

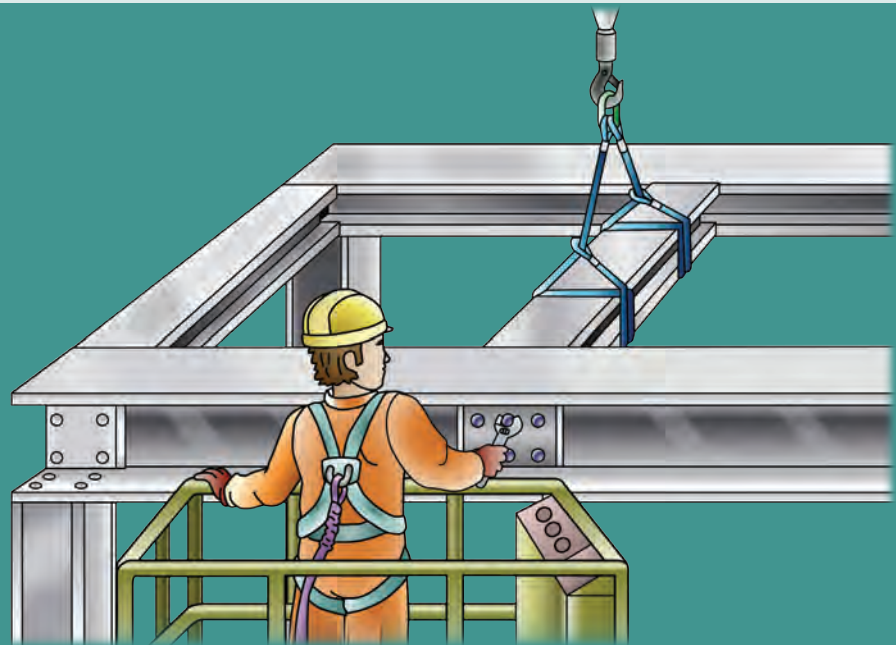
# RIGGING BASIC LEARNER WORKBOOK



## TRAINER'S MARKING GUIDE WITH MODEL ANSWERS

CPCCLRG3001

Licence to perform rigging basic level



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# Plan Task



**Trainers please note:**

The answers in this book are in no way conclusive and are to be used as a guide only. Use your own knowledge and experience to correct the variation of answers that may be given by learners.



# Theory Training Task 2

Performance Criteria: 1.1

First, look at the picture and then plan your job. Your job is to get the crane operator to lift the load from the ground to the suspended floor.

Find out where the job is. To do this task you need to:

Answer may include but is not limited to:

- Plan the route
- Make sure the pathway is clear
- Check the load limit of the crane you will use
- Check with crane operator if you will use two-way radio, hand signals or whistles.



Performance Criteria: 1.4

## Identify workplace hazards

What is a hazard? A hazard is anything that can hurt you or others while you work. The government classes rigging as high risk. By law, only a licensed person can do rigging work. The licