for 2025. This will be CoRE's inaugural Academy, symbolising seven years of CoRE in Tom Price, defining the presentation of the CoRE Learning Model for students from Years 4 to 12 by 2026. This event truly exemplifies educational achievement.

The week wrapped up with the Resources Challenge, another fantastic event that had a carnival atmosphere. Rescheduled from an earlier rainy date in June, the warmer weather certainly boosted the students' energy levels. Industry representatives from Rio Tinto and Sandvik generously volunteered as judges. Students participated in four different activities that illustrated the Iron Ore Mining value chain, including constructing an open-pit with tarps and stakes, competing in a haulage race from the bottom of the pit to the ROM, building a railway, and creating a crushing facility and stockpile, ultimately weighing the ore to assess its value for sale to customers. It was a fantastic day.

WELCOME ADAM

"As I wrap up my first month with the CoRE Learning Foundation, I can honestly say it's been an exciting journey. From meeting the passionate team to visiting schools and participating in field trips, I've been fully immersed in understanding what makes CoRE unique.

One of the first things that struck me is how engaged students are with their learning. CoRE's approach provides hands-on experiences, and you can see the impact immediately—students are self-managing, they have agency in what they do, and they are genuinely excited about learning. It's a far cry from the traditional classroom model, and it's incredible to see.

A key part of this engagement comes from the connection that Suzy, our CoRE Lead, brings to students. Every time she walks into a room, students light up. Her depth of knowledge and passion for science are contagious, and students hang on her every word. They don't just absorb what she's teaching—they want to know more, to dig deeper. Her enthusiasm drives their curiosity, transforming them into lifelong learners.

In my visits, I've seen how this is true across the board. CoRE educators I've met so far are equally passionate, deeply invested in offering students the freedom to explore and inquire. They share a common goal—to do schooling differently. It's not just about imparting knowledge; it's about creating experiences that stay with students long after they've left the classroom. I haven't had the chance to meet everyone yet, but I look forward to connecting with more CoRE educators soon.

In the last End of Month article, I had only been with CoRE for a week and reflected on my first impressions, especially during my visits to schools in the Wheatbelt. Since then, I've been fortunate to go on two incredible field trips that have deepened my understanding of how impactful CoRE's learning model truly is.

WELCOME ADAM

The first was a day trip to Mundaring Weir with Year 7 students from Australian Christian College - Darling Downs. We explored the history and importance of the Mundaring to Kalgoorlie pipeline, which was built during the Gold Rush to supply water to the Goldfields and still sustains regional WA today. The students were captivated by the story and the engineering behind it, making history come alive in a way that goes beyond textbooks.

The second trip took me to Hopetoun with Year 10 students from Merredin College. On our first day, we hiked Mt Barren East in Fitzgerald River National Park, learning about the unique flora of the region and the geological formations that shaped the land. I was blown away by how knowledgeable and inquisitive the students were, particularly those who had been involved in CoRE for years. They were independent, asking insightful questions, and it was clear they had become lifelong learners. One student, in particular, was jotting down notes on everything Suzy said, coming back to ask more questions later—such was their engagement with the material.

On the second day, we visited 2 Mile Beach to learn about sand ridges and the physics behind their formation. We also discussed heavy mineral sands and their use in household items—did you know the same minerals in M&Ms are used in household paint? To top it off, we stopped by Yummylicious in Ravensthorpe, where the students learned the science behind making lollies (and practiced by eating a few!). We wrapped up the trip with a visit to the Kundip Heritage Walk Trail, exploring the history of mining in the area.

My first month has been nothing short of a whirlwind, and I'm looking forward to continuing this journey. The experiences I've had so far have only reinforced my belief in the CoRE Learning Foundation's mission—to create engaged, lifelong learners. I'm excited to keep learning with all of you and to contribute to the work we're doing together.

Adam Brooks, CoRE Foundation Educator

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GOT QUESTIONS?
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