

# Injury Hotspots for young workers

## Cooperative logic activities

### Background

In Victoria, young workers aged 15 to 24 have the highest proportion of work-related injury – 17% higher than the average across all age groups.

Young workers also have a higher rate of hospitalisation – 21% higher than other age groups. The highest injury rates for young people occur in:

- retail (especially fish shops and takeaway food)
- cafes and restaurants
- manufacturing (particularly in meat products, metal fabrication, wood and joinery sectors), and
- construction (especially plumbing, electrical and carpentry work).

### Types of injuries

The most common types of injuries experienced by young people include sprains, strains and muscle tears; lacerations; fractures and burns. Young workers are also more likely to be subjected to bullying and occupational violence.

### Injury hotspots

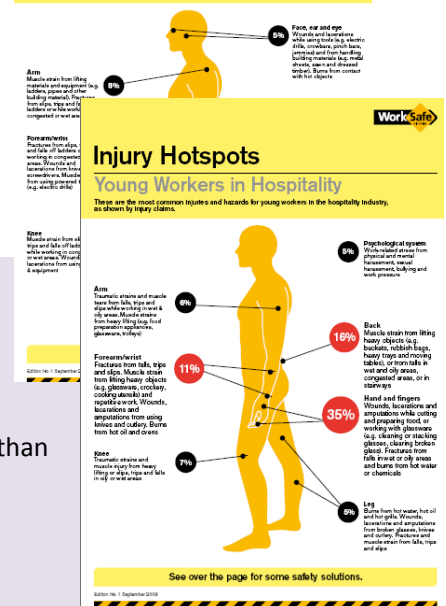
WorkSafe Victoria has produced a series of posters and flyers, *Injury hotspots*, showing the most common injuries in different industry sectors, how people get injured and what can be done to prevent these injuries. They have also produced *Injury hotspots* showing the most common injuries experienced by young workers in the retail, hospitality, manufacturing construction and warehousing and storage industries; the industries young people commonly work in. These [Injury hotspots](http://www.worksafe.vic.gov.au/hotspots) can be accessed at [www.worksafe.vic.gov.au/hotspots](http://www.worksafe.vic.gov.au/hotspots) The [Young Workers Injury hotspots](http://www.pief.com.au/pief/hotspots/young%20workers/YW_project_web.html) can also be accessed at [www.pief.com.au/pief/hotspots/young%20workers/YW\\_project\\_web.html](http://www.pief.com.au/pief/hotspots/young%20workers/YW_project_web.html)

### Overview of the unit

The activities in this unit are cooperative logic problems. Cooperative logic problems are a great way to encourage students to work together and problem solve. They also help those participating in the activity to focus on the information presented, and, in this instance, allow students to share their mathematical knowledge and language. And, students find cooperative logic problems fun.

There are six cooperative logic problems in this unit:

- Activity 1: Young construction workers cooperative logic problem
- Activity 2: Young hospitality workers cooperative logic problem



- Activity 3: Young manufacturing workers cooperative logic problem
- Activity 4: Young retail workers cooperative logic problem
- Activity 5: Young warehousing and storage workers cooperative logic problem
- Activity 6: Agricultural workers cooperative logic problem.

The activities are based on WorkSafe Victoria's Industry Hotspots posters and aim to make young workers aware of common injuries and safety solutions for preventing the injuries. Each activity follows the same format.

It is unlikely you would use all the activities in this unit with the same group of students. Choose the activities that relate to the industries that are most relevant to the students.

## Purpose of the unit

- To focus on the injuries that young people working in the agriculture, construction, hospitality, manufacturing, retail and warehousing and storage industries are most likely to experience.
- To develop team work skills.
- To develop problem solving skills.
- To develop understanding of percentages.

## Resource requirements

### *Activity sheets*

- Activity sheet 1: Young construction workers cooperative logic problem
- Extension activity 1: Causes of injuries in the construction industry
- Activity sheet 2: Young hospitality workers cooperative logic problem
- Extension activity 2: Causes of injuries in the hospitality industry
- Activity sheet 3: Young manufacturing workers cooperative logic problem
- Extension activity 3: Causes of injuries in the manufacturing industry
- Activity sheet 4: Young retail workers cooperative logic problem
- Extension activity 4: Causes of injuries in the retail industry
- Activity sheet 5: Young warehousing and storage workers cooperative logic problem
- Activity sheet 6: Agricultural workers cooperative logic problem.

