



Where does lead come from?

ES1/S1- Module 1



Program delivery

The LeadSmart modules are designed to allow flexibility for teachers and schools to tailor the delivery of the program in a way that best suits their needs. Each set of modules are designed in a way that they can be delivered in sequential order, as individual activities, or in an arrangement of the school's choosing.

Module overview

In this module students will explore the impact that lead found in Broken Hill region has on themselves and the local community. They will learn that lead has been mined in Broken Hill since the town's inception, and that as a result, lead dust has built up over many years due to past and present mining activities.

During this module students will engage in two activities to investigate outdoor areas that may contain lead, as well as different outdoor places where lead is found throughout Broken Hill.

Assessment

There are a number of informal assessment opportunities throughout this module including:

- Brainstorm to assess prior knowledge and experiences
- Class discussion
- Student questioning
- Workbook sample
- Observation

Learning intentions

Students will understand:

- Lead dust is a result of past and present mining activities
- Lead is found in dust, dirt, soil, rainwater tanks and old paint
- Lead is found in homes, schools, parks and playgrounds around Broken Hill

Resources

- Health hub space in your school (we encourage you to book an appropriate area in school for the duration of this module, enabling access to the technology and space required to complete the unit)
- Interactive Whiteboard (IWB)
- Detective file - activity sheet
- Images of dirt, dust, soil, rainwater tank and old paint to display on IWB
- 4 x cards displaying words or images to represent home, school, park and playground (images for cards can be found within this document)
- Supplementary IWB resources

Differentiation

As with all of the LeadSmart Education modules, we encourage you to differentiate the following activities by making any necessary modifications in order to cater for diverse student learning needs.

Note: The suggested duration of the activities found within this module may require adjustment to cater for the needs of your students.

Curriculum links

ES1

PDHPE

- COES1.1 Expresses feelings, needs and wants in appropriate ways
- DAES1.7 Moves in response to various stimuli
- PHES1.12 Display basic positive health practices
- SLES1.13 Demonstrates an emerging awareness of the concepts of safe and unsafe living

Geography

- GEE-1 Identifies places and develops an understanding of the importance of places to people

English

- ENE-1A Communicates with peers and known adults in informal and guided activities demonstrating emerging skills of group interaction

S1

PDHPE

- COS1.1 Communicates appropriately in a variety of ways
- DAS1.7 Performs simple dance sequences incorporating basic movement skills and patterns
- PHS1.12 Recognises that positive health choices can promote wellbeing
- SL1.13 Recognises that their safety depends on the environment and the behaviour of themselves and others

Geography

- GE1-1 Describes features of places and the connections people have with places

History

- HT1-2 Identifies and describes significant people, events, places and sites in the local community over time

English

- EN1-1A Communicates with a range of people in informal and guided activities demonstrating interaction skills and considers how own communication is adjusted in different situations

Cross curriculum priorities

- Sustainability


General capabilities

- Critical and creative thinking
- Ethical understanding
- Literacy

Introduction activity: What do we already know?

5 minutes

1. Display a picture of Lead Ted Jnr on the board.
2. Introduce students to the character of Lead Ted Jnr, inform them that they may have seen him around Broken Hill. He loves teaching everyone in town about how to be LeadSmart (protect people from lead harm) and is going to help them find out what lead is and where it comes from. Firstly, he would like to see what they already know.
3. Ask if anyone has heard of the word 'lead' before. Allow students time to share their thoughts and experiences with the whole class.
4. Explain to students that lead is a metal that is found in the ground and is mined all around the world, in fact lead is something that has been mined in Broken Hill since the beginning of the town, over 130 years ago. Explain that where the students live is a very special place, as Broken Hill is the longest running mining town in Australia.

1. Ask the students if they know what dust is and allow time for responses. Explain that the dust found in Broken Hill is a bit different to other places around Australia as the dust may have lead in it. The lead is so small that you cannot see it with your eyes.
 2. Explain that lead is naturally occurring in the ground in Broken Hill – that is why we mine it here. It also gets into the air as dust from mining activities and has spread throughout the town over the years because of the dry climate and wind. It can also be created, disturbed and spread around when we do renovations, building and other work in and around our homes and in our community.
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3. Invite students to become lead detectives. They will have to look for clues to discover more information about lead.
 4. Hand out the activity sheet to each student and ask them to move to their desks. They must have their pencils ready.
 5. Tell students that you have discovered five clues for them to investigate. These clues will reveal objects or areas where lead can be found.
6. Display the slide 'Where is lead found?' on the IWB. Select students to approach the board and reveal each image one by one by dragging the cover up or deleting it. Discuss where each image might be found in Broken Hill, i.e. Sturt Park, home, school, etc.
 7. Select the first student to tap the pink picture on the IWB revealing dust. Explain that lead can be discovered in dust around Broken Hill. Instruct class to draw an image of dust in the first box on their 'detective file' and label it by writing the word underneath (model this for students to copy). Repeat this process for the following images:
 - Dirt and soil – it has been discovered that lead can be found in dirt around Broken Hill. Lead can also be found in soil around Broken Hill. Ask the children for their ideas on how we can stop dirt and soil from spreading inside our homes. Establish an understanding that wiping our shoes before we come inside or leaving them outside is a good solution.
 - Rainwater tank – lead dust falls onto the roof and when it rains runs into the rainwater tank.
 - Old paint - lead was used in old paint and can still be found in some houses around Broken Hill. Explain that if they see any paint that is breaking or chipping off things like walls, doors and windows around their home, not to touch it but instead tell an adult, it may be lead paint.
 8. Congratulate students on being fantastic detectives and discovering where lead can commonly be found in their community. Allow students time to glue their worksheets into their books and invite them to sit back down in front of the IWB.



