Introduction

There is no cure for a spinal cord injury. Once the spinal cord is damaged it cannot be repaired, and can result in quadriplegia or paraplegia.

SEAT is a free community safety program for students run by Spinal Life Australia. This award-winning program is aligned with the curriculum and prepares students to make safe choices every day. Our presenters have all sustained spinal cord damage and speak to students from their own experiences to deliver safety messages.

This teacher resource provides educational experiences that will arm young people with the tools needed to think about the potential consequences of risky behaviour. A split-second decision, such as diving into water without checking its depth, can lead to permanent disability. These activities are designed to reinforce the SEAT program’s safety messages and inspire your students to enjoy life while staying safe.

Do the Right Thing

Students learn how to identify hazardous situations and how to respond to unsafe and emergency situations. They discover how the brain and spine work together; the difference between paraplegia and quadriplegia; and how to stay safe when riding a bicycle or swimming.

Making Smart Choices

The upper primary program features videos with real life, high risk scenarios. These scenarios, and the resulting discussions, highlight the dangers of peer pressure and focus on key safety messages about the importance of wearing a helmet, checking the water before jumping in, and wearing seat belts, to name a few. This program also demonstrates how people with paraplegia or quadriplegia do everyday things. Students watch and discuss videos showing how people who use a wheelchair drive a car, go swimming, exercise and more.

Your Spine Explained

Your spine is one of the most important parts of your body because it gives you structure and support. Without a spine, you would not be able to stand up and move freely. It is central to your skeletal system. Most importantly, it supports your head and protects the spinal cord which runs down a canal in the spine.

Anatomy of the spine

› The spine is separated into four basic regions:
  › 7 Cervical vertebrae (neck)
  › 12 Thoracic vertebrae (upper and mid back)
  › 5 Lumbar vertebrae (low back)
  › Sacrum and coccyx (between low back and tailbone)

Protection

The major function of the vertebral column is protection of the spinal cord. Your spinal cord is a thick bundle of nerves, similar to a white fibre optic cable. It is usually about 43cm long and 2cm wide and is the communication link between your brain and other parts of your body.

The 31 pairs of spinal nerves in your spinal cord support a functional nervous system; a system you use whenever you think, see or breathe. The spinal cord sends messages about feeling or sensation to the brain, and the brain sends movement or functional messages to the body through the spinal cord. A damaged spinal cord can profoundly impact your life because it cannot be repaired. This is why it is so vital to protect your spine and spinal cord.
Presented by
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About this resource

This resource provides an initial set of activities for teachers to develop student awareness of spinal cord safety among students in primary school. Please note that these activities do not cover all contexts and situations in which spinal cord injury can occur. Activities are:

› based on the Jack and Ella vignettes provided by the SEAT program.
› based on the common interests and behaviours of students.
› an opportunity for teachers to emphasise the importance of spinal safety.

This resource provides a range of activities that could be used either prior to or following a SEAT presentation, to further emphasise the need for spinal cord injury awareness and prevention.

Warning

Some activities are based on YouTube videos and images. Many of these concepts and images can be very confronting for young students. Teachers are encouraged to follow their school’s policies when checking, viewing and discussing online content.

Specialised knowledge

These activities do not require teachers to have specialised knowledge in spinal anatomy, awareness or injury prevention. When students ask questions that require expert knowledge, please forward them to Executive Manager, Member Services on seat@spinal.com.au or 1300 774 625.

Curriculum links

These materials support the implementation of the Australian Curriculum: Health and Physical Education, particularly the Personal, Social and Community Health strand. Activities can be used to address a range of Content Descriptors as listed below. Activities may also be relevant to other Learning Areas as indicated in the activity overview.

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<td>Being healthy, safe and active</td>
<td>Describe and apply strategies that can be used in situations that make them feel uncomfortable or unsafe (ACPPS035)</td>
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<tr>
<td>Year 3 - 4</td>
<td>Personal, social and community health</td>
<td>Being healthy, safe and active</td>
<td>Identify and practise strategies to promote health, safety and wellbeing (ACPPS036)</td>
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<tr>
<td>Year 3 - 4</td>
<td>Personal, social and community health</td>
<td>Contributing to healthy and active communities</td>
<td>Describe strategies to make the classroom and playground healthy, safe and active spaces (ACPPS040)</td>
</tr>
<tr>
<td>Year 5 - 6</td>
<td>Personal, social and community health</td>
<td>Being healthy, safe and active</td>
<td>Investigate community resources and ways to seek help about health, safety and wellbeing (ACPPS053)</td>
</tr>
<tr>
<td>Year 5 - 6</td>
<td>Personal, social and community health</td>
<td>Being healthy, safe and active</td>
<td>Plan and practise strategies to promote health, safety and wellbeing (ACPPS054)</td>
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### Overview of Activities

