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ESTEEM

European Safety Training and Evaluation supporting
European Mobility

WALL 4

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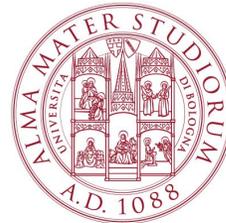
All the partners of the project collaborated and supervised the Safety Training Package Development



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Today we are going to talk about:



Manual handling of loads



Personal and group protective equipment



Safety signposting



Conflicting information and sub-contracting risks



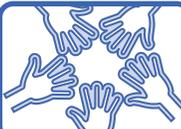
Situation awareness



Communication



Decision making



Team Work

Reminder! Last lesson we asked you... *Which PPE do you use most during your work?*

You brought with you the PPE you use most often?

You will use them during a group exercise





MANUAL HANDLING OF LOADS

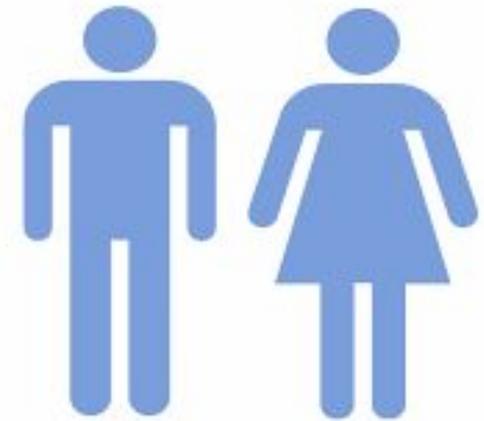


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Manual handling of loads (MHL)

Manual handling of loads involves all the activities of **lifting**, **transporting** and **supporting** of a load



max 25 Kg

max 15 Kg



Mime the following behaviours

- How would you *lift* a *sack of cement* of 25 Kg?
- How would you *move clay tiles*?
- How would you *lay a floor*?
- What would you do to *work safely*?



Manual handling of loads (MHL)

When lifting sacks **don't bend your back!**



If possible, **ask for help** from another worker!

Bring your body as close as possible to the load!

Bend your knees!

Manual handling of loads (MHL)

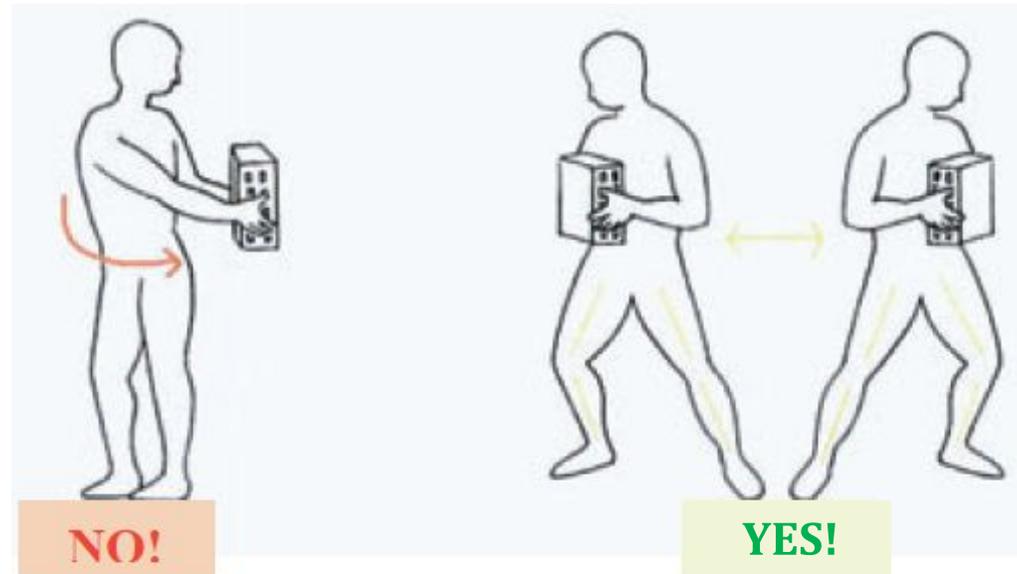


Don't load sacks on your shoulders or **on your back!**

Carry the sack with the **load on your legs** and **keep your back in an upright position!**

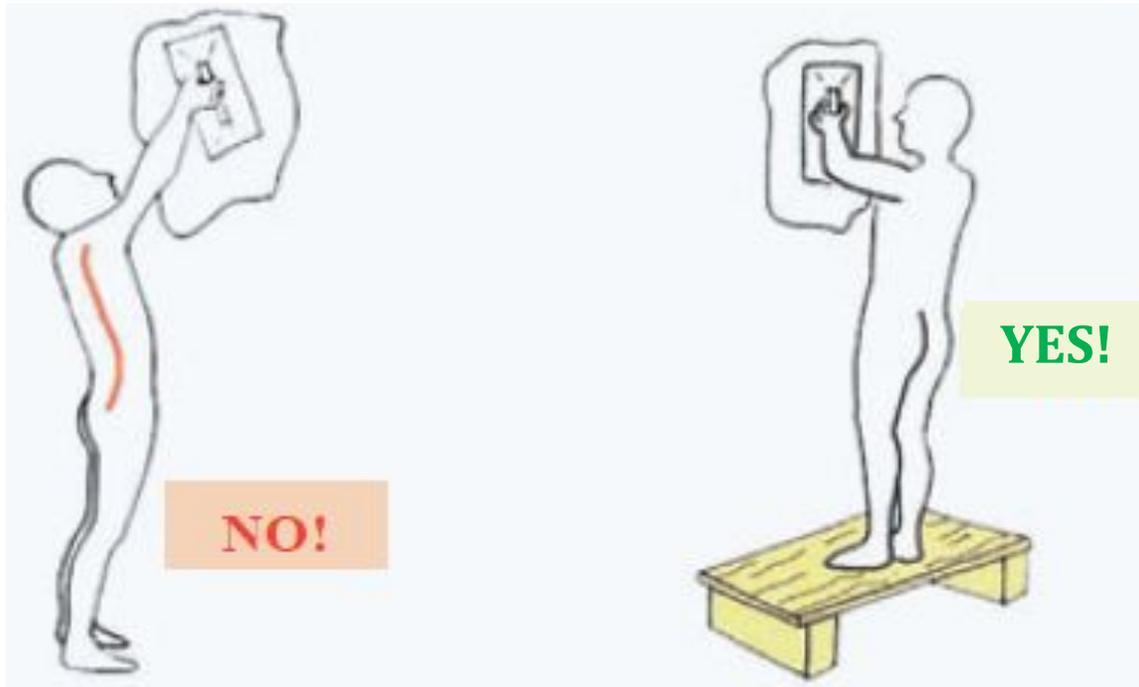
Manual Handling of loads (MHL)

When you have to move loads, **avoid twisting your torso!**



Move your legs while **maintaining** your back in an **upright position!**

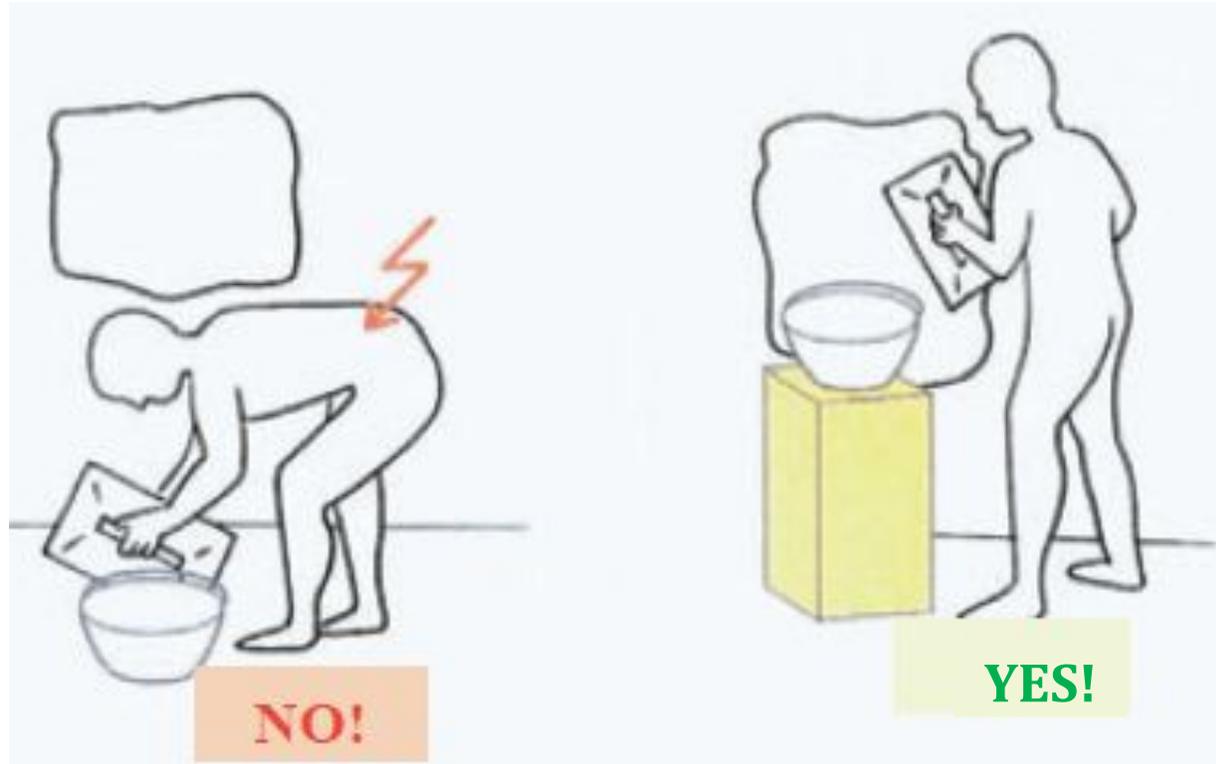
Manual Handling of loads (MHL)



Use tools/equipment to ensure that you stand and bear the weight correctly!

