

Construction

**Level 1: Health and safety and welfare in construction
(D/502/3692)**

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Introduction

Our Skilled for Life resources are designed to provide you with ideas for delivering the unit content and engaging tasks and activities that will help learners work towards assessment.

The materials consist of standalone sheets that can be used in a range of ways to suit most situations. Whether you are working in a classroom or a less formal learning environment, with individual learners or with groups, it is hoped that you will find these sheets and the accompanying tutor guidance notes useful.

The sheets are in pdf format; they are downloadable and may be photocopied for use only within your institution. Alternatively, learners can access them on-screen – the write-in sections are interactive so that answers to activities can be recorded electronically.

Each sheet addresses one or more of the assessment criteria in the unit (ACs are clearly marked at the top of each page). Page 1 of each sheet provides a starter stimulus or introductory idea based around the suggested unit content in the specification; it can be used to explain key concepts, or as the basis for a discussion. You could use the stimulus to draw together key learning points and encourage learners to engage with the topic or concept from the outset. There is plenty of scope for you to introduce your own content or ideas as well.

Page 2 of each sheet includes tasks that will consolidate learners' knowledge and understanding and, in some cases, may provide evidence for assessment.

This tutor guidance document provides detailed suggestions for how to use each of the resource sheets in the unit, and includes tips and advice together with suggested extension activities, alternative ideas, useful reference sources and answers to activities where applicable.

Guidance for tutors

Unit overview

This unit introduces learners to health and safety issues within construction. The first part looks at the causes of accidents within the industry. The second part looks at hazards, safety signs, fire extinguishers and the use of PPE. The third part is concerned with HASAWA and COSHH.

Tutors should encourage the reliable, positive and enthusiastic response to learning that employers value in prospective candidates.

NOTE: These resource sheets suggest activities to enable learners to prepare for the practical tasks they will need to undertake in this unit. However, the tutor will need to ensure that the assignment chosen will generate suitable evidence to meet the assessment criteria fully. This evidence may be in the form of photographs (of the process and the finished product), observation records, or witness statements.

Learning and teaching activities in this unit

Resource sheet 1 - *What happened here?*

This activity introduces the issue of accidents within construction and can stimulate a discussion about the common causes of accidents. Encourage your learners to think about how easily accidents can occur, especially from quite simple and avoidable causes.

The HSE collects data and publishes reports about the state of the industry on their website. They have also developed an e-learning package to help contractors make health and safety improvements. The HSE shows the top ten health and safety risks and causes of accidents are:

1. Falls from a ladder.
2. Falls through a fragile roof.
3. Lifting operations.
4. Struck by plant.
5. Overturning plant.
6. Falls from scaffolding.
7. Falls through an internal void.
8. Asphyxiation poisoning.
9. Crushed by falling excavation.
10. Mobile elevating work platforms (MEWP) crushing and entrapment.

To encourage a group discussion, ask your learners questions which promote higher thinking skills, such as:

- By 'accident' do we mean death, serious injury or just a minor scratch?
- How can you die from a minor scratch?
- From what height could a serious injury occur?

Activity 1 - Keeping safe

This activity encourages the learners to articulate their thinking about the causes of accidents. Ask the learners to write their thoughts in the mind-map on the activity sheet. Afterwards, start a group discussion on the causes they have found and why they chose them. This activity will demonstrate the learners' understanding of how accidents are caused and the risks that exist on a construction site.

Alternatively, ask your learners to provide a wide range of possible accidents. Have the following categories on flip-chart paper, or write them on the board, as your learners offer their suggestions, Ask your learners to decide which category their examples should go in:

- slips and trips
- falls from height
- crush injuries
- being struck by falling objects, materials or tools
- electrocutions and/or poisons.

Provide some hints or clues, if you feel learners have missed anything. The European Agency for Occupational Safety and Health has some useful examples (see <http://osha.europa.eu/en>).

Resource sheet 2 - What's wrong here?