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<th>Curriculum focus area</th>
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<td></td>
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<td></td>
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<td></td>
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### Additional resources

The Australian Spinal Injury Alliance represents eight of the country's largest spinal cord injury organisations, as a national voice for the estimated 15,000 Australians who have a spinal cord injury:


RACQ Streets Ahead road safety program:


Farm safety - RIPPER II: Growing Kids on Farms:


Neil Sachse Foundation online spinal safety resources:

Teacher Notes: 
Our skeleton and spinal cord

Key concepts
The bones of our skeleton support our body and hold it up. The skeleton provides a protective cage for the delicate organs inside. The ribs protect the heart and lungs.

Vocabulary
spine, vertebra, skeleton, ribs, skull

Equipment needed
Black A4 paper, scissors, glue, various craft items (pasta, cotton tips, pipecleaners, wool)

Curriculum Links
Living things have structural features and adaptations that help them to survive in their environment (ACSSU043)

Activities
› Complete the SEAT Presentation Reflection worksheet during or after the presentation.
› Ask students to recall facts about the skeleton eg how many bones, main structures etc. Complete the Skeleton and Spine matching activity and cloze passage.
› Measuring My Body. Use a tape measure to measure some of the main parts of the body (see the table on the worksheet). What is the longest? What is the shortest? How do they compare?
› Create a Skeleton. Using a labelled diagram of a skeleton, reinforce the anatomy of the skeleton by constructing a personal model, using various craft items, such as cotton tips, wool, pasta and cardboard, glued to a black cardboard background. Create the main body parts (skull, ribcage, arms, legs, etc) and let students place the various parts together, naming each major part of the skeleton and its function.
› Alternatively you might ask students to trace an outline of their body onto a large piece of paper and create a life-sized model of a skeleton.
› Discuss how spinal injuries occur. Check students’ knowledge with the TRUE/FALSE quiz – Spinal Injury Facts.

Additional activities
You might like to check out these other skeleton/spinal modelling activities:
Rubbish bin bag skeleton: activityvillage.co.uk/bin-bag-skeleton
Modelling the backbone and spinal cord: perkinselearning.org/accessible-science/activities/modeling-backbone-and-spinal-cord
Bendable spine model: education.com/activity/article/bendable-model-spinal-column/
Online Interactive: abcyo.com/skeletalsystem.htm

Additional Resources
Moving and growing - lesson plan: bbc.co.uk/schools/teachers/ks2_lessonplans/science/moving_growing.shtml
Organisation of the skeleton: getbodysmart.com/skeleton-organization/skeletal-system-overview
ABC curious kids – Why do we have bones? education.abc.net.au/newsandarticles/blog/-/b/2755685/curious-kids-why-do-we-have-bones
# SEAT Presentation Reflection

What does the acronym S.E.A.T. mean? What do they do?

<table>
<thead>
<tr>
<th>S.E.A.T. character</th>
<th>Paraplegia or Quadriplegia? Location of injury?</th>
<th>Impact of spinal cord injury?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ella</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jack</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Do the right thing.

*List three things you can do to stay safe and prevent spinal cord injuries.*

1. 
2. 
3.
The Skeleton and Spine

*Cut out and label the main parts of the skeleton on the diagram.*

There are ___________ bones in our bodies. Our ___________ are very strong.
The skeleton performs three important functions. It helps us to ___________ around, it ___________ the body and protects the ___________ inside the body.
Your spine protects your spinal ___________, which delivers messages throughout your body.

<table>
<thead>
<tr>
<th>supports</th>
<th>bones</th>
<th>move</th>
</tr>
</thead>
<tbody>
<tr>
<td>cord</td>
<td>206</td>
<td>organs</td>
</tr>
</tbody>
</table>
# Measuring My Body

*Use a tape measure to measure some of the main parts of the body and complete the table below.*

What is the longest? What is the shortest? How do they compare?