***Other material  
or resources***

These [Injury hotspots](#) can be accessed at [www.worksafe.vic.gov.au/hotspots](http://www.worksafe.vic.gov.au/hotspots)

The [Young Workers Injury hotspots](#) can also be accessed at [www.pief.com.au/pief/hotspots/young%20workers/YW\\_project\\_web.html](http://www.pief.com.au/pief/hotspots/young%20workers/YW_project_web.html)

*Activity 1: Young construction workers cooperative logic problem*

The [Young Construction Workers Industry Hotspot](#) can be accessed at [http://www.worksafe.vic.gov.au/wps/wcm/connect/fd24ae804071f3269037dee1fb554c40/VWA+construction\\_Hotspots\\_10\\_10.pdf?MOD=AJPERES](http://www.worksafe.vic.gov.au/wps/wcm/connect/fd24ae804071f3269037dee1fb554c40/VWA+construction_Hotspots_10_10.pdf?MOD=AJPERES)

*Activity 2: Young hospitality workers cooperative logic problem*

The [young hospitality workers Industry Hotspot](#) can be accessed at [http://www.worksafe.vic.gov.au/wps/wcm/connect/44f805804071f328904bdee1fb554c40/VWA+hospitality\\_Hotspots\\_\\_10\\_10.pdf?MOD=AJPERES](http://www.worksafe.vic.gov.au/wps/wcm/connect/44f805804071f328904bdee1fb554c40/VWA+hospitality_Hotspots__10_10.pdf?MOD=AJPERES)

*Activity 3: Young manufacturing workers cooperative logic problem*

The [young manufacturing workers Industry Hotspot](#) can be accessed at [http://www.worksafe.vic.gov.au/wps/wcm/connect/3b22d2004071f329905fdee1fb554c40/VWA+Hotspots\\_manufacture\\_10\\_10.pdf?MOD=AJPERES](http://www.worksafe.vic.gov.au/wps/wcm/connect/3b22d2004071f329905fdee1fb554c40/VWA+Hotspots_manufacture_10_10.pdf?MOD=AJPERES)

*Activity 4: Young retail workers cooperative logic problem*

The [young retail workers Industry Hotspot](#) can be accessed at [http://www.worksafe.vic.gov.au/wps/wcm/connect/606410004071f32a9073dee1fb554c40/VWA+Hotspots\\_retail\\_10\\_10.pdf?MOD=AJPERES](http://www.worksafe.vic.gov.au/wps/wcm/connect/606410004071f32a9073dee1fb554c40/VWA+Hotspots_retail_10_10.pdf?MOD=AJPERES)

*Activity 5: Young warehousing and storage workers cooperative logic problem*

The [young warehousing and storage workers Industry Hotspot](#) can be accessed at [http://www.worksafe.vic.gov.au/worksafe/hotspots/youth\\_storage\\_hotspot.html](http://www.worksafe.vic.gov.au/worksafe/hotspots/youth_storage_hotspot.html)

*Activity 6: Agricultural workers cooperative logic problem.*

The [agricultural workers Industry Hotspot](#) can be accessed at [http://www.worksafe.vic.gov.au/worksafe/hotspots/agriculture\\_hotspot.html](http://www.worksafe.vic.gov.au/worksafe/hotspots/agriculture_hotspot.html)

***Facilities and  
equipment***

Scissors

Envelopes or small plastic clip top bags

## Assessment & curriculum alignment

Cooperative logic problems are learning activities. They **support** the learning outcomes indicated in the table below. They do not cover all the elements or criteria listed – but they do support the development of skills and knowledge.

	Foundation	Intermediate	Senior
Work Related Skills 1	Activity may be used to introduce and reinforce OHS.		
Work Related Skills 2	Activity may be used to introduce and reinforce OHS.		
Reading and Writing			
Numeracy		LO 6	
Oral Communication	LO 4	LO 4	LO 4
Personal Development Skills 1	LO 2 & 5	The activity can be used to introduce and reinforce problem solving and team work.	
Personal Development Skills 2	LO 4	The activity can be used to introduce and reinforce problem solving and team work.	

## About cooperative logic problems and how to use them

### *Preparation*

Photocopy each of the pieces for the problem. The problem has:

- the problem or question to be solved
- the pieces of information to solve the problem
- clues.

You need to have enough sets for students to work in groups of 4 – 6.

Cut up the pieces as indicated and store each set in an envelope or plastic clip top bag. If you intend to use the activity with other groups, you may like to laminate the pieces.

### *Solving the problem*

- Organise students into groups of 4 – 6. Explain that the aim of the activity is to solve the problem or question by working together.
- Place the problem and the information pieces in the middle of the table face up.
- Give each student at least 1 clue card.
- Taking turns, students read out their clue and as a group, discuss the clue and, based on the clue, manipulate the information cards. Tell students they need to listen carefully to each of the clues.
- The problem is solved when students have read out all the clues (at least once) and are satisfied that the information is organised in the correct order.

A few tips:

- If some students have reading difficulties, pair them with another student who reads well and they can work together jointly on their clues.
- Some students may be tempted to take over and solve the problem themselves. This will leave the other students unengaged and not understanding how the problem was solved. This defeats the whole purpose of the problem solving activity so it's important to make sure all students are involved in reading clues and manipulating the information pieces.

After each group has solved the problem:

- check that each group has the same answer
- spend a few minutes discussing the data and how they went about solving the problem. This could also include discussion about working together and percentages

## Activity 1: Young construction workers cooperative logic problem

This activity aims to increase young workers' awareness of the injuries they are most likely to experience in the construction industry. The activity also aims to develop team work and problem solving skills and understanding of percentages.

