



Does lead belong in the human body?

ES1/S1 - Module 2



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 understand that lead does not belong in the human body. They will learn that lead can enter our bodies through ingestion (in our mouths), inhalation (when we breathe) and absorption (through our skin), and when in our bodies it can build up over time and may make us sick.

During this module students will have the opportunity to engage in two activities where they will gain a deeper understanding that lead is harmful to the human body.

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 does not belong in the human body
- Lead can enter our bodies when we breathe (inhalation), when we put things in our mouths (ingestion) and through our skin (absorption)
- When lead enters our bodies, it builds up over time and makes us sick

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)
- How can lead enter our bodies? - interactive resource
- How can lead enter our bodies? - activity sheet
- Student Work books, Activity sheets
- Felt tip pens, pencils, scissors, glue sticks
- Supplementary teacher 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
- **PHES1.12** Display basic positive health practices
- **SLES1.13** Demonstrates an emerging awareness of the concepts of safe and unsafe living

Mathematics

- **MAE-17SP** Represents data and interprets data displays made from objects

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
- **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

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

Mathematics

- **MA1-17SP** Gathers and organises data, displays data in lists, tables and picture graphs, and interprets the results

Cross curriculum priorities

- Sustainability

General capabilities

- Critical and creative thinking
- Ethical understanding Literacy
- Numeracy

Introduction activity: what do we already know?

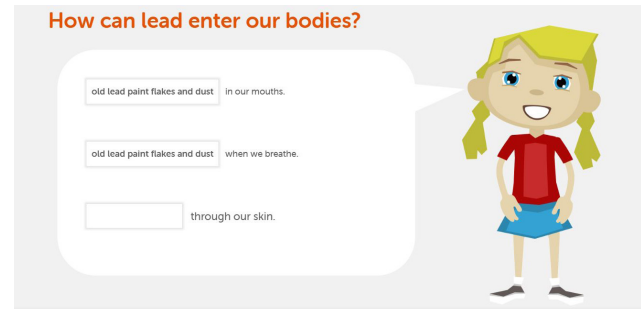
10 minutes

1. Review learning from previous module to reinforce student understanding of where lead is found throughout Broken Hill, and where it originates from.
2. Display image of Maddy on the IWB, ask students to think about what might be wrong with her. Prompt the answer that she is sick/unwell.
3. Ask students to share a time when they felt sick or unwell, discuss the different ways we can get sick e.g. cold and flu germs or eating something we shouldn't.
4. Point to the image of Maddy on the IWB and explain that she isn't feeling well because she has too much lead in her body. Inform students that when lead gets into our body it can build up and make us sick.

Activity 2: How does lead enter our bodies?

20 minutes

1. Explain to students that they are going to investigate the ways that lead can enter our bodies, so we can keep ourselves healthy.
2. Display the How can lead enter our bodies? - Interactive resource on the IWB. Draw attention to the body outline in the centre, highlight how the body has healthy blood flowing around her body, and that she is happy because she is smiling.
3. Explore the objects located at the bottom of the online interactive, explain that these objects are found throughout Broken Hill in places such as homes, schools, parks etc.
4. Choose a volunteer to identify one of the objects displayed in the interactive. Prompt students to recognise that each of the objects may contain lead. Instruct students to click and drag the object onto the body, observe to see which part of the body lights up and read the sentence/s that appears in the top box to identify how the object allows lead to enter the body.
5. Repeat the activity, selecting different volunteers for each object. Draw attention to what happens to the body each time more lead enters (colour of the blood dulls and facial expression changes).
6. Once the activity is complete, reinforce that lead can enter the body through our mouths (ingestion), when we breathe (inhalation) and through our skin (absorption).



Reinforce that ingestion (in our mouths) is the main way that lead gets into our bodies in Broken Hill. Inhalation (through our nose) is less likely as the lead particles are usually too big - lead particles must be very small or fumes to get into our body this way. Absorption (through our skin) is most likely for people who work with lead - not kids. This is why washing our hands after we play outside and before we eat is the best way to keep lead out of our bodies.