Manual Handling of loads (MHL)

Avoid repetitive bending of the back and knees!



When possible, put the materials that you are using on a **raised platform!**

Manual Handling of loads (MHL)

Fundamental rules

1. Maintain a **stable position**
2. **Grab the load safely**, preferably with both hands
3. Lift the weight **bending your knees** (bend over only if necessary).
4. Lift and transport the load maintaining an **upright position**.
5. Hold the **load** as **close** as possible to your **body**. Spread the weight symmetrically.



Manual Handling of loads (MHL)

Possible damage:

1. **Carpal tunnel syndrome** (due to repetitive movements)
2. Damage to back including **herniated disks**
3. Lower **back pain**





Personal Protective Equipment (PPE)



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Personal Protective Equipment (PPE)

There are **two**
typologies of
protective equipment:



INDIVIDUAL
Tools/equipment that workers wear to protect them from one or more risks related to working activities (e.g. hard hats, gloves)

COLLECTIVE
Systems that address the source of risk to prevent exposure or in order to reduce the impact (e.g. cradles, safety nets)



Personal Protective Equipment (PPE)

They can be classified in three categories:

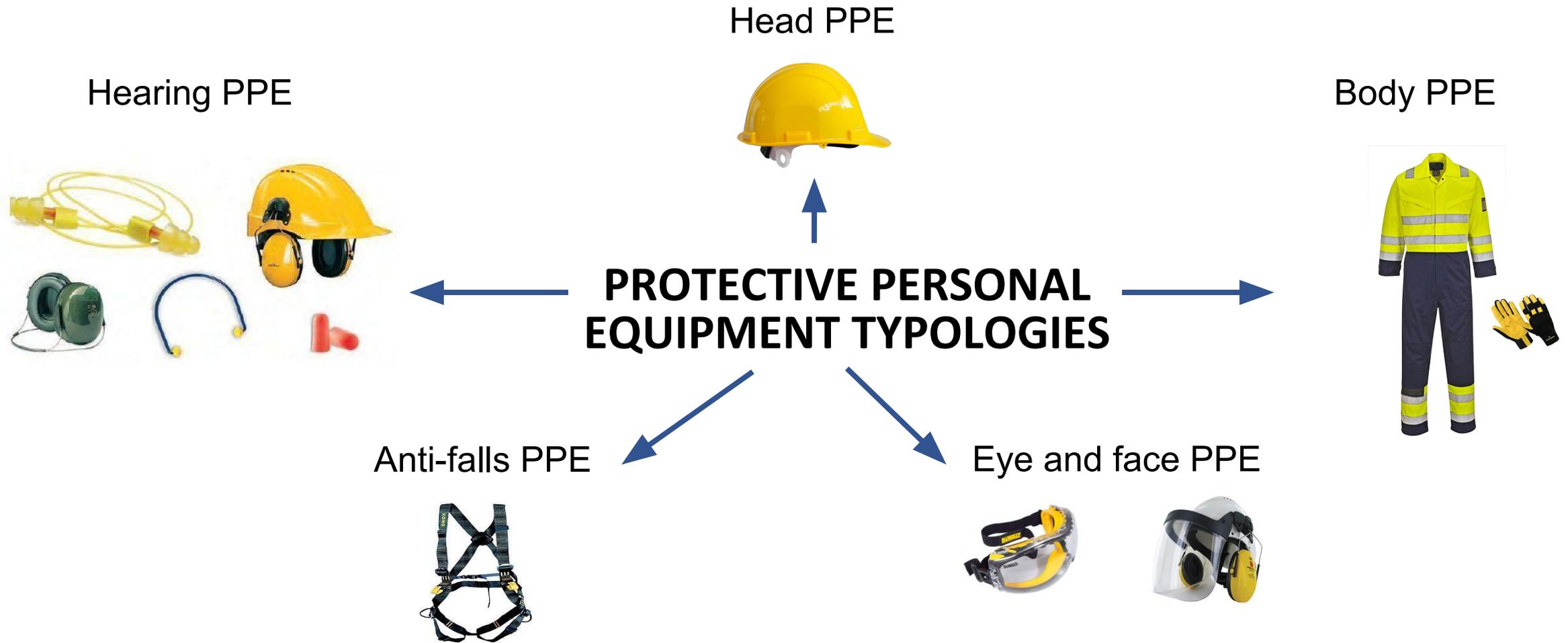
CLASS I - designed to protect workers from minor physical damage

CLASS II - life-saving and falls prevention equipment that protect the worker from serious damage to health or death

CLASS III – protect against all types of hazard not covered by class I and II PPE

Take care of your own PPE!
clean and maintain them,
report potential problems
and have them replaced
when they get damaged.



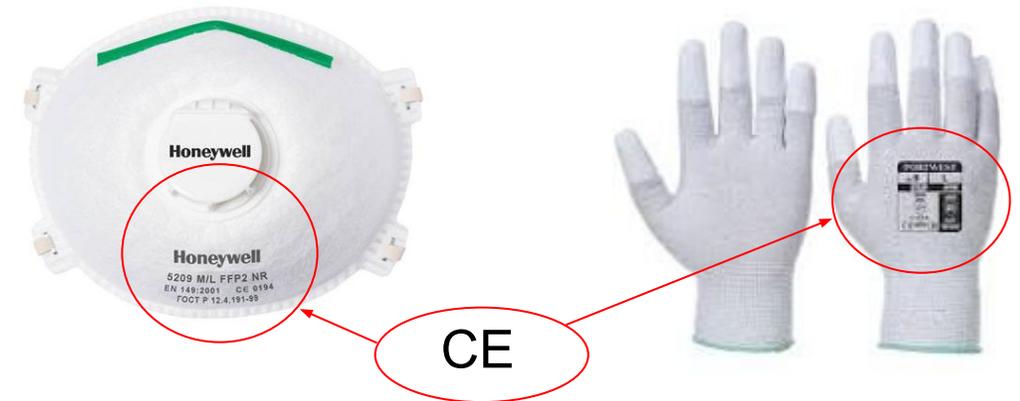


D.Lgs. 475/92

All PPE must have the CE mark and corresponding information

PPE must be:

- **appropriate** relative to the **risks** they prevent
- **appropriate** to **workplace conditions**
- **ergonomically designed**
- **adjustable** to different **users**



Personal Protective Equipment (PPE) - CLOTHES

NO

- baggy
- wide sleeves
- a lot of pockets and zips
- upturned hems
- wide legs
- could get tangled in equipment
- scarfs
- ties



YES

- narrow sleeves
- few pockets and zips
- without upturned hems
- protect from cold or hot temperatures
- protect from skin cancer





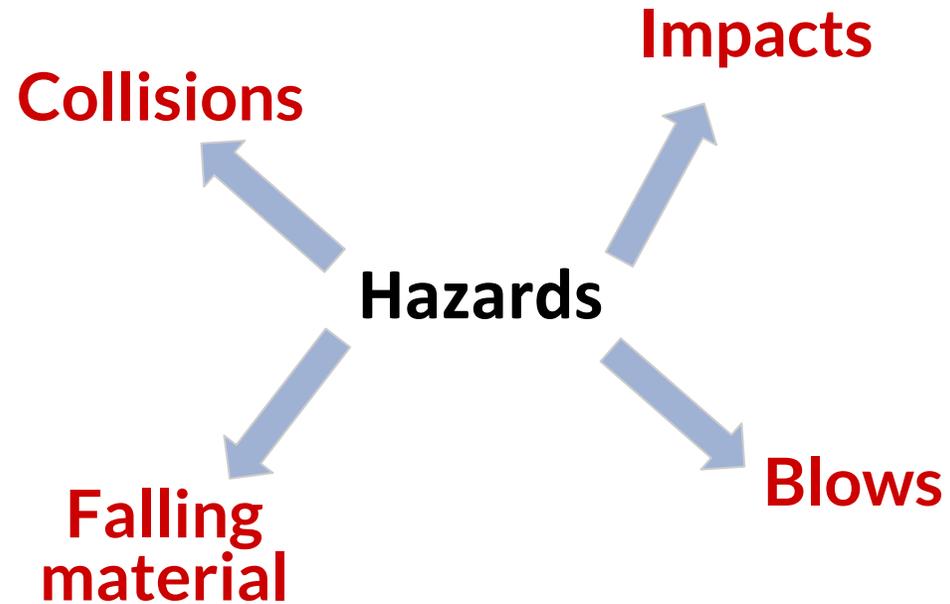
Plenary activity



Look at the picture on the left and try to answer to the following questions:

- *What **happened**?*
- *What are the **consequences** for the worker?*
- *What the **long-term consequences** for the worker?*

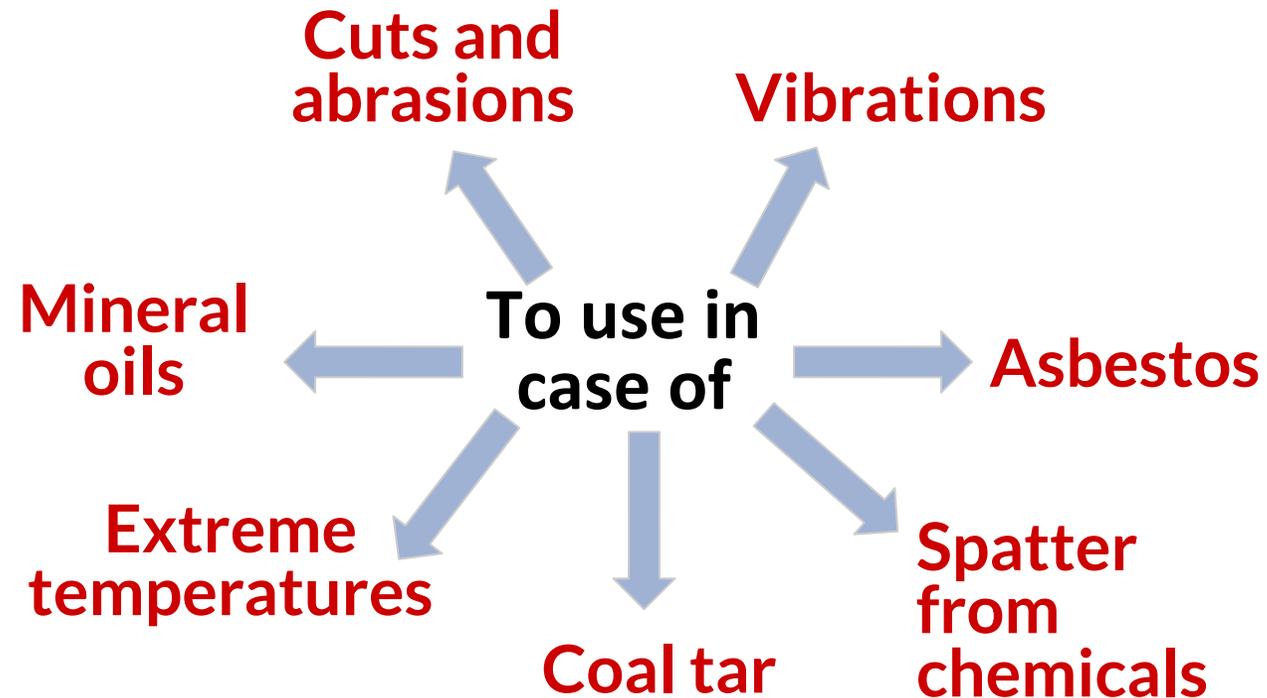
Head protection



When to use:
always!



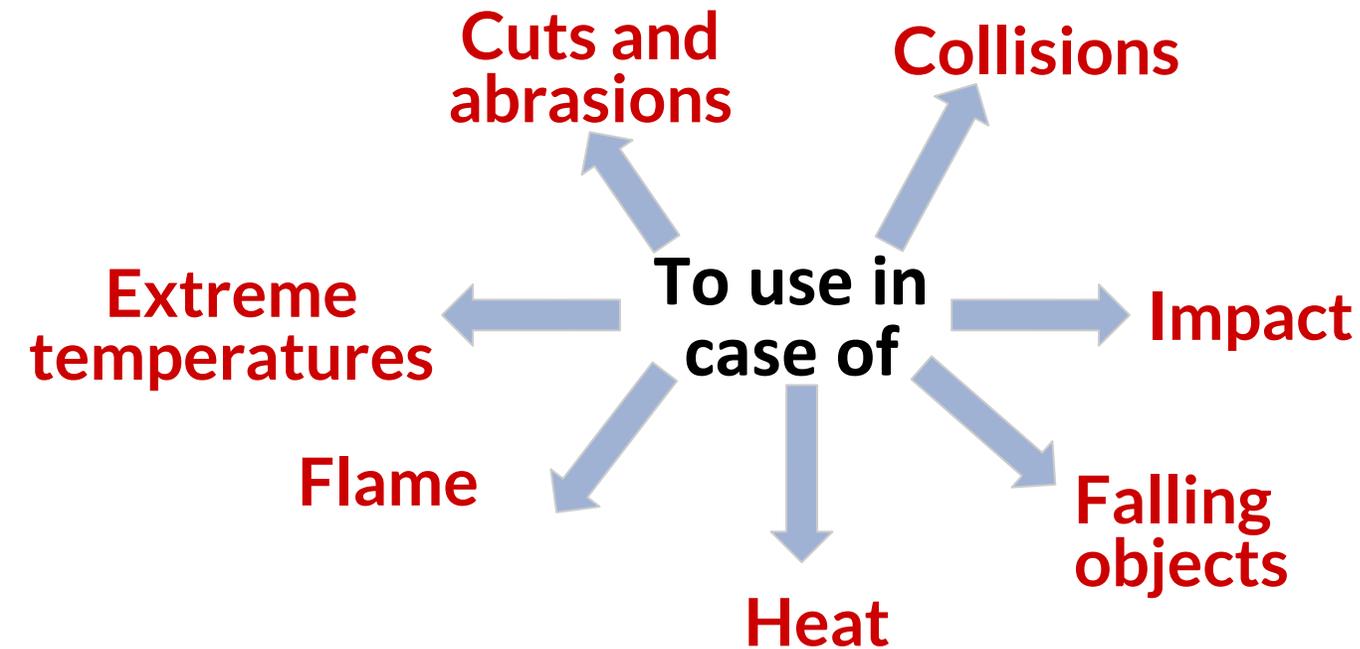
Hand Protection



Foot protection

What do they protect you against?

Pay attention to labels!