### What to do

Using [Activity sheet 1: Young construction workers cooperative logic problem](#), follow the instructions in the section above '[About cooperative logic problems and how to use them](#)'.

At the conclusion of the activity, you may like to provide the students with a copy of the [Young Construction Workers Industry Hotspot](#). It can be accessed at [http://www.worksafe.vic.gov.au/wps/wcm/connect/fd24ae804071f3269037dee1fb554c40/VWA+construction\\_Hotspots\\_10\\_10.pdf?MOD=AJPERES](http://www.worksafe.vic.gov.au/wps/wcm/connect/fd24ae804071f3269037dee1fb554c40/VWA+construction_Hotspots_10_10.pdf?MOD=AJPERES)

### Student roles and responsibilities in relation to the activity

Listen to each other and share in solving the problem.

Take on a role and show responsibility consistent with the level of VCAL they are undertaking.

### Level of teacher support

Preparation of the materials.

Ensure all students are able to participate in the activity and that it is not dominated by one person in the group.

Lead discussion about:

- the data – were students surprised by it? Is it what they expected
- how the students went about solving the problem. This could also include discussion about working together and percentages.

You may also like to provide students with a copy of the [Young Construction Workers Industry Hotspot](#).

If the extension activity is used, it will also have to be photocopied and cut up.

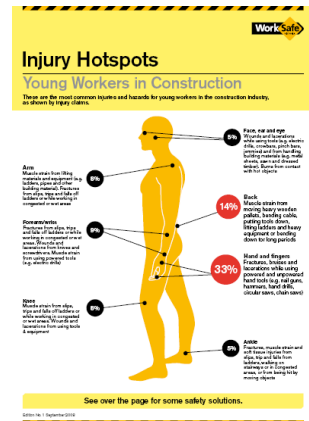
Provide support appropriate to the level of VCAL the students are working at.

### Extension activity

There is an extension activity for this cooperative logic problem (see [Extension activity 1: Causes of injuries in the construction industry](#)). It asks students to match the causes of injuries to the list of the parts of the body most commonly injured.

You will find other cooperative problems on the Safe-T1 website – [www.safe-t1.net.au](http://www.safe-t1.net.au) The other cooperative logic activities are:

- [Young workers injuries – cooperative logic problems](http://www.safe-t1.net.au/index.php?id=198) (<http://www.safe-t1.net.au/index.php?id=198>)
- Common hazards - cooperative logic problems.



## Activity 2: Young hospitality workers cooperative logic problem

This activity aims to increase young workers' awareness of the injuries they are most likely to experience in the hospitality industry. The activity also aims to develop team work and problem solving skills and understanding of percentages.

### What to do

Using [Activity sheet 2: Young hospitality workers cooperative logic problem](#), follow the instructions about how to use cooperative logic problems in the introduction. See '[About cooperative logic problems and how to use them](#)'.

At the conclusion of the activity, you may like to provide the students with a copy of the [young hospitality workers Industry Hotspot](#). It can be accessed at [http://www.worksafe.vic.gov.au/wps/wcm/connect/44f805804071f328904bdee1fb554c40/VWA+hospitality\\_Hotspots\\_\\_10\\_10.pdf?MOD=AJPERES](http://www.worksafe.vic.gov.au/wps/wcm/connect/44f805804071f328904bdee1fb554c40/VWA+hospitality_Hotspots__10_10.pdf?MOD=AJPERES)

### Student roles and responsibilities in relation to the activity

Listen to each other and share in solving the problem.

Take on a role and show responsibility consistent with the level of VCAL they are undertaking.

### Level of teacher support

Preparation of the materials.

Ensure all students are able to participate in the activity and that it is not dominated by one person in the group.

Lead discussion about:

- the data – were students surprised by it? Is it what they expected
- how the students went about solving the problem. This could also include discussion about working together and percentages.

You may also like to provide students with a copy of the [young hospitality workers Industry Hotspot](#).

If the extension activity is used, it will also have to be photocopied and cut up.

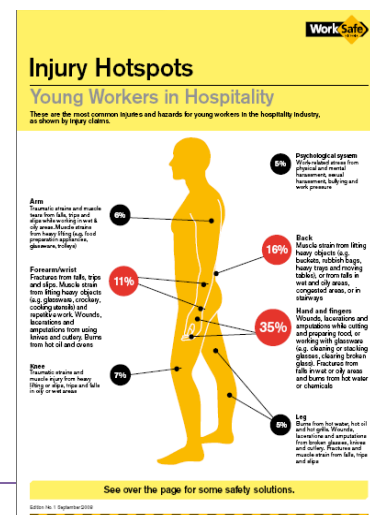
Provide support appropriate to the level of VCAL the students are working at.

### Extension activity

There is an extension activity for this cooperative logic problem (see [Extension activity 2: Causes of injuries in the hospitality industry](#)). It asks students to match the causes of injuries to the list of the parts of the body most commonly injured.