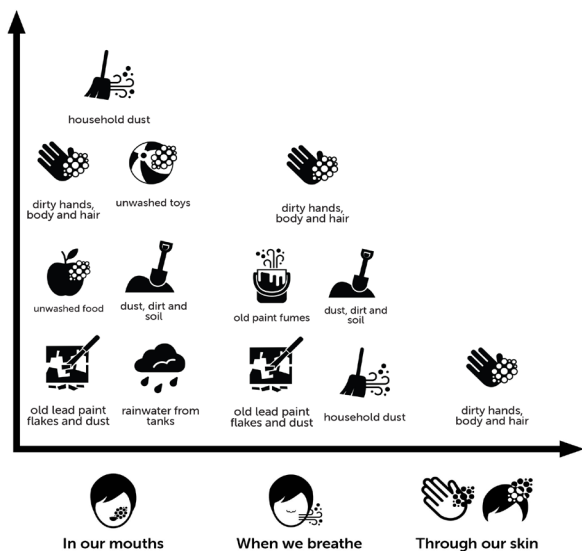
Note: Students should understand that the language 'fumes' in this lesson, refers to the fumes from lead paint being removed, not the lead paint itself.

Activity 3: What is the most common way lead can enter our body?

25 minutes

1. Explain that it is important to understand how lead enters our bodies so that we can do things to stop or prevent us from getting sick.
2. Tell students that they are going to investigate the most common way that lead can enter our body by collecting information (data) and display it using a picture graph.
3. Display the 'Ways that lead can enter our body' interactive graph on the IWB. Indicate the three ways that lead can enter our bodies along the x axis, and each of the pictures next to the y axis. Draw students' attention to the fact that some pictures appear more than once, meaning they belong in more than one column.

- Choose volunteers to move each object into the correct column on the IWB.
- Your final graph should look like this:



- Conduct a final count and tally of how many objects appear in each column, students can record their data on their graph or using a separate table.
- Complete a graph analysis asking students the following questions:
 - Which is the most common way that lead can enter our bodies?
 - Which are the most common objects that cause lead to enter our bodies?
- Instruct students to complete their own graph in their workbooks using the How can lead enter our bodies? - Activity sheet.

Note: It is recommended that you complete this activity step-by-step with Kindergarten students. If your students are in Year 1 or 2 you may like them to complete the activity independently displaying the graph on the IWB for additional support. As always, we recommend that this task is differentiated to suit the ability levels of your students.

Reflection activity: What did we discover?