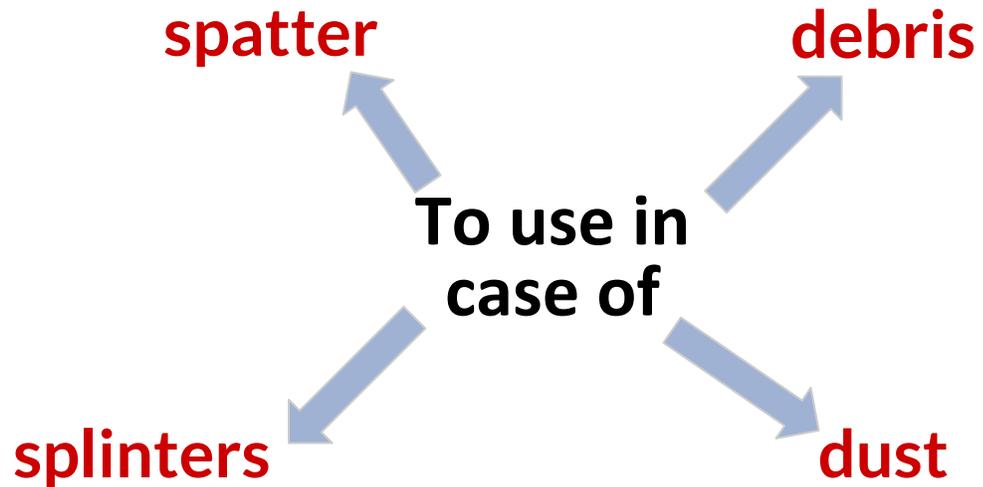
Hearing Protection



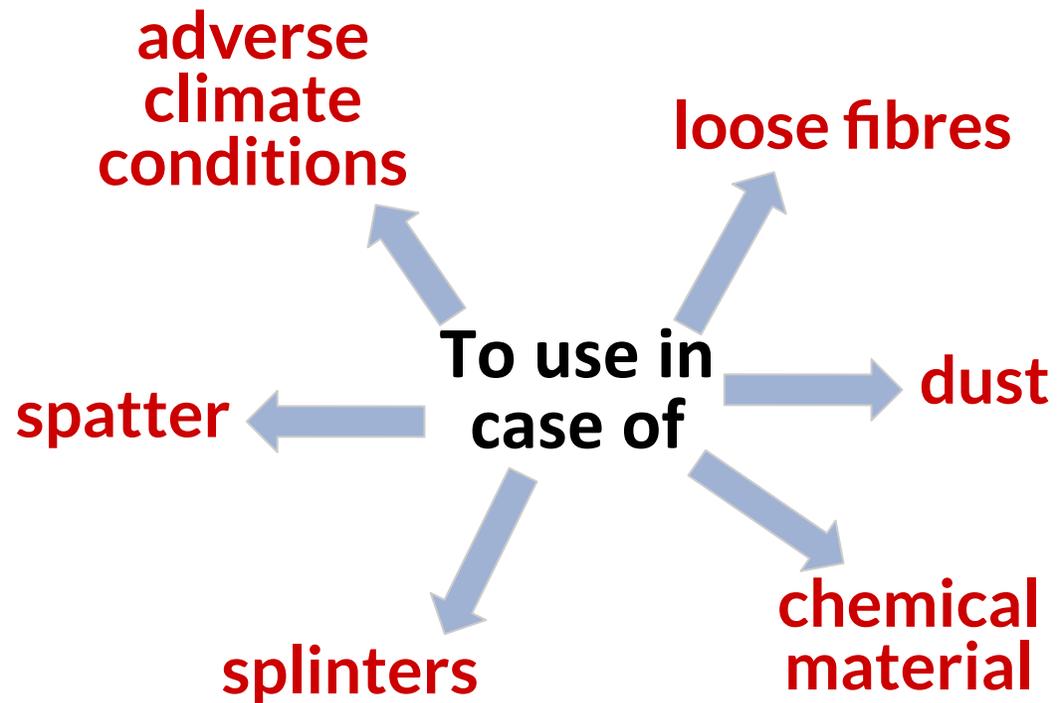
When to use:
Sound higher than 85 dB!

Ear protectors must be worn for the *entire duration of exposure* to noise.

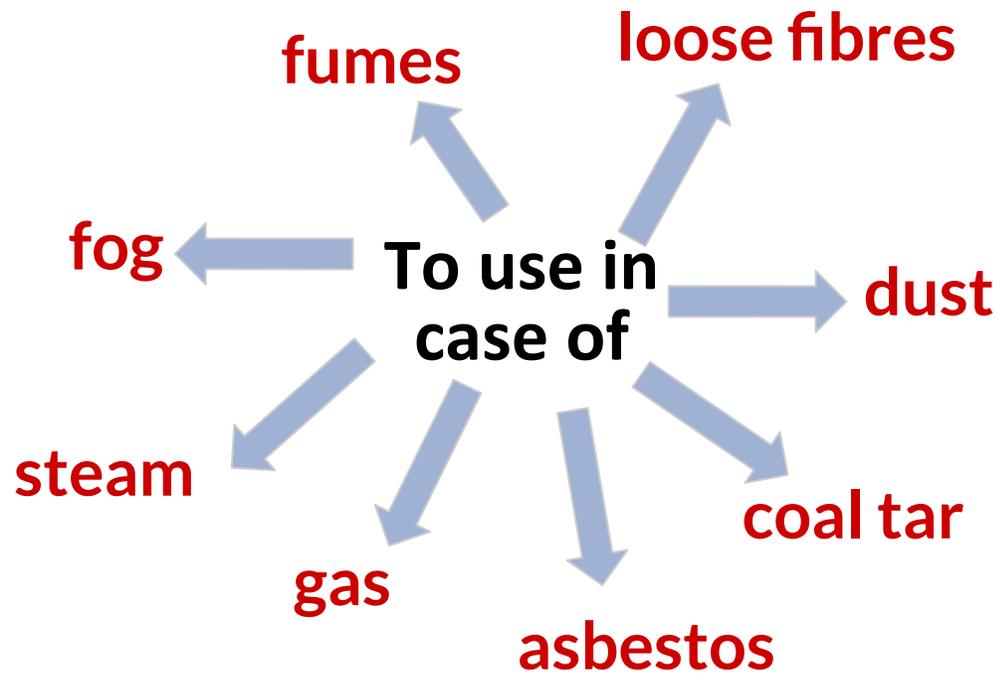
Eye Protection



Body Protection



Face protection

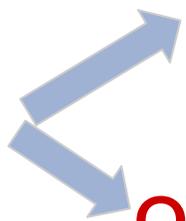


FFP3

- Class **1** – **low** protection
- Class **2** – **medium** protection
- Class **3** – **high** protection

Anti-fall protection

To use in case of

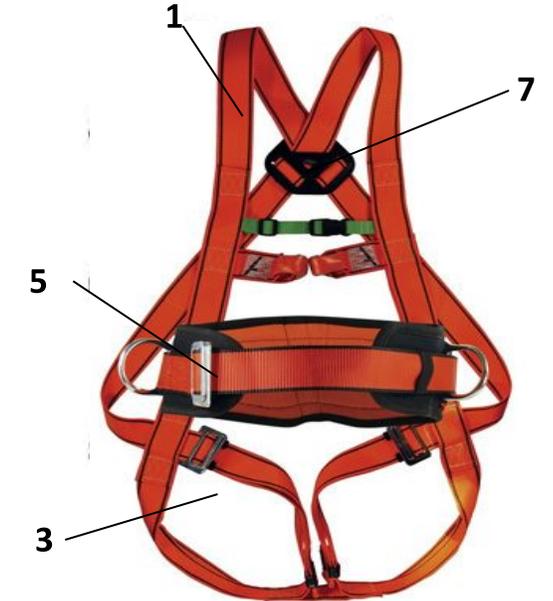
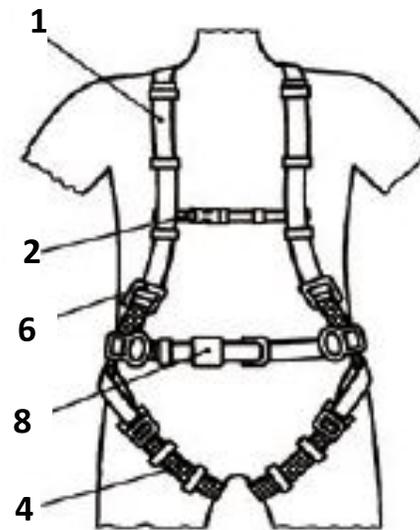


Falls from height

Other types of falls



How to wear a anti-fall protection harness



Parts of the Anti-fall protection harness

- 1) Adjustable shoulder straps
- 2) Adjustable chest straps
- 3/4) Adjustable thigh straps

- 5) Cushioned back support
- 6) Adjustment element
- 7) Attachment dorsal D ring
- 8) Buckle
- 9) Marking



Plenary activity

About your PPE:

- *When should you use it?*
- *When does your PPE become out of date?*
- *Is it fully functioning?*
- *What is the guidance for its use?*
- *How do you store them?*
- *How do you wear them?*



When does your PPE become out of date?

The duration of PPE depends on:

- **How you use it**
- **How often you use it**
- The **conditions** at the construction site
- **How you clean it**
- **How you store it**
- **How the material ages**



Watch this video and reflect about the effects of falling from height **with** and **without** a hard hat





Reminder! last lesson we asked you...

Which PPE do you use most during your work?



Mime: How should PPE be worn?



Watch this video and reflect about how to correctly wear the harness

Participative activity



watch here!



Safety signposting



Construction site signposting

The aim is to quickly draw attention to particular objects or situation that can be a source of danger

It is important to:
choose the correct sign and
pay attention to it



Look for three participant.

Every participant has to act in a different phase (1, 2 or 3) and explain a different problem/danger

- Phase 1 - one way verbal communication
- Phase 2 - two way verbal communication
- Phase 3 - non verbal/gesture communication

All the other participants have to listen to the instructions and try to draw the plans of the house in order to understand the room where is the problem/danger.





Individual Exercise - Phase 1

Leave a message on the answering machine to a colleague saying to replace a broken tube in the bathroom. Say to pay attention to the corridor false ceiling as it is yielding.

The class can **not ask for further information.**





Individual Exercise - Phase 2

Call a colleague and say to replace an electrical connection in the living room. Say to pay attention to the false ceiling of the room that is yielding.

The rest of the class **can ask for further information** if needed





Individual Exercise - Phase 3

Say to a colleague that some floor tiles have been replaced in the bedroom and no-one can enter.

In this case the participant **must give directions** in his mother tongue, but can **use gestures** and mimicry to communicate. The class can **not ask for further information**.



Individual Exercise

Phase 1 = Phase 2 = Phase 3



Individual Exercise

Phase 1



Individual Exercise

Phase 2



Individual Exercise

Phase 3



Exercise

Compare the drawn images with the correct one



What are the **pros** and the **cons** of each of the 3 types of communication?