You will find other cooperative problems on the Safe-T1 website – [www.safe-t1.net.au](http://www.safe-t1.net.au) The other cooperative logic activities are:

- [Young workers injuries – cooperative logic problems](#) (<http://www.safe-t1.net.au/index.php?id=198>)
- Common hazards - cooperative logic problems.



SAFE-T1: [www.safe-t1.net.au](http://www.safe-t1.net.au)

Developed by Jan Hagston, VALA with funding from WorkSafe Victoria.

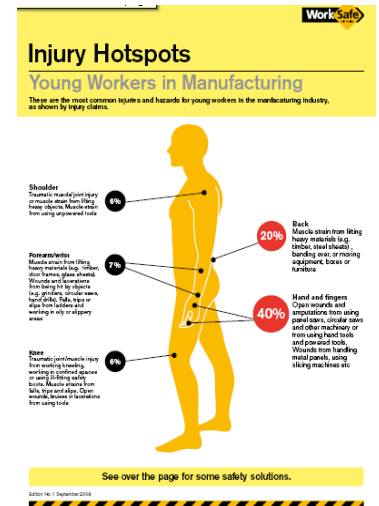
## Activity 3: Young manufacturing workers cooperative logic problem

This activity aims to increase young workers' awareness of the injuries they are most likely to experience in the manufacturing industry. The activity also aims to develop team work and problem solving skills and understanding of percentages.

### What to do

Using [Activity sheet3: Young manufacturing workers cooperative logic problem](#), follow the instructions about how to use cooperative logic problems in the introduction. See '[About cooperative logic problems and how to use them](#)'.

At the conclusion of the activity, you may like to provide the students with a copy of the [young manufacturing workers Industry Hotspot](#). It can be accessed at [http://www.worksafe.vic.gov.au/wps/wcm/connect/3b22d2004071f329905fdee1fb554c40/VWA+Hotspots\\_manufacture\\_10\\_10.pdf?MOD=AJPERES](http://www.worksafe.vic.gov.au/wps/wcm/connect/3b22d2004071f329905fdee1fb554c40/VWA+Hotspots_manufacture_10_10.pdf?MOD=AJPERES)



### Student roles and responsibilities in relation to the activity

Listen to each other and share in solving the problem.

Take on a role and show responsibility consistent with the level of VCAL they are undertaking.

### Level of teacher support

Preparation of the materials.

Ensure all students are able to participate in the activity and that it is not dominated by one person in the group.

Lead discussion about:

- the data – were students surprised by it? Is it what they expected
- how the students went about solving the problem. This could also include discussion about working together and percentages.

You may also like to provide students with a copy of the [young manufacturing workers Industry Hotspot](#).

If the extension activity is used, it will also have to be photocopied and cut up.

Provide support appropriate to the level of VCAL the students are working at.

### Extension activity

There is an extension activity for this cooperative logic problem (see [Extension activity 3: Causes of injuries in the manufacturing industry](#)). It asks students to match the causes of injuries to the list of the parts of the body most commonly injured.

You will find other cooperative problems on the Safe-T1 website – [www.safe-t1.net.au](http://www.safe-t1.net.au) The other cooperative logic activities are:

- [Young workers injuries – cooperative logic problems](http://www.safe-t1.net.au/index.php?id=198) (www.safe-t1.net.au/index.php?id=198)
- Common hazards - cooperative logic problems.



## Activity 4: Young retail workers cooperative logic problem

This activity aims to increase young workers' awareness of the injuries they are most likely to experience in the retail industry. The activity also aims to develop team work and problem solving skills and understanding of percentages.

### What to do

Using [Activity sheet 4: Young retail workers cooperative logic problem](#), follow the instructions about how to use cooperative logic problems in the introduction. See '[About cooperative logic problems and how to use them](#)'.

At the conclusion of the activity, you may like to provide the students with a copy of the [young retail workers Industry Hotspot](#) . It can be accessed at

[http://www.worksafe.vic.gov.au/wps/wcm/connect/606410004071f32a9073dee1fb554c40/VWA+Hotspots\\_retail\\_10\\_10.pdf?MOD=AJPERES](http://www.worksafe.vic.gov.au/wps/wcm/connect/606410004071f32a9073dee1fb554c40/VWA+Hotspots_retail_10_10.pdf?MOD=AJPERES)

### Student roles and responsibilities in relation to the activity

Listen to each other and share in solving the problem.

Take on a role and show responsibility consistent with the level of VCAL they are undertaking.

### Level of teacher support

Preparation of the materials.

Ensure all students are able to participate in the activity and that it is not dominated by one person in the group.

Lead discussion about:

- the data – were students surprised by it? Is it what they expected
- how the students went about solving the problem. This could also include discussion about working together and percentages.

You may also like to provide students with a copy of the [young retail workers Industry Hotspot](#).

If the extension activity is used, it will also have to be photocopied and cut up.