dust



dirt and soil



rainwater tank



old paint

1. Explain to students that their investigation isn't over just yet, they still need to discover how lead spread throughout Broken Hill.
2. Sit students in a large circle and tell them that they are going to play a game.
3. Explain that the large area in the middle of the circle is going to represent Broken Hill.
4. It's going to be windy in Broken Hill so you will need everyone's help in making the wind sound. Teach students to make a gentle "shhhh" sound to illustrate wind, you may even like to incorporate movement such as swaying. Explain that while making the wind sound they will need to be watching you carefully, when you hold your hand up in a stop sign they will need to be still and silent. Practise this as a class to ensure that they understand the instructions.
5. Point to the Broken Hill area on the floor and explain that Broken Hill is not an empty space, there are lots of people who live here. Discuss some of the buildings and areas students can identify that are in Broken Hill. Pick four volunteers to each hold a card that represents home, school, park and playground, you can use the images below.



6. Instruct each student volunteer to keep their card to themselves, they will be able to reveal it to the class later in the game. Position each student so they are sitting in different areas within the circle.

7. Choose another volunteer. They will be the lead dust floating in the air, when they can hear the wind sound, they will gently float around Broken Hill. When the wind stops they will sit down next to the closest person holding a card.
8. Instruct students to begin making a gentle wind sound, encourage the wind dust to float gently throughout Broken Hill (the circle).
9. Hold up your hand in a stop sign, so that students know to be quiet. Encourage the lead dust to quickly sit down next to the closest person holding a card. Ask the student to reveal their sign to the rest of the class (home, school park or playground).
10. Explain that the lead dust has now fallen from the air and landed on uncovered surfaces in the identified area. Discuss what surfaces it may have landed on.
 - Home – backyard, on toys, soil, dirt, on gardens, pets, on our roof and in our house through cracks and ceilings in walls and through our backdoors.
 - School – school bags, equipment, playgrounds, in the ground, dirt and soil.
 - Park – seats, tables, dirt, skate ramp, and soil.
 - Playground – Playground equipment – slippery dip, swings and in the ground.
11. Discuss with children some strategies they can use in each area to reduce lead exposure, i.e. take their shoes off when coming inside, wash their hands before eating, sit on a blanket or at a table when eating outside, etc.
12. Repeat the game until all locations are revealed.

Note: You may choose to increase the strength of the wind to make the game more challenging. Try some of the following actions, or add your own, encouraging the children to be a; tornado, earthquake, hurricane, gentle breeze.
13. Praise students for their ability to follow instructions, ask them to sit back in front of the IWB.

1. Congratulate students and tell them that their investigation is complete.
2. Ask them to share their findings on where lead comes from, reinforce that lead occurs naturally in the ground in Broken Hill – that's why we've mined it here for over 130 years. It has gotten into the air as dust from mining activities and has been spreading around and building up in places all around Broken Hill since the earliest days of the town. It can also be found in old paint in and around our homes, it can also be created or disturbed – spread around more – when we do building, renovations and other work around Broken Hill.
3. Give students an opportunity to share what they have learnt about where lead is found outdoors, reinforce that lead can be found in dust, dirt, soil, rainwater tanks and old paint throughout Broken Hill.
4. Ask students how lead spreads around Broken Hill, reinforce that lead is found in homes, schools, parks and playgrounds and travels around especially when it is windy.
5. Display the image of Lead Ted Jnr on the IWB again.
6. Explain to students that Lead Ted Jnr would be very proud of their detective work and will be back to teach them more about lead in Broken Hill soon.

Good job on the amazing detective work!



I am very proud of what you've accomplished. Keep up the good work until our next lesson!

Detective File

Can you discover what lead is found in around Broken Hill?