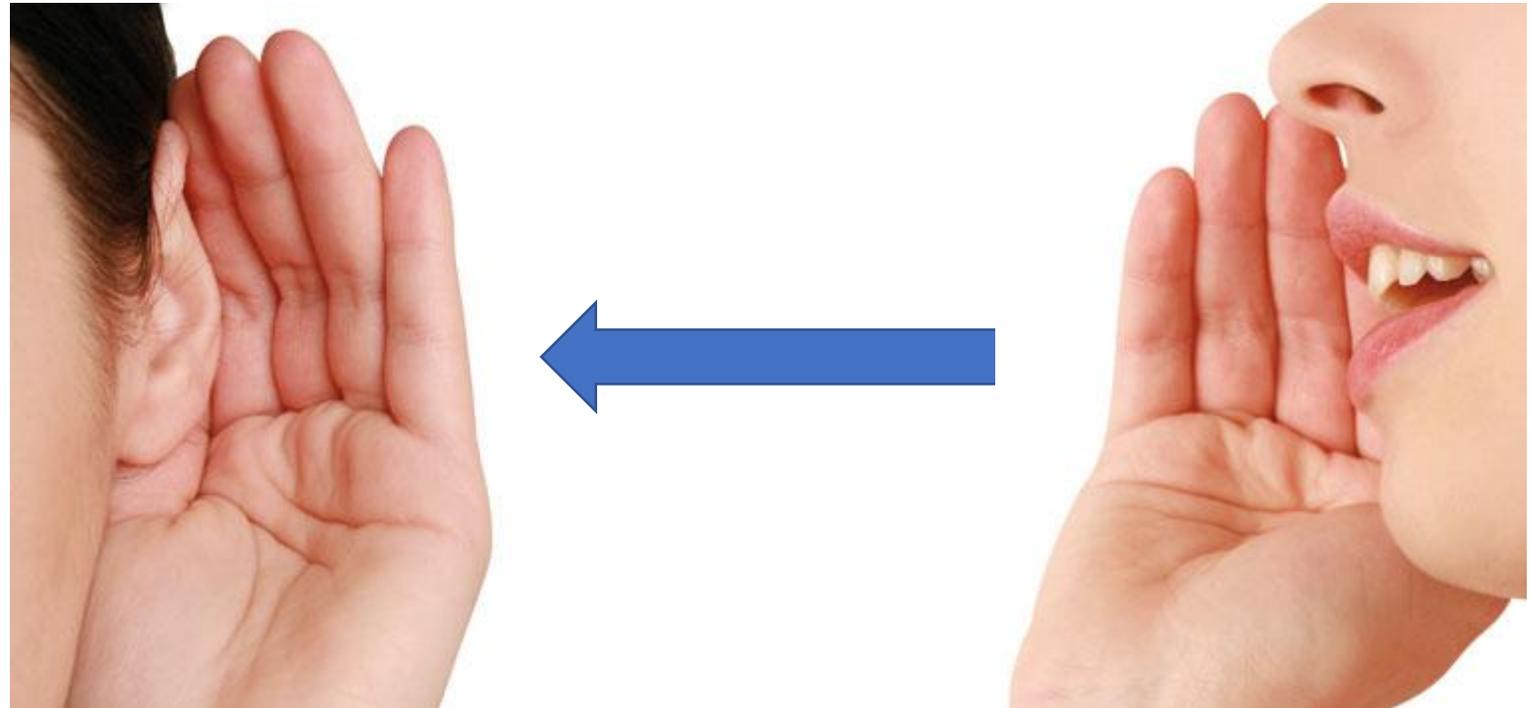
NTS definition: communication

The communication concerns the ability to *receive and transmit information* relevant to one's own safety and that other people and the environment



How can you make one-way communication effective?

- 1) Brief
- 2) Linear
- 3) Clear



Different communication methods



ONE-WAY COMMUNICATION

The message must be **simple**

Many people can be
communicated with at once

It is **quick** to use



TWO-WAY COMMUNICATION

The message can be **complex**

Fewer people may be
involved and there is more
feedback and discussion

It is more **time consuming**



WHAT ARE THE CONSEQUENCES OF COMMUNICATION PROBLEMS?



Communication barriers

INTERNAL BARRIERS



Language barriers/ Culture

Past experiences

Prejudice/ Feelings

Hearing/Voice (tone, speed, ...)



Noises

Distractions

Physical distance

Absence of visual signs

EXTERNAL BARRIERS

Gestures and non-verbal communication



Verbal communication

A predetermined verbal message made with a human **voice** or synthesised speech

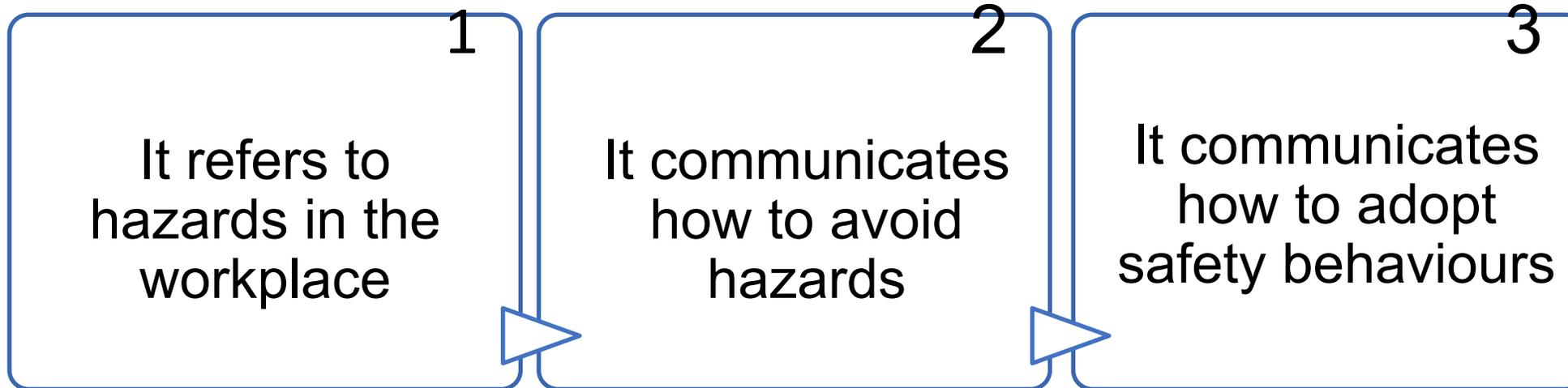


Gestural signal

A movement or particular position of **arms** and/or **legs/hands** in a conventional way to indicate to people possible dangers or risks

Safety signposting as a communication tool

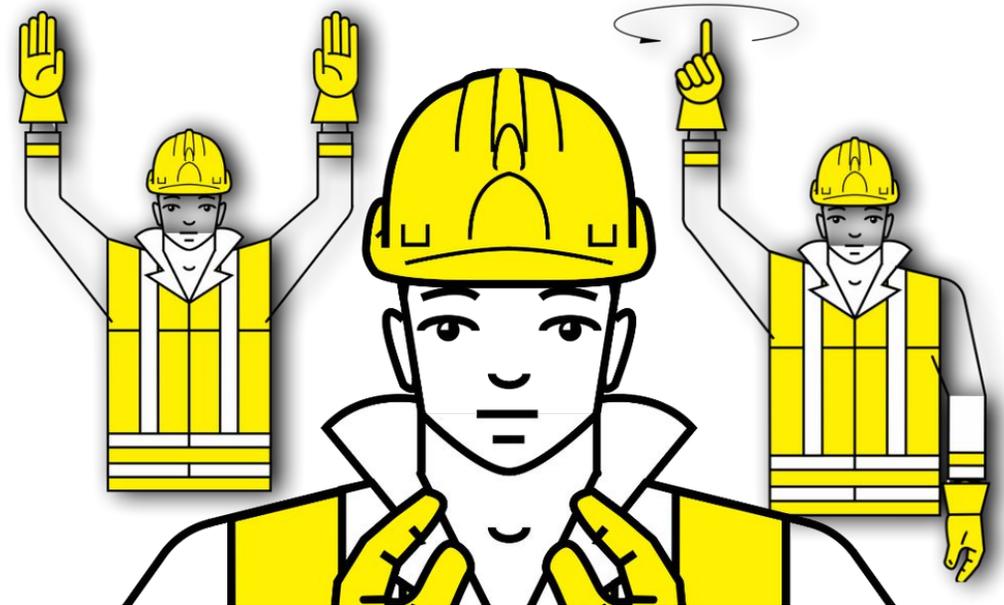
Safety signposting allows us to **share useful information** about hazardous situations and prevent hazardous behaviours. It has three key elements:



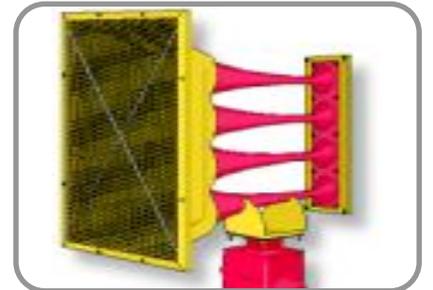
Site signposting: What is it?