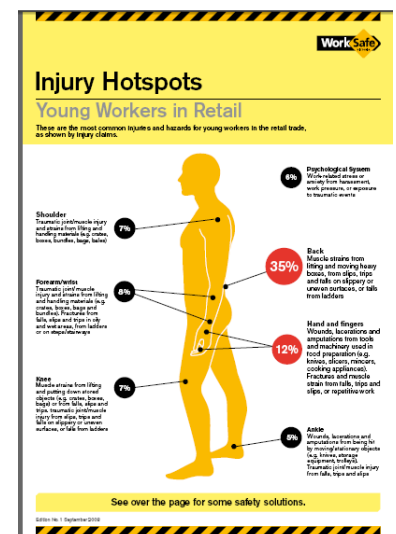
Provide support appropriate to the level of VCAL the students are working at.

### Extension activity

There is an extension activity for this cooperative logic problem (see [Extension activity 4: Causes of injuries in the retail industry](#)). It asks students to match the causes of injuries to the list of the parts of the body most commonly injured.

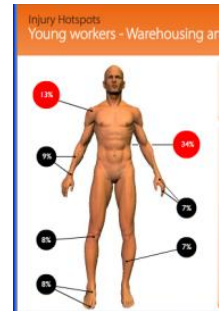
You will find other cooperative problems on the Safe-T1 website – [www.safe-t1.net.au](http://www.safe-t1.net.au) The other cooperative logic activities are:

- [Young workers injuries – cooperative logic problems](#) ([www.safe-t1.net.au/index.php?id=198](http://www.safe-t1.net.au/index.php?id=198))
- Common hazards - cooperative logic problems
- Occupational disease – cooperative logic problem.



## Activity 5: Young warehousing and storage workers cooperative logic problem

This activity aims to increase young workers' awareness of the injuries they are most likely to experience in warehousing and storage jobs. The activity also aims to develop team work and problem solving skills and understanding of percentages.



### What to do

Using [Activity sheet 5: Young warehousing and storage workers cooperative logic problem](#), follow the instructions about how to use cooperative logic problems in the introduction. See '[About cooperative logic problems and how to use them](#)'.

At the conclusion of the activity, you may like to provide the students with a copy of the [young warehousing and storage workers Industry Hotspot](#). It can be accessed at [http://www.worksafe.vic.gov.au/worksafe/hotspots/youth\\_storage\\_hotspot.html](http://www.worksafe.vic.gov.au/worksafe/hotspots/youth_storage_hotspot.html)

You may also want to discuss what is warehousing and storage. Warehousing and storage involves storage of goods. The goods may be stored after they have been made and then preparing them to be sent to the seller or purchaser of the goods.

### Student roles and responsibilities in relation to the activity

Listen to each other and share in solving the problem.

Take on a role and show responsibility consistent with the level of VCAL they are undertaking.

### Level of teacher support

Preparation of the materials.

Ensure all students are able to participate in the activity and that it is not dominated by one person in the group.

Lead discussion about:

- the data – were students surprised by it? Is it what they expected
- how the students went about solving the problem. This could also include discussion about working together and percentages.

You may also like to provide students with a copy of the [young warehousing and storage workers Industry Hotspot](#).

Provide support appropriate to the level of VCAL the students are working at.

### Extension activity

You will find other cooperative problems on the Safe-T1 website – [www.safe-t1.net.au](http://www.safe-t1.net.au) The other cooperative logic activities are:

- [Young workers injuries – cooperative logic problems](http://www.safe-t1.net.au/index.php?id=198) (www.safe-t1.net.au/index.php?id=198)
- Common hazards - cooperative logic problems.

## Activity 6: Agricultural workers cooperative logic problem

This activity aims to increase young workers' awareness of the injuries workers are most likely to experience in the agricultural industry. The data for this activity is not specific to young workers.

The activity also aims to develop team work and problem solving skills and understanding of percentages.

### What to do

Using [Activity sheet 6: Agricultural workers cooperative logic problem](#), follow the instructions about how to use cooperative logic problems in the introduction. See '[About cooperative logic problems and how to use them](#)'.

At the conclusion of the activity, you may like to provide the students with a copy of the [agricultural workers Industry Hotspot](#). It can be accessed at [http://www.worksafe.vic.gov.au/worksafe/hotspots/agriculture\\_hotspot.html](http://www.worksafe.vic.gov.au/worksafe/hotspots/agriculture_hotspot.html)

### Student roles and responsibilities in relation to the activity

Listen to each other and share in solving the problem.

Take on a role and show responsibility consistent with the level of VCAL they are undertaking.

### Level of teacher support

Preparation of the materials.

Ensure all students are able to participate in the activity and that it is not dominated by one person in the group.

Lead discussion about:

- the data – were students surprised by it? Is it what they expected
- how the students went about solving the problem. This could also include discussion about working together and percentages.

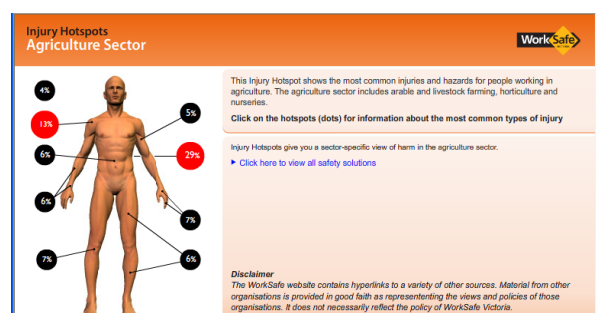
You may also like to provide students with a copy of the [agricultural workers Industry Hotspot](#).