5 minutes

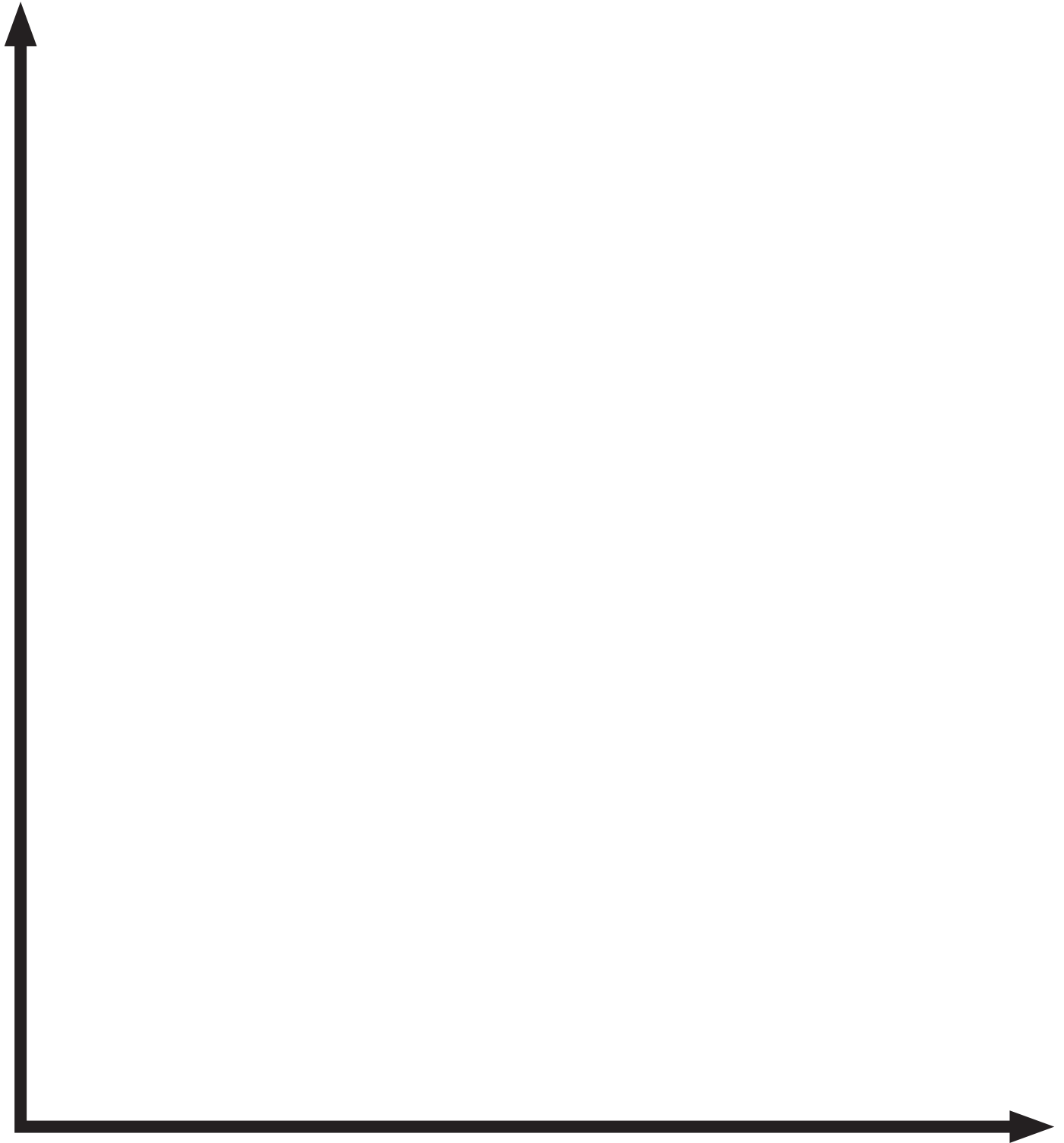
- Sit students in front of the IWB, review what they discovered about how lead enters our body. Reinforce that lead found in dust, dirt soil, rainwater from tanks, old paint chips and old paint fumes can enter our bodies in our mouth, when we breathe and through our skin.

Reinforce that ingestion (in our mouths) is the main way that lead gets into our bodies in Broken Hill. Inhalation (through our nose) is less likely as the lead particles are usually too big - lead particles must be very small or fumes to get into our body this way. Absorption (through our skin) is most likely for people who work with lead - not kids. This is why washing our hands after we play outside and before we eat is the best way to keep lead out of our bodies.

- Display the image of sick Maddy once again on the IWB. Reinforce that when lead gets into our bodies it can build up over time and make us sick.
- Explain that in the next module, Lead Ted Jnr is going help students understand how we can protect ourselves against lead entering our body and making us sick.



How can lead enter our bodies?
















In our mouths



When we breathe



Through our skin

| | | | | | |
|---|---|--|---|--|---|
|  <p>dirty hands, body and hair</p> |  <p>rainwater from tanks</p> |  <p>unwashed food</p> |  <p>unwashed toys</p> |  <p>household dust</p> |  <p>dirty hands, body and hair</p> |
|  <p>dust, dirt and soil</p> |  <p>old lead paint flakes and dust</p> |  <p>old paint fumes</p> |  <p>household dust</p> |  <p>dust, dirt and soil</p> |  <p>old lead paint flakes and dust</p> |
|  <p>dirty hands, body and hair</p> | | | | | |