Site signposting involves indications that, on the basis of each case, implies:

- A sign
- A colour
- Illuminated or auditory signal
- Verbal communication
- Hand signals



Safety signposting



INFORMATION SIGNS

Signs giving different information from those specified in the previous points

GENERAL SIGNS

Signs that, through a combination of geometrical shapes, colours and symbols or pictograms, provide a specific indication

SUPPLEMENTARY SIGNS

A complementary sign that provides further information

ILLUMINATED SIGNS

A sign made of transparent or semi-transparent material, illuminated from the inside or on the back so that it lights up

AUDITORY SIGNS

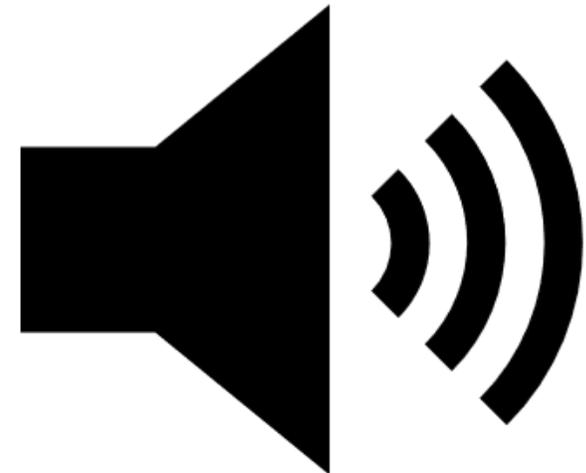
An auditory sign is shared over a device such as a tannoy, with the use of a human voice or synthesized speech

Safety signposting

Auditory signals

Minimum demands for an acoustic signal are:

- It must send a sound louder than the noise in the background;
- It must be easily recognisable and audible;
- In case of major danger, signals must be even louder and they must be sent with a regular timing.



Safety signposting

Illuminated signs

The minimum demands of an illuminated signal are:

- It must not dazzle;
- It must have a uniform colour with, if necessary, a pictogram on a background.



Construction site signage

Safety signs differ according to:

Shape	Color	Meaning
Circle with the line through Circle Triangle	Red Blue Yellow	Prohibition Mandatory Warning

D. LGS. 14-08-1996 N° 493

COLOUR

MEANING

INDICATIONS

RED



Prohibition sign
 Danger - Alarm
 Fire
 Protection materials and equipment

Dangerous attitudes
 Stop, emergency stop devices
 Identification and location

YELLOW



Warning sign

Attention, caution, verification

BLUE



Prescription sign

Specific behaviour or action
 Use of PPE

GREEN



Rescue or rescue signal
 Security situation

Doors, exits, routes, materials, work stations, premises.
 Restoring normal conditions

Prohibition sign

Signs that prohibit behaviours that may cause danger

DONT' ...!



No access for unauthorised persons



Smoking and naked flames forbidden



No smoking



No access for pedestrians



Not drinkable



Do not extinguish with water



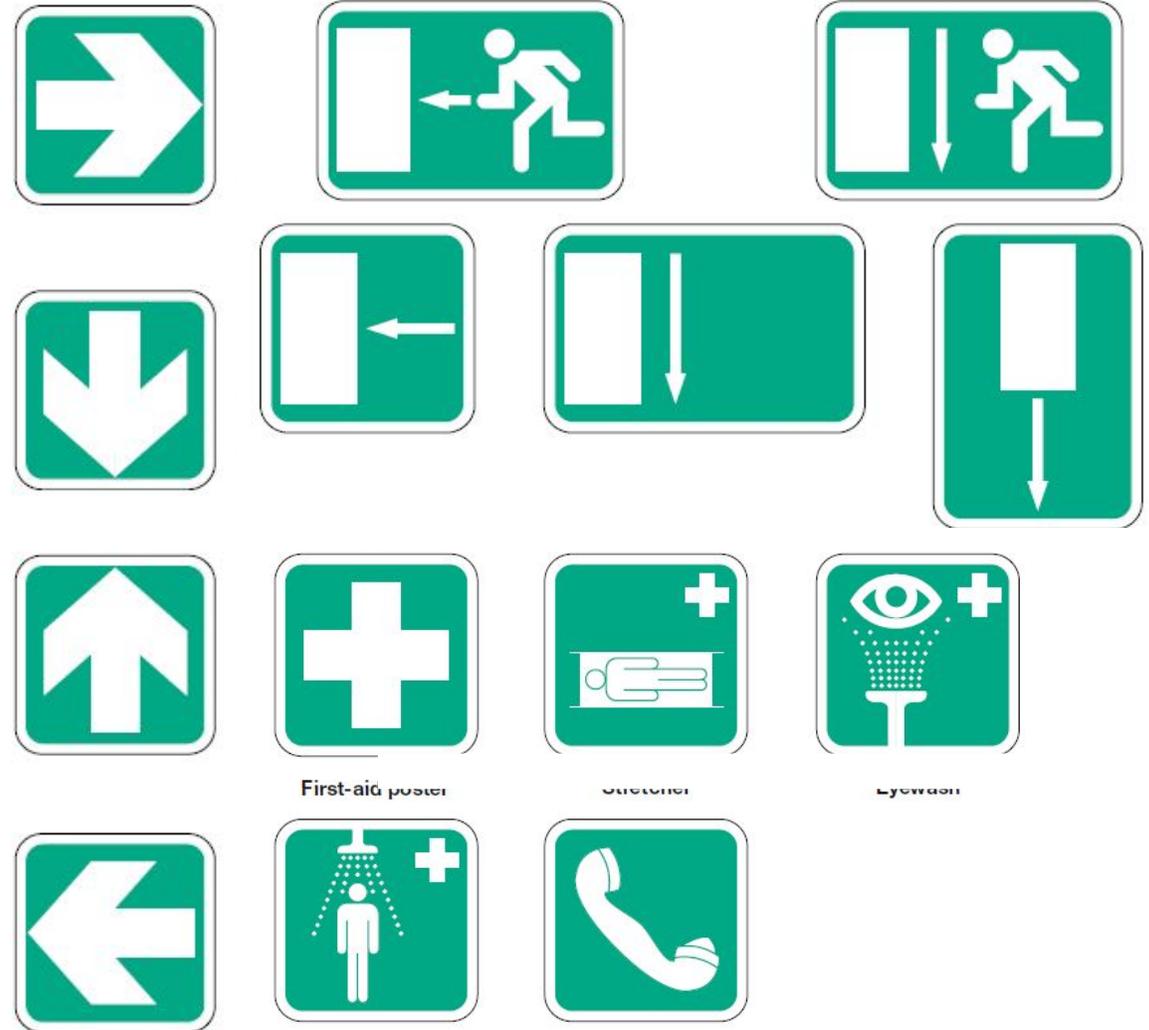
No access for industrial vehicles



Do not touch

Emergency information signs

Signs that give instructions



First-aid poster

Stretcher

Eye wash

Mandatory behaviours signs

Signs prescribing certain behaviours

you have to ...!



Warning signs



Flammable material or high temperature*



Explosive material



Toxic material



Laser beam



Oxidant material



Non-ionising radiation



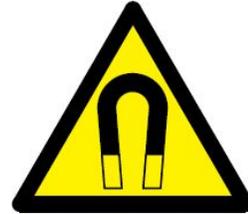
Corrosive material



Radioactive material



Overhead load



Strong magnetic field



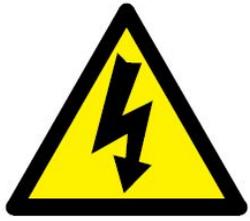
Obstacles



Drop



Industrial vehicles



Danger: electricity



General danger



Biological risk†



Low temperature

Signs that prohibit behaviours that may cause danger

pay attention to ...!

Fire Warning and Action Signs

Signs giving information in case of fire emergency



Fire hose



Fire extinguisher



Ladder



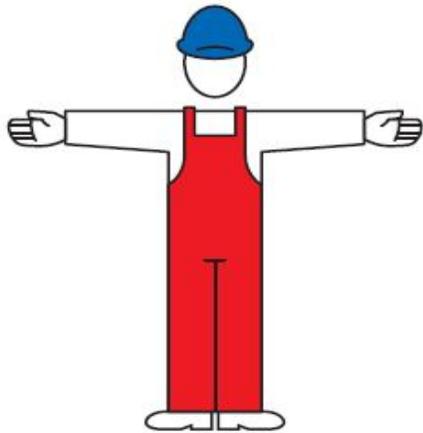
Emergency fire telephone



Gestures and non-verbal communication

Start

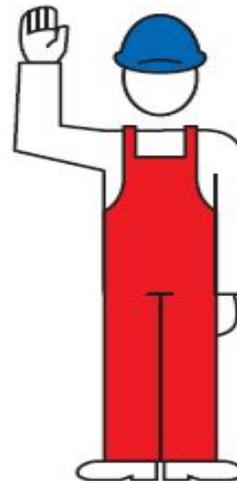
Attention
Taking command



Arms are horizontally open,
palms are facing forward

Alt

Interruption
End of the movement



The right arm points upwards
with the palm facing forward

End

End of operations



Both hands are clasped
at chest height

Gestures and non-verbal communication

Lifting



Right arm, pointing upwards,
palm facing forward, slowly
rotates around

To lower



The right arm pointing downwards,
with the palm facing the body,
slowly rotates around