This activity introduces some of the common hazards seen on a construction site. It is a good 'focusing tool' to use at the beginning of a session, to indicate that the class has started and that the learners need to begin concentrating. Equally, such visual exercises are valuable towards the end of a session, to consolidate their knowledge.

There are other examples of spot the hazard exercises, in both books and the internet, as shown in the Useful Resources section.

Activity Sheet 2 – *Spot the mistakes*

Ask learners to use the previous image of a construction site to complete the grid on the activity sheet. This activity provides a good opportunity for you to promote literacy skills by asking the learners to write short descriptions for each hazard, instead of single words. Encourage learners to transfer their hazard perception into practice when working in the workshop.

If appropriate, you may want to take a photo of the workshop during break-time and see if the learners can identify any hazards they have left unattended. Try to promote a shift in attitude, rather than a culture of blame, emphasising that health and safety is about more than just obeying a set of instructions, but that it should become second-nature, like wearing a seat-belt when driving.



Stretch activity

To challenge learners, you could introduce the Hierarchy of Hazard Control. To generate a group discussion, try to get the learners to explain their understanding of the following terms and to provide some real-life examples.

- elimination
- substitution
- engineering controls
- administrative controls
- PPE.

You may wish to explain why PPE is the last resort for controlling hazards.

Resource sheet 3 – *How many signs do you know?*

This activity introduces the topic of safety signs and their meanings. Start by simply asking the learners what each symbol signifies. To promote deeper understanding, and to stretch the learners, ask them about the shape and the colours, seeing if they can identify the different categories themselves.

Most learners often know the common safety signs, so you may want to bring in some of the more unusual ones which are more specific to construction (i.e. 'Incomplete scaffold'). You could establish prior knowledge by running a short quiz or game.

Create PowerPoint® slides as an aid for visual learners and as a method of providing all learners with help concerning the correct spelling and pronunciation of the different categories. To check learners' understanding, ask them to provide explanations or examples.

Activity 3 - What is important to me at work?

This activity is an assessment of learning and tests the learners' ability to recall knowledge, so you may want to use it at the end of the session to consolidate learning. To assist kinaesthetic learners, you may want to cut out the tiles so that the images can be moved around. Alternatively, there are simple computer programs available online, for drag and drop activities.

Producing laminated playing cards opens up a wider variety of activities, particularly if you separate the words from the pictures. Provide learners with a selection of cards and ask them to match the signs to the correct meaning. This visual and kinaesthetic activity will also reinforce their reading and comprehension skills. Alternatively, you could devise games based on bingo, matching pairs or Happy Families. If you create a complete deck, with the suits replaced by Mandatory, Warning, Prohibition and Safe Condition, there is a large range of traditional card games that can be played.

For further information, see *The Use of Playing Cards to Communicate Technical and Scientific Information* by E. Malone at <http://staff.missouriwestern.edu/users/donaher/ENG108Online/Malone-PlayingCards.pdf>.

Resource sheet 4 - How accidents happen

This activity introduces the topic of risk assessments and the different methods used to reduce the risk of hazards occurring.

Case studies are a good vehicle to engage learning in both a cognitive and affective way. Use this to reinforce the idea that safe working practices are behavioural, associated with attitude and not always purely knowledge-based.

Encourage learners to critically examine the story, to go beyond the obvious solutions and look at the processes involved. For instance, the reason why there may be a nominated person performing safety checks or what the purpose is of having a written check-list.

Use differentiation techniques, in terms of praise and support, as appropriate to each learner.

Activity 4 - Making things safe

This is a preparatory activity for the actual assessment criteria. The simple layout of this table will help learners understand the structure of a complicated risk assessment.

For a more effective session, simulate a 'normal' working area in the workshop, but with additional features, which could include both obvious and hidden hazards (like noise). Then ask the following questions:

- What might cause these hazards?
- How could they be prevented?
- Are there any alternative or safer methods of work?
- Could the hazard be contained, e.g. by a safety guard?
- Could exposure be reduced, eg by using lower voltage?
- If the hazard has to remain, could the risk be lowered?