<table>
<thead>
<tr>
<th>Part of my body</th>
<th>Measurement (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of torso</td>
<td></td>
</tr>
<tr>
<td>Length of upper arm</td>
<td></td>
</tr>
<tr>
<td>Length of lower arm</td>
<td></td>
</tr>
<tr>
<td>Length of hand</td>
<td></td>
</tr>
<tr>
<td>Length of thumb</td>
<td></td>
</tr>
<tr>
<td>Length of longest finger</td>
<td></td>
</tr>
<tr>
<td>Length of upper thigh</td>
<td></td>
</tr>
<tr>
<td>Length of lower leg</td>
<td></td>
</tr>
<tr>
<td>Length of big toe</td>
<td></td>
</tr>
</tbody>
</table>

**Procedure – Torso length**

1. Have your partner locate your C7 vertebra; the bony bump at the base of your neck, where the slope of your shoulder meets your neck. Tilt your head forward to locate it more easily.
2. Place your hands on the very top of your hips so you can feel your iliac crest, which creates your “hip shelf” (It’s the first hard thing you feel when you run your fingers down from the sides of your ribcage).
3. Position your hands so your thumbs are reaching behind you, pointing parallel to the floor.
4. Using a flexible tape measure, have your friend measure between the C7 and the point where the tape crosses an imaginary line drawn between your thumbs. Be sure to follow the contours of the spine.
Create a Skeleton

Your mission is to build a model of a skeleton using the materials provided by your teacher.

Here are some examples to help get you started.

Reflection Questions:
What features make a good model?
Are you happy with your model skeleton?
What could you do to improve it?
What would you do differently next time?
Spinal Injury Facts

Your spine is one of the most important parts of your body because it gives you structure and support. Without a spine, you would not be able to stand up and move freely. It is central to your skeletal system, it supports your head and encloses the spinal cord which runs down a canal in the spine.

**TRUE or FALSE. What do you think about each of these statements? Circle the correct answer.**

<table>
<thead>
<tr>
<th>Statement</th>
<th>TRUE</th>
<th>FALSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>In most cases, a spinal cord injury is permanent and irreversible.</td>
<td>TRUE</td>
<td>FALSE</td>
</tr>
<tr>
<td>Paraplegia occurs when there is an injury to the spinal cord above the neck.</td>
<td>TRUE</td>
<td>FALSE</td>
</tr>
<tr>
<td>Road trauma, falls and water related accidents are the main causes of traumatic spinal cord injuries.</td>
<td>TRUE</td>
<td>FALSE</td>
</tr>
<tr>
<td>Most spinal cord injuries resulted in quadriplegia.</td>
<td>TRUE</td>
<td>FALSE</td>
</tr>
<tr>
<td>The total cost of spinal cord injury in Australia is estimated to be $2 billion annually.</td>
<td>TRUE</td>
<td>FALSE</td>
</tr>
</tbody>
</table>

Answers: spinal.com.au/resources/spine/
Teacher notes – Risky Business

Key concepts
Students will explore what could happen to your spinal cord if you are unsafe in particular situations.

Vocabulary
Safe, unsafe, risk, consequences

Equipment needed
Worksheets, scissors, glue, example of different helmets

Curriculum Links
Describe and apply strategies that can be used in situations that make them feel uncomfortable or unsafe (ACPPS035)
Describe strategies to make the classroom and playground healthy, safe and active spaces (ACPPS040)
Recognise how media and important people in the community influence personal attitudes, beliefs, decisions and behaviours (ACPPS0570)
Investigate the role of preventive health in promoting and maintaining health, safety and wellbeing for individuals and their communities (ACPPS0580)

Activities
Ask the students to work in groups to make a list of accidents or scenarios that could result in a spinal injury. Discuss the importance of being aware of their surroundings. Complete the Looking after my spine worksheet.
Give students a safety scenario (eg road safety incidents, crowded places, diving into a creek on a really hot day where they couldn’t see the bottom). Have students give examples of other safe and unsafe situations at home and school.
Complete the What’s the risk? worksheet. Are these safe or unsafe situations? Why? Have students cut out and glue the label under the correct picture. Discuss the pictures and captions on the worksheet. Ask students questions such as “What would happen if…?”
Explore how our senses are used to recognise safety clues in our environment. Identify and compare a range of emotions associated with feeling unsafe. Describe how the body reacts when feeling unsafe. The Super Safety Heroes activity highlights how to recognise danger and risk.
The Understanding risk activities explore a number of concepts presented in the SEAT presentation.
› Riding a bike
› Driving
› Water safety
› In the playground
› On the sporting field

Additional activities
You might like to check out these other safety activities:
Staying safe in water: healthyactivekids.com.au/teachers/victoria/unit-4-safety/lessons-5-6-staying-safe-water/

Additional Resources
Daniel Morcombe Child Safety Curriculum (Years 3-6) (TLF S5392): learningplace.eq.edu.au/cx/resources/items/23c8dc44-e367-b13d-e85a-03367504ec9b/0/ViewIMS.jsp
Neil Sachse Foundation online spinal safety resources: spinalcordresearch.org.au/backtobasics/kids/
Royal Life Saving - Swim and Survive resources (game zone, quizzes and activities): swimandsurvive.com.au/content_common/pg-kids-zone.seo
Looking after my spine

Cut out and glue the label under the correct picture.