Vertical distance



Hands indicate distance

Gestures and non-verbal communication

To Advance



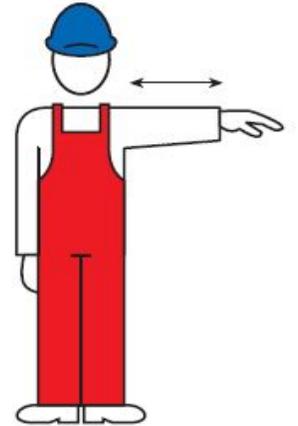
both arms are bent with the palms facing upwards, and the forearms make slow movements up towards the body

To move backwards



Both arms are bent, palms facing downwards, and the forearms make slow movements away from the body

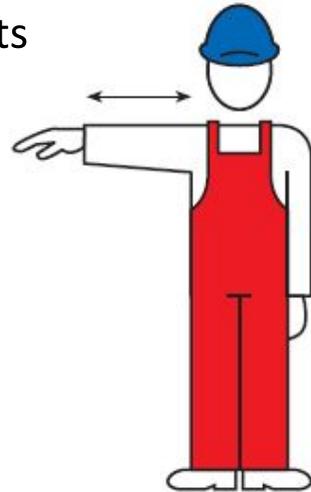
Indicate Left of the worker who reports



Left arm, pointing more or less horizontally, with the left hand facing downwards, makes slow movements in the direction

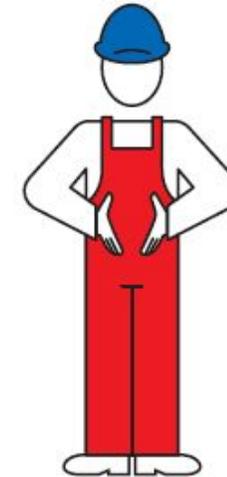
Gestures and non-verbal communication

Indicate Right
of the worker who
reports



Right arm, pointing more or less horizontally, with the right hand facing downwards, makes slow movements in the direction

Vertical Distance



Hands indicate distance

Gestures and non-verbal communication

Danger

Halt or emergency stop

Both arms pointing upwards, palms facing upwards



Fast Movements

Conventional gestures used to indicate fast movements are made faster

Slow Movements

Conventional gestures used to indicate slow movements are made slower



Final plenary exercise

Analyse the following photos thinking about:

- *What are the **hazards** for workers?*
- *Which **PPE** should they **wear**?*
- *Which **signposting** should be present?*
- *How should you **perform** the behaviours shown in the previous slides in order to work **safely**?*



- *What* are the **hazards** for workers?
- *Which PPE* should they **wear**?
- *Which signposting* should be present?
- *How* should you **perform** the behaviours shown in the previous slides in order to work **safely**?



- *What are the **hazards** for workers?*
- *Which **PPE** should they **wear**?*
- *Which **signposting** should be present?*
- *How should you **perform** the behaviours shown in the previous slides in order to work **safely**?*



- *What are the **hazards** for workers?*
- *Which **PPE** should they **wear**?*
- *Which **signposting** should be present?*
- *How should you **perform** the behaviours shown in the previous slides in order to work **safely**?*



Work flow and Sub-contracting risks



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Work flow and sub-contracting risks

In construction sites, when more than one company works on the same site (even if not at the same time), the developer must designate a coordinator for the design and the coordination of work



Work flow and sub-contracting risks



On construction sites, when **more than one company work on the same site**, their work must be organised and coordinated in order to avoid workers putting themselves into dangerous situations. It is also necessary for the different teams to **communicate effectively** and for the presence of **written documents**.

Work flow and sub-contracting risks

Duties of the coordinator for the design of work include:

- Drafting a safety and coordination plan
- Preparing a document containing information about the hazards



Work flow and sub-contracting risks

Duties of the work coordinator

- Verify the implementation of the established plan;
- Verify the suitability of the operation plan for safety and its correct implementation for work practices;
- Organise the cooperation and coordination of the activities and reciprocal information exchange between companies;
- Verify the implementation of agreements between social partners.



Work accident analysis - Instructions

The situation shows an **accident situation** and how the different **NTS** lead to the accident.

We will play the situation.

4/6 volunteers that will be the actors.

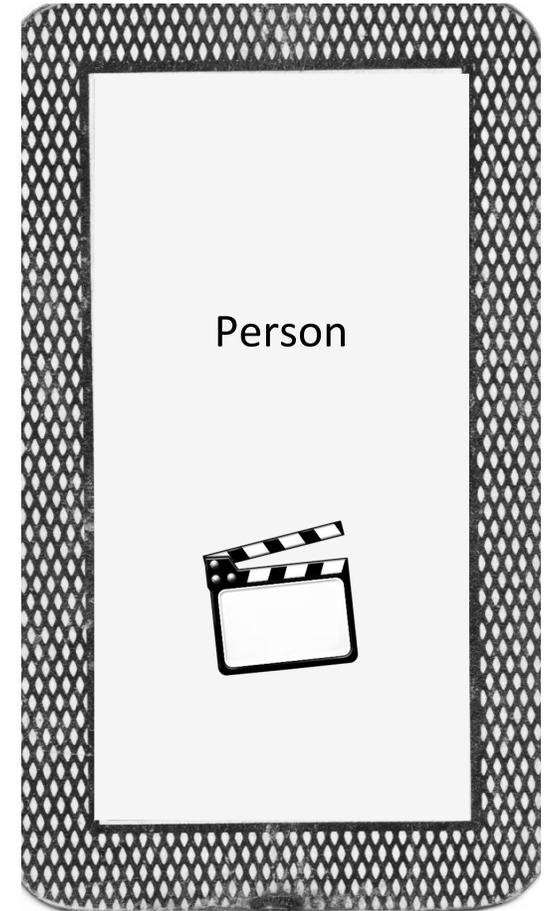
The others will observe and analyze the situation
(according to the printed instructions)



Work accident analysis

During the observation look pay attention to the following aspects:

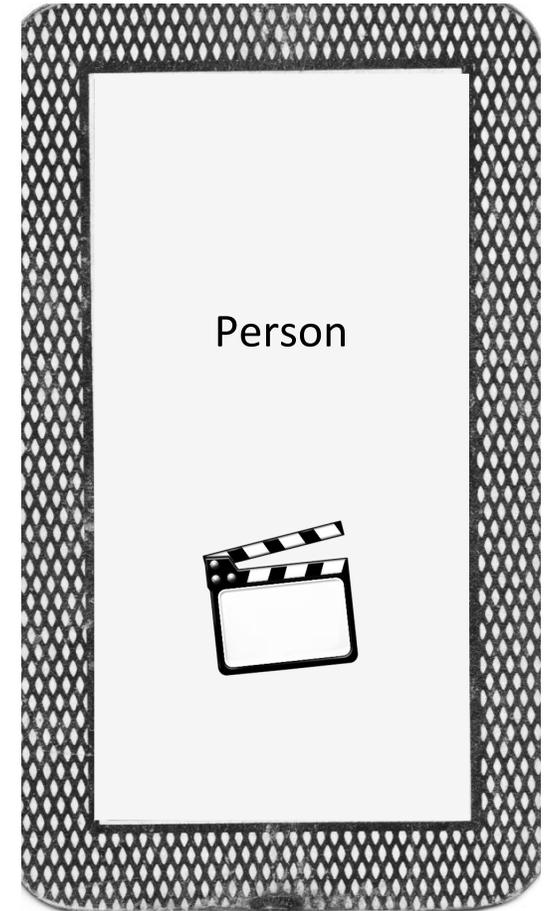
- *What caused the accident?*
- *What happened?*
- *How could the accident be avoided?*



Work accident analysis

People involved:

- **Adam**: young digger worker
- **Tom**: construction foreman
- **Danny**: OSH Practitioner
- **Alex**: young colleague
- **The developer**
- **A passerby**



- **Adam: the excavator driver**

Adam went to an advanced and cutting-edge construction school where he practised with modern simulators; he was trained to use big excavators and he gained a certificate to operate these machines at construction sites; he was hired by the company for his proven technical competence and for his accuracy in the use of excavators. He's been working for 2 weeks now.

- **Tom: construction foreman**

Tom has been working for the company for many years and he knows almost all every working task. This is his second time as a construction site foreman. In his previous construction site he had some problems with managing working teams and this created delays. He has developed great technical ability from working on the sites.

- **Danny: the OSH Practitioner**

Tom asks Mark to supervise Adam. He's a bit older than Adam, he has great experience with all work tasks and knowledge of the risks on site.

- **Alex: a young colleague**

Alex has limited experience and he's very young. He is committed to working well in every task. He hopes he'll be able to fit into the team.