It is important to ensure the learners know the difference between a hazard and a risk. For further information, see HSE Five Steps to Risk Assessment from the HSE website (<http://www.hse.gov.uk/>).



Stretch activity

To challenge learners, you may want to introduce different types of risk assessments (numerical, colour-coded, etc). Use an internet search engine, enter the phrase 'free risk assessment template for construction' for a selection of different templates showing an increased complexity. Ask learners to look through these more complex risk assessments and encourage them to attempt to complete some of them for their workplace.

Resource sheet 5 - *Putting out a fire*

This image introduces the topic of fire. Knowledge of different fire extinguishers is important for all learners, but especially in construction as it is included in the mandatory CSCS test.

Encourage your learners to identify not only the type of fire (house, electrical, chip-pan, etc.) but also why the use of certain extinguishers could make the situation worse.

This session would be an ideal opportunity to invite a guest speaker, so contact your local Fire Brigade. They often run activities for schools and colleges in partnership with the Prince's Trust.

There are a number of different information sources online, including short video-clips and other illustrations – see the Useful Resources on page 10.

Activity 5 - Fighting the right fire

This activity follows on from the previous image and is a summative assessment of learning. Encourage your learners to explain their answers instead of just ticking the box, as this will identify any gaps in their knowledge.

In terms of delivery, use photographs of fire extinguishers and get the learners to explain the meaning of the symbols on the canister, e.g. how to use the extinguisher, and the different categories of fire. Ask them how to identify different extinguishers from the colour-coded label and nozzle shape.

You may want to produce laminated cards displaying the different fire classifications. Use these icons to reinforce the learning. Run a mix-n-match activity, where the learners have to place the icons next to the appropriate extinguisher.



Stretch activity

To challenge more confident learners ask them to prepare and carry out a presentation explaining the consequences of using the wrong fire extinguishers, or run a small group project to research alternative fire-fighting equipment (blankets, fire-retardant paint, etc.) including their advantages and disadvantages.

Resource sheet 6 - HASAWA and COSHH

This starter stimulus introduces health and safety legislation specific to the workplace. Encourage your learners to demonstrate their understanding by explaining, in their own words, the different statements on the poster. The HSE has provided an easy-to-read version of this, available as a free download, from www.hse.gov.uk/pubns/laweasyread.pdf.

For COSHH, ask your learners to identify items in the workshop that have the COSHH symbols and encourage them to explain their relevance in the safe use of such materials. To enhance the learners' understanding, you could provide suitable examples of Manufacturer's Safety Data Sheets (MSDS).

Ask the learners for their understanding of 'hazardous to health' (anything that could affect health), and how dangers to health could arise (ingestion, absorption, exposure and inhalation of poisonous materials).

The Skills for Life Materials for Embedded Learning (see Useful Resources) has a number of resources for teaching health and safety to Level 1 learners.



Stretch activity

To develop the understanding of more able learners, using the full text version of the Health and Safety At Work Act, introduce issues of citizenship, personal rights and responsibilities or community and government.

Activity 6 – True or False?

This activity reinforces the differences between HASAWA and COSHH.

These statements have been written, with some ambiguity, to encourage the higher thinking skills of analysis and evaluation, so remind your learners to take care when reading them.

For learners with low levels of literacy, you may have to read each statement aloud and, to confirm their understanding, encourage the learners to discuss and explain the meaning of each statement.

Learners should then complete their own definitions of HASAWA and COSHH.

Useful resources

Textbooks

For Spot the Hazards in print, see the following books.