Provide support appropriate to the level of VCAL the students are working at.

### Extension activity

You will find other cooperative problems on the Safe-T1 website – [www.safe-t1.net.au](http://www.safe-t1.net.au) The other cooperative logic activities are:

- [Young workers injuries – cooperative logic problems](#) ([www.safe-t1.net.au/index.php?id=198](http://www.safe-t1.net.au/index.php?id=198))
- Common hazards - cooperative logic problems.



The Problem



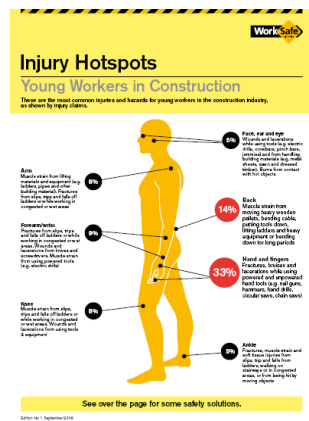
**Young construction workers**

Match the percentage against the common injuries that young workers in the construction industry receive.

Information to solve problem



5%	Face, ear and eye
5%	Ankle
8%	Arm
8%	Knees
9%	Forearm / wrist
14%	Back
33%	Hand and fingers



## The clues



Approximately 1/3 of injuries are to hands and fingers.

There are more back injuries than injuries to forearms and wrists.

Injuries to knees and arms are the same.

Powered and unpowered hand tools (eg. nail guns, saws, drills) are the most common causes of hand and finger injuries.

Young workers have more injuries to their backs than to faces, ears and eyes.

Among young workers there are less injuries to face, ears and eyes than to forearms and wrists.

Injuries to ankles and face, ears and eyes are the same.

There are fewer injuries to ankles than to knees.



## Causes of injuries in the construction industry

### Extension activity 1

Match the causes of the injuries to the list of the most common injuries.



Using tools (e.g. electric drills, crowbars, pinch bars, jemmies) and from handling building materials (e.g. metal sheets, sawn and dressed timber).

Contact with hot objects.

Lifting materials and equipment (e.g. ladders, pipes and other building material).

Slips, trips and falls off ladders or while working in congested or wet areas

Slips, trips and falls off ladders or while working in congested or wet areas.

Using tools & equipment.

Slips, trips and falls off ladders or while working in congested or wet areas.

Knives and screwdrivers.

Powered tools (e.g. electric drills).

Moving heavy wooden pallets.

Bending cable.

Putting tools down.

Lifting ladders and heavy equipment.

Bending down for long periods.

Using powered and unpowered hand tools (e.g. nail guns, hammers, hand drills, circular saws, chain saws).

Slips, trips and falls off ladders, walking in stairways or in congested areas.

Being hit by moving objects.

The Problem



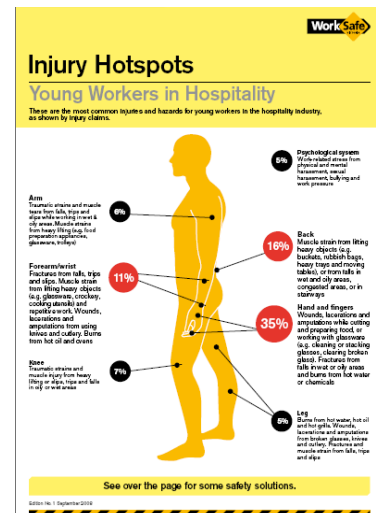
## Young hospitality workers

Match the percentage against the common injuries that young workers in the hospitality industry receive.

Information to solve problem



5%	Leg
5%	Psychological
6%	Arm
7%	Knees
11%	Forearm / wrist
16%	Back
35%	Hand and fingers



## The clues



Just over 1/3 of injuries are to hands and fingers.
There are more back injuries than injuries to forearms and wrists.
Psychological injuries and injuries to legs are the same.
Cutting and preparing food or working with glassware (eg. cleaning or stacking glasses, clearing broken glass) are some of the most common causes of hand and finger injuries such as wounds, cuts and amputations.
Young workers have more injuries to their backs than to their arms.
Among young workers there are less injuries to arms than to knees.
There is 4% more injuries to forearms and wrists than there are to knees.



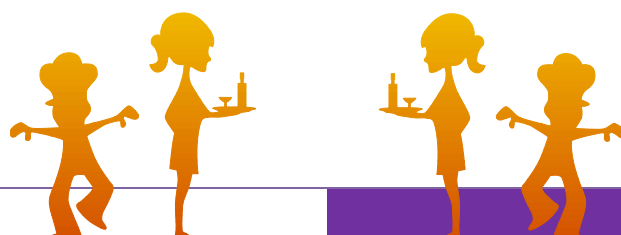


## Causes of injuries in the hospitality industry

Match the causes of the injuries to the list of the most common injuries.