- **The developer**

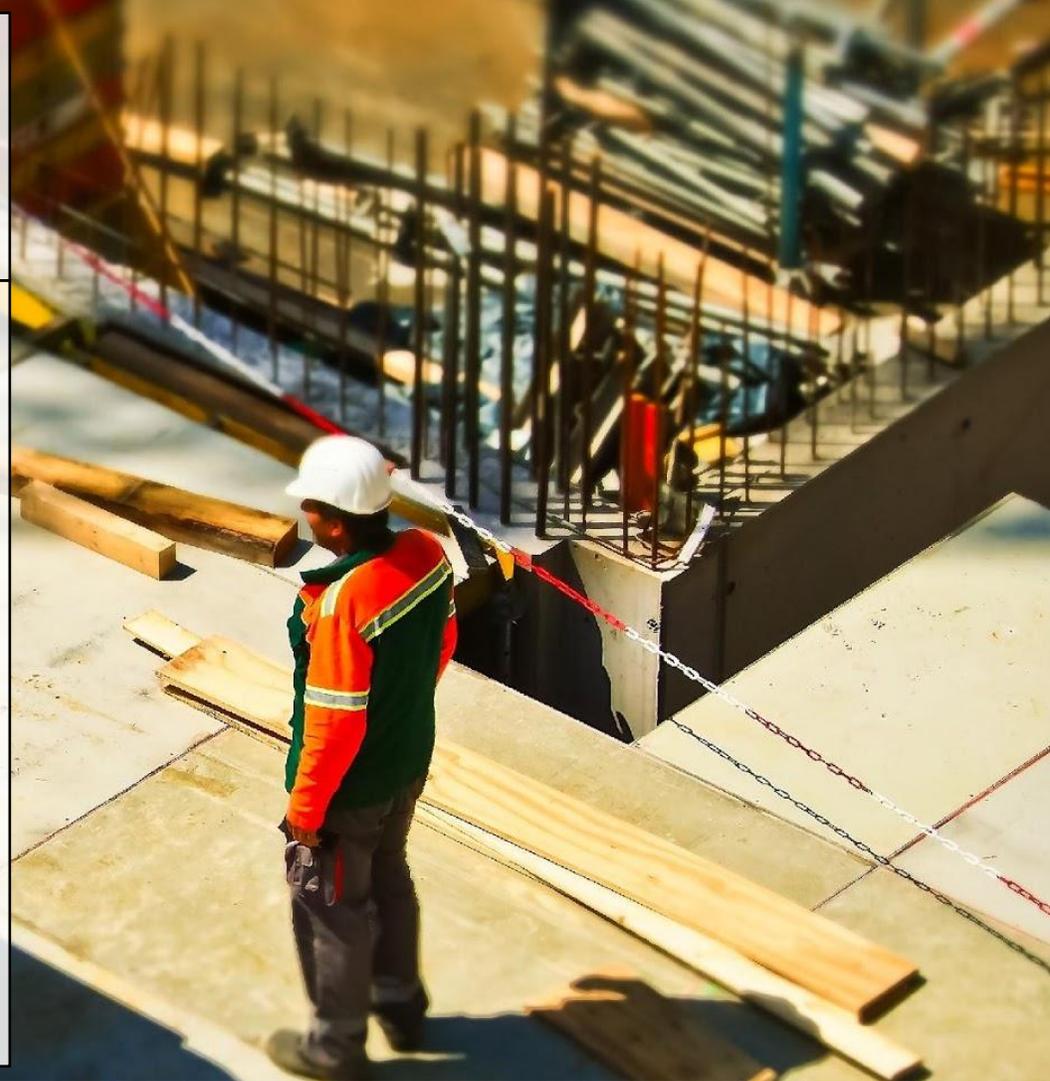
The developer is a thorough and demanding person, he is experienced in the construction sector. Today he's at the construction site and he's carefully watching as people work.

Results of the observation

	SITUATIONAL AWARENESS	COMMUNICATION	DECISION MAKING	TEAMWORK
	<i>was he/she able to recognize a risky situation? and a potential hazards?</i>	<i>was he/she able to communicate clearly and stress his/her point of view relating to safety?</i>	<i>was he/she able to take decisions evaluating the options on the basis of safety?</i>	<i>was he/she able to work with others promoting personal and collective safety?</i>
ADAM				
TOM				
DANNY				
ALEX				

NTS definitions: situational awareness

Monitoring the workplace by observing what happens and *identifying potential hazards* is related with Situational awareness



NTS definition: communication

The communication concerns the ability to *receive and transmit information* relevant to one's own safety and that other people and the environment



NTS definitions: decision making

The precise decision concerns the ability to *formulate judgments and/or reach a choice* by evaluating the options available on the basis of safety.



NTS definition: **Teamwork**

The ability to *work with other* people by promoting their own safety and that of others



And now?

We have learnt a lot about safe behaviours at the construction site, but...



What happens when you return to the construction site?

Participating in training and learning new skills does not guarantee that you do things differently at work

Research alert: Some studies show that only half of what is learned during training is used in the workplace



How do we transfer new knowledge to our job?

TRAINING TRANSFER

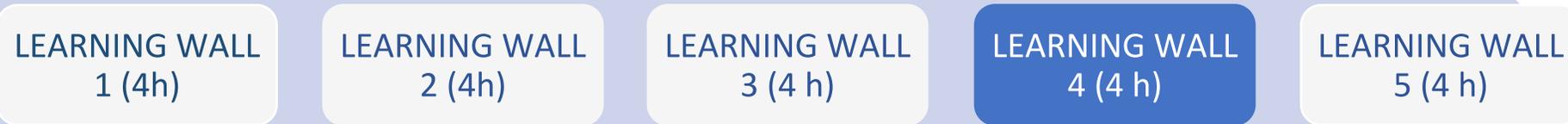
‘Ability of a trainee to apply the behaviour, knowledge, and skills acquired in a learning situation to the workplace.’

ACTION PLANNING (EX 4.1)

Thinking about what you have learned during this course and, specifically about things you learnt that you didn't already know, list a series of **5 safety behaviours** that you want to practice when you are back at your work

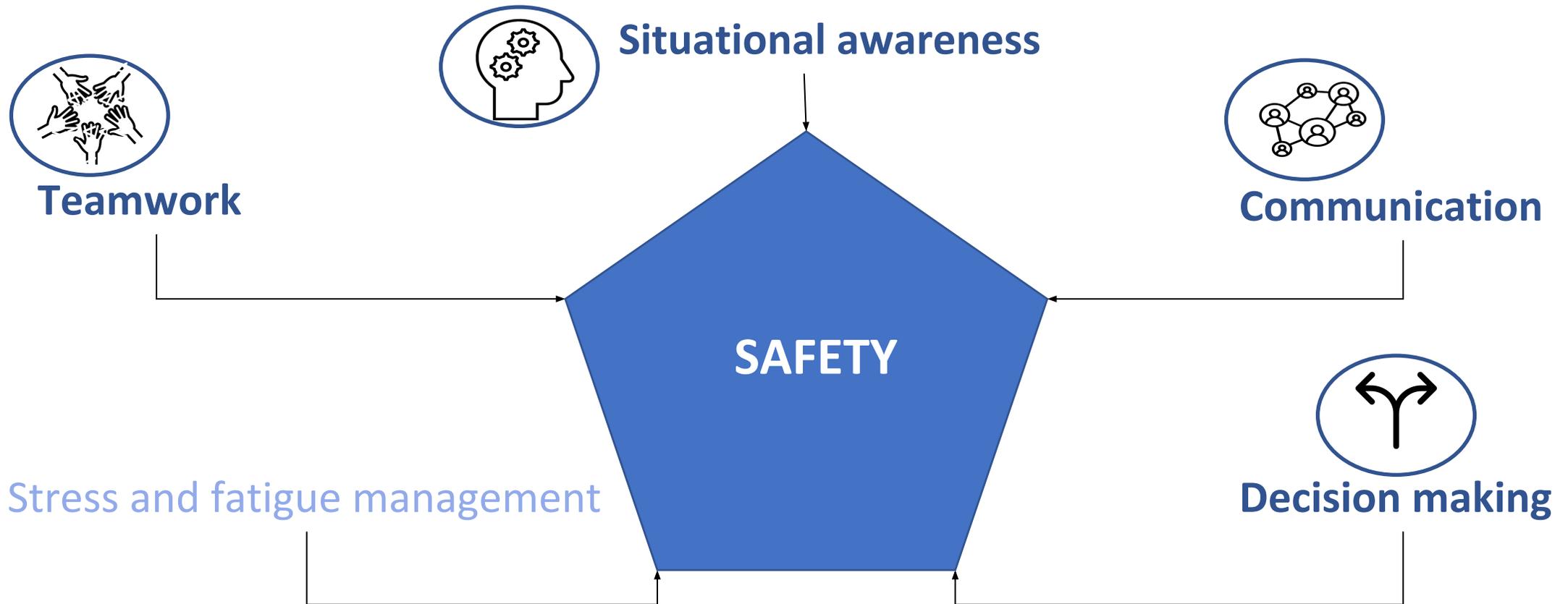


Contents learned during this lesson



- ✓ Work organisation and manual handling of loads
- ✓ PPE
- ✓ Safety signposting
- ✓ Work flow and sub-contracting risks

NTS of this lesson



Training content in the next session



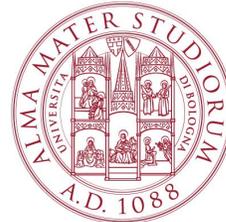
- ✓ Fatigue
- ✓ Time pressure
- ✓ Alcohol consumption
- ✓ Emergency management



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WALL 4 - Contents of the online platform



SLIDES



**3 ACTIVITIES
2 GAMES**