Brett P. – *A Building Craft Foundation 3rd Edition* (Nelson Thornes, 1991)
ISBN 9780748711147

Brett P. – *Carpentry & Joinery Level 2* (Nelson Thornes, 2011)
ISBN 9781408508817

Fearn C. – *Basic Skills in Construction* (Nelson Thornes, 2011).
ISBN 9781408508770

Hughes P., Ferrett E. – *Introduction to Health & Safety in Construction 2nd Edition* (Butterworth-Heinemann, 2006) ISBN 9780750681117

Websites

The Risk Factor

<http://tlp.excellencegateway.org.uk/tlp/xcurricula/hswb/riskfactor/riskfactoractivities/index.html>

The Risk Factor learning resource – explore virtual workplace scenarios relating to vocational subject areas.

http://tlp.excellencegateway.org.uk/teachingandlearning/downloads/index_lsis.html

Standards Unit website, covering health and safety, ERR, the environment and sustainability in construction

<http://nln.ac.uk/>

The National Learning Network, interactive learning packages that can be downloaded and viewed offline

<http://www.ngfl-cymru.org.uk/eng/vtc-home/vtc-post16-home/vtc-post16-capbe>

National Grid for Learning Cymru, contains a number of teaching and learning resources

<https://www.britsafe.org/speakupstaysafe>

Speak Up, Stay Safe, the British Safety Council resource for young people, includes a zombie game

<http://rwp.excellencegateway.org.uk/Embedded Learning/>

Skills for Life Materials for Embedded Learning. Subject areas include: health and safety, using materials and equipment, the work environment, skills for employment, signs, signals and labels, the building team, construction activities, health and safety (with manual handling), the construction industry, working skills for construction, skills for construction

For accidents in construction

<http://www.hse.gov.uk/construction/lwit/index.htm>

E-learning for health and safety improvements in construction from the HSE

<http://osha.europa.eu>

Main causes of accidents in the construction sector from the European Agency for Safety and Health at Work

For online versions of spot the hazards in construction

<http://www.labour.gov.on.ca/english/hs/tools/sfhconstruction/>

Animated learning package from Ontario Ministry Of Labour

For online games about hazards and safety signs

<http://powerup.ukpowernetworks.co.uk/over-11/danger/spot-the-hazard.aspx>

Electricity and safety from UK Power Networks

<http://www.wiseup2work.co.uk/office.php?goto=folder>
Heads Up! Game from IOSH Wise Up 2 Work

http://www.bbc.co.uk/northernireland/schools/11_16/gogetit/getworkinni/hs-game.swf
A game covering types of safety signs

For resources about fire

<http://www.facebook.com/firekills>
The Official Facebook page for the Government's Fire Kills Campaign.

http://www.youtube.com/watch?v=p_VnaPyb-CY&list=UUc87RNwCuWJwBDDrsgXO8mA&index=3&feature=plcp
Don't Drink and Fry – clip posted by the London Fire Brigade

http://www.direct.gov.uk/en/HomeAndCommunity/InYourHome/FireSafety/DG_180886
Fire safety information in different languages, for ESOL students

<http://www.hse.gov.uk/pubns/books/hsg168.htm>
Pictures of fire hazards in construction

Answers to activities

Activity 5 - Fighting the right fire

Type of fire extinguisher	Water [Red]	Foam [Cream]	CO ₂ [Black]	Wet chemical [Yellow]	Dry powder [Blue]
Paper, wood and fabrics	✓	✓	✗	✓	✓
Flammable liquids	✗	✓	✓	✗	✓
Flammable gases	✗	✗	✗	✗	✓
Electrical	✗	✗	✓	✗	✓
Machines and vehicles	✗	✗	✓	✗	✓
Cooking fats	✗	✓	✓	✓	✗

Activity 6 - Fighting the right fire

Statement	True	False
Under HASAWA, employees may have to pay for some items of PPE if they want complete protection at work.		✓
Substances that are affected by COSHH are only found in a few workplaces.		✓
Under HASAWA, employers have to provide full training to all employees.	✓	
HASAWA states suppliers have to make sure the goods they supply are safe and not a risk to health.	✓	
COSHH is only interested in substances that are created by work activities (for example dust from sanding wood).		✓
Under HASAWA, employees have to take responsibility for their own safety.	✓	
HASAWA states employers must have an up-to-date risk assessment for their workplace.	✓	
Under COSHH all hazardous materials should have a safety data sheet.	✓	
HASAWA means that employees can never be blamed if there is an accident at work.		✓