<p>Burns from hot water, hot oil and hot grills. Wounds, lacerations and amputations from broken glasses, knives and cutlery. Fractures and muscle strain from falls, trips and slips.</p>
<p>Work related stress or anxiety from physical and mental harassment, sexual harassment, bullying and work pressure.</p>
<p>Traumatic strains and muscle tears from falls, trips and slips while working in wet &amp; oily areas. Muscle strains from heavy lifting (e.g. food preparation appliances, glassware, trolleys).</p>
<p>Traumatic strains and muscle injury from heavy lifting or slips, trips and falls in oily or wet areas.</p>
<p>Fractures from falls, trips and slips. Muscle strain from lifting heavy objects (e.g. glassware, crockery, cooking utensils) and repetitive work. Wounds, amputations from using knives and cutlery. Burns from hot oil and ovens.</p>
<p>Muscle strain from lifting heavy objects (e.g. buckets, rubbish bags, heavy trays and moving tables), or from falls in wet and oily areas, congested areas, or in stair ways.</p>
<p>Wounds, lacerations and amputations while cutting and preparing food, or working with glassware (e.g. cleaning or stacking glasses, clearing broken glass). Fractures from falls in wet or oily areas and burns from hot water or chemicals.</p>



The Problem

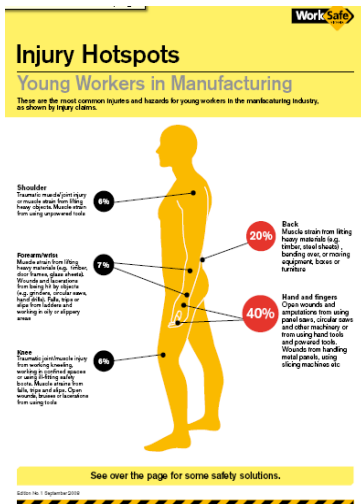


**Young workers in manufacturing**  
Match the percentage against the common injuries that young workers in the manufacturing industry receive.

Information to solve problem



6%	Shoulder
6%	Knees
7%	Forearm / wrist
20%	Back
40%	Hand and fingers



## The Clues



1/5 of injuries are to backs.

There are more back injuries than injuries to forearms and wrists.

There are 1 percent more injuries to forearms and wrists than to knees.

Amputations from using panel saws, circular saws and other machinery are a common cause of hand and finger injuries.

Young workers have more injuries to their hands and fingers than to their shoulders.

Among young workers, injuries to shoulders and to knees are the same.



## Causes of injuries in the manufacturing industry

### Extension activity 3

Now match the causes of the injuries to the list.



Traumatic muscle/joint injury or muscle strain from lifting heavy objects. Muscle strain from using unpowered tools.

Traumatic joint/muscle injury from working kneeling, working in confined spaces or using ill-fitting safety boots. Muscle strains from falls, trips and slips. Open wounds, bruises or lacerations from using tools.

Muscle strain from lifting heavy materials (e.g. timber, door frames, glass sheets). Wounds and lacerations from being hit by objects (e.g. grinders, circular saws, hand drills). Falls, trips or slips from ladders and working in oily or slippery areas.

Muscle strain from lifting heavy materials (e.g. timber, steel sheets), bending over, or moving equipment, boxes or furniture.

Open wounds and amputations from using panel saws, circular saws and other machinery or from using hand tools and powered tools. Wounds from handling metal panels, using slicing machines etc.



The Problem



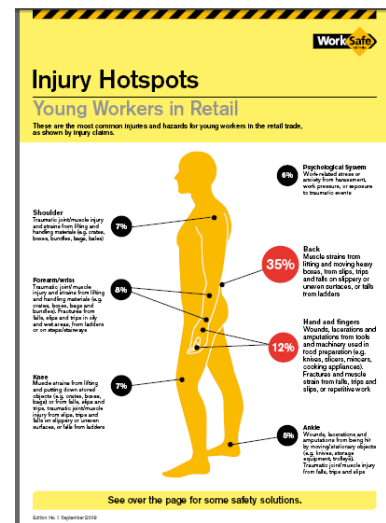
## Young workers in retail

Match the percentage against the common injuries that young workers in the retail industry receive.

Information to solve problem



5%	Ankle
6%	Psychological
7%	Shoulder
7%	Knees
8%	Forearms / wrist
12%	Hands and fingers
35%	Back



## The Clues



Just over 1/3 of injuries are to backs.

There are more hand and finger injuries than injuries to forearms and wrists.

Injuries to knees and shoulders are the same.

Muscle strains from lifting and moving heavy boxes are a common cause of back injury.

Young workers have less injuries to their ankles than to their forearms and wrists.

There are slightly more psychological injuries than injuries to ankles.



## Causes of injuries in the retail industry

Now match the causes of the injuries to the list of body parts where young workers are most likely to be injured in the retail industry.