- Riding a quad bike
- Jumping off a jetty
- Riding a skateboard
- Riding a bicycle

What could happen to your spinal cord if you are unsafe in these situations?
What is the risk?

1. Is all risk-taking behaviour negative?
2. Are there any risks that can be seen as positive? Brainstorm a list of positive risk-taking (asking for help on an assignment, trying out for a team, learning a new sport or hobby, making a new friend).
3. How do you make a decision when there is a risky behaviour involved?
4. How can you make decisions and avoid risky behaviours that may have negative consequences?

In pairs, decide if these activities are low, medium or high risk. Be prepared to justify your answers.

Can you give some other examples of low, medium and high risk activities that you have seen?
Super safety heroes

What would you do if you came across an injured person? Would you know how to react?

Watch this video from the Neil Sachse Foundation and learn more about staying safe: spinalcordresearch.org.au/backtobasics/video.php

Questions:
1. What was the risky activity that the Super Safety Heroes, Wonder Wendy and Captain Victorious were attempting in their backyard?
2. What might have happened if Yvie hadn’t come along when she did?
3. What advice does she give to the kids to stay safe?
4. How did Yvie become a paraplegic?
5. What could happen if you try to move an injured person?
6. What should you do instead?

Test your knowledge and skills with these interactive games: spinalcordresearch.org.au/backtobasics/kids/
Understanding risk – riding a bike

Cycling and riding other wheeled devices such as scooters, rip sticks, skateboards and roller blades are great outdoor activities, but they can pose significant risks.

**In pairs discuss the following:**

1. What responsibilities come with being a safe rider?
2. What excuses might students use for not wearing a helmet or protective gear when riding a bicycle or other wheeled devices?
3. Which road signs and signals do kids your age need to know about when they are cycling or skating or riding? Why? Where in our local area have you seen these signs or signals?
4. Should cyclists be required to take a test to get a licence or register their bikes before riding on the road?
5. Why do you think kids your age choose to ride in unsafe places? What information might change their riding behaviour? Why?
6. Who or what do you think influences the way you behave as a rider? (eg friends, peers, family, time available, weather conditions, road safety campaigns, your road safety knowledge and skills, your road safety attitudes)
7. Why is it dangerous to ride on the road? Where else can your ride your bicycle or scooter?

Source: sdera.wa.edu.au/media/1257/safety-on-wheels-yr-5.pdf

**Helmet design**

- Examine a range of different helmets eg bicycle, motorbike, car racing. In groups, discuss the same basic parts that each helmet has to protect the head in an accident. However, helmets are not all alike. They may differ depending on who will use them and for what purpose. Determine the purpose of a bicycle helmet.
- The Australian Competition and Consumer Commission prescribe a mandatory standard which identifies the requirements for the design, construction, performance and safety marking of bicycle helmets. Read it at: productsafety.gov.au/standards/bicycle-helmets
- From the following Worksheet A: Helmet Design Project (2 pages), choose one of the design challenges: teachengineering.org/content/wpi_/activities/wpi_bicycle_helmet/bicycle_worksheet_a.pdf
- Brainstorm your ideas and complete the worksheet.
- Prepare a two-minute poster presentation on your design. Your poster needs to include the helmet design and information about the choices made.
Understanding risk – driving

Are these safe or unsafe situations? Why?

- Texting while driving
- Sleeping in a car without seat belts fastened
- Wearing a seat belt
- Using a navigation panel while driving

What could happen to your spinal cord if you are unsafe in these situations?
Understanding risk – water safety

One of the most preventable causes of spinal cord injuries is diving. Diving and swimming injuries take place in swimming pools, lakes, rivers, creeks, swimming holes and just about any water environment you can think of.

Watch this video from the Neil Sachse Foundation to learn more about the risks to be aware of when diving and how to prevent injuries. spinalcordresearch.org.au/secondaryschoolyears/diving/

What are three things that you can do to minimise the risk of spinal injury when diving into water?

1. 
2. 
3.
Understanding Risk – In the playground

Be a super sleuth and take a walk around your school playground. Look very carefully for any trouble spots. Take photos of any hazards you have identified. Print the photographs and place them on the map of the school or playground.

*Use the six thinking hats to explore playground safety from different perspectives.*

<table>
<thead>
<tr>
<th>Thinking Hat</th>
<th>Activity</th>
</tr>
</thead>
</table>
| Purple - Facts | › What does “playground safety” mean?  
› List three safety rules at your school.  
› What is the procedure at your school if someone has an accident? |
| Blue - Process | › What are some examples of how we can be safe when using environments around our school?  
› What are the similarities and difference between classroom safety and playground safety at school? |
| Red - Feelings | › How do you feel if someone isn’t following the rules when playing an outdoor game, such as football or tiggy?  
› Your school is considering making everyone wear helmets to play on equipment taller than 1.5m. What is your gut reaction to this news? |
| Green - Creativity | › Design a new safety feature for your school playground that would help reduce spinal injuries in the event of an accident.  
› Create a poster to encourage younger students to play safely when at school. |
| Yellow - Benefits | › What are the good points about being safe in the playground?  
› Why is it important to have rules for playing at break times?  
› What are the benefits of lunchtime play? |
| Black - Caution | › Looking at the playground area in your school, what should you be cautious about?  
› What safety hazards can you identify in your classroom?  
› Are there any items that you can
Understanding risk – on the sporting field

*With a partner, write the name of your favourite sport or game, then identify how to play the game safely.*

My sport:

- Why follow the rules of the game
- How to play safely and avoid injuries
- How to be a good sport
Dealing with Peer Pressure

Peer pressure is the powerful feeling of pressure from someone your own age that can push you toward making certain choices, good or bad. It can take a number of different forms, both spoken and unspoken, and can lead to risky and dangerous behaviour.

1. Explain peer pressure in your own words. Why do you think people are able to be influenced by their friends and classmates?

2. We often hear about negative peer pressure, like friends talking friends into bullying others or skipping school. But peer pressure isn’t always bad. Friends can encourage and inspire friends to do great things. Give some examples of positive peer pressure.

3. Have you ever experienced peer pressure, good or bad? How did it feel?

4. Why is it sometimes hard to stand up to your friends? What advice would you give to someone dealing with peer pressure?

By planning ahead, we can sometimes reduce the risk of being in an unsafe or uncomfortable situation.

*Read the following scenarios and write down what you might do in each situation.*

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Your response</th>
</tr>
</thead>
<tbody>
<tr>
<td>A group of friends want to have a competition to see who can jump the greatest distance off the carport roof.</td>
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</tr>
<tr>
<td>You are at a friend’s house. Their parents leave you home alone with your friend while they go out to dinner. Your mum thinks an adult will be with you.</td>
<td></td>
</tr>
<tr>
<td>Your friends want to play a joke on the new student in class, but you think the prank might end up injuring them.</td>
<td></td>
</tr>
<tr>
<td>Your mate’s brother has offered to drive you home. He is known for being reckless and showing off when he has passengers in the car. You feel worried and unsafe.</td>
<td></td>
</tr>
<tr>
<td>Your friend wants to show you a new BMX trick that he has learnt at the bike park. You notice that he doesn’t have his helmet buckled up and isn’t wearing safety gear.</td>
<td></td>
</tr>
</tbody>
</table>
Safety Campaigners

Aim:
Students will conduct online research and then design a digital media campaign to help raise awareness for preventing spinal cord injuries in their community.

Possible campaign topics:
› Farm safety – quad bikes, tractors, horses
› Road safety – drivers distracted by their mobile phone, importance of wearing seat belts, bike safety equipment
› Playing sport – follow the rules, safety equipment
› School/workplace safety – identify hazards, use equipment correctly
› Water safety – dangers of diving into rivers, pool safety

Task:
Some questions to consider when designing a campaign:
1. What is the campaign’s main aim?
2. Do you have a slogan or message?
3. What is the value of raising awareness?
4. Who is your target audience?
5. What is the best way to communicate the message to enhance audience engagement and understanding? For example, will you use outdoor promotion, a short film, web page, community service announcement, a press release or a combination?
6. What strategies will your campaign use?

Students could create one or more of the following digital media:
› Outdoor promotion (billboard, bus stop)
› Short film or animation or video advertisement
› Web page
› Community service announcement (for television or radio).
› Social media images and posts (eg Instagram, Facebook, Twitter)