<p>Being hit by moving/stationery objects (e.g. knives, storage equipment, trolleys).</p> <p>Trips, slips and falls.</p>
<p>Harassment, work pressure or exposure to traumatic events.</p>
<p>Lifting and handling materials (e.g. crates, boxes, bundles, bales).</p>
<p>Lifting and putting down stored objects (e.g. crates, boxes, bags) or from falls, slips and trips.</p> <p>Falls, slips and trips on slippery or uneven surfaces or falls from ladders.</p>
<p>Lifting and handling materials (e.g. crates, boxes, bags and bundles).</p> <p>Falls, slips and trips in oily and wet areas, from ladders or on steps/stair ways.</p>
<p>Tools and machinery used in food preparation (e.g. knives, slicers, mincers, cooking appliances).</p> <p>Falls, trips and slips, or repetitive work.</p>
<p>Lifting and moving heavy boxes.</p> <p>Slips, trips and falls on slippery or uneven surfaces, or falls from ladders.</p>



The Problem



**Young workers in warehousing and storage**  
 Match the percentage against the common injuries that young workers in jobs in warehousing and storage receive.

Information to solve problem



7%	Hands and fingers
7%	Leg
8%	Foot and toes
8%	Knees
9%	Forearms / wrist
13%	Shoulder
34%	Back

**Injury Hotspots**  
 Young workers - Warehousing and storage

These are the most common injuries and hazards related to young workers in the warehouse and storage industry, as shown by injury claims.

- Shoulder:** Muscle sprain or strain from lifting heavy boxes and bags. (13%)
- Back:** Muscle strains from lifting and pulling while reaching heavy bags and boxes. (34%)
- Forearms / wrist:** Repetitive strain injuries from handling heavy bags and boxes. (9%)
- Knees:** Muscle sprain or strain from heavy lifting. (8%)
- Foot and toes:** Lacerations, and other wounds from being hit by moving objects such as forklift trucks, pallets, trolleys and handtrucks and from falls. (8%)
- Leg:** Lacerations and other wounds from being hit by moving objects such as forklift trucks, pallets, trolleys and handtrucks and from falls. (7%)
- Hands and fingers:** Lacerations and other wounds from being hit by moving objects such as forklift trucks, pallets, trolleys and handtrucks and from falls. (7%)

See over the page for some safety solutions.

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## The Clues



Just over 1/3 of injuries are to backs.

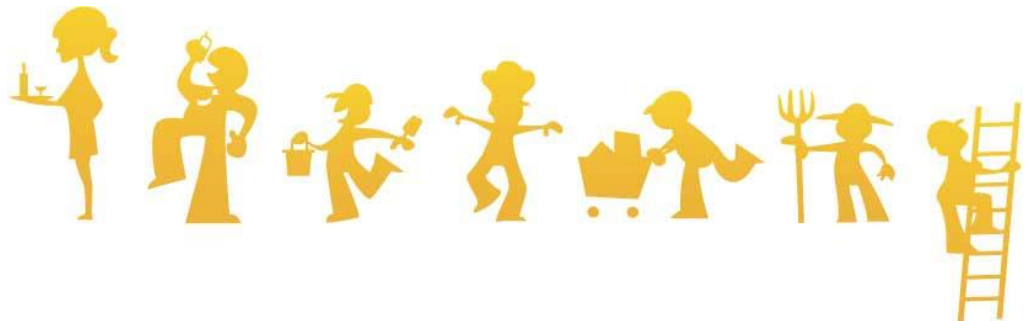
There are less hand and finger injuries than injuries to feet and toes.

Injuries to knees and feet and toes are the same.

Muscle strains from lifting and moving heavy boxes are a common cause of back injury.

Young workers have less injuries to their legs than to their knees.

There are slightly more injuries to forearms and wrists than injuries to knees.



**Agricultural workers cooperative logic problem**

**The Problem**



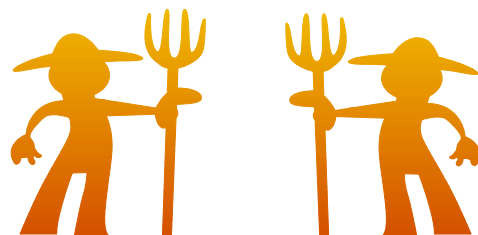
**Agricultural workers**

Match the percentage against the common injuries that workers in the agricultural industry receive.

**Information to solve problem**



4%	Psychological
5%	Arm
6%	Leg
6%	Abdominal region
6%	Forearm / wrist
7%	Knees
7%	Hand and fingers
16%	Shoulder
29%	Back



## The Clues



A bit over 1/4 of injuries are to backs.
Injuries to hands and fingers and knees are the same.
Psychological injuries are slightly less than injuries to arms.
Muscle strain from lifting animals and heavy objects such as animal feed, boxes, produce and pallets is a common cause of back and shoulder injuries.
Agricultural workers have more injuries to their shoulders than to their arms.
Among agricultural workers there are less injuries to arms than to knees.
There is 9% more injuries to shoulders than to hands and fingers.
The percentage of injuries to the abdominal region, legs and forearms / wrist are the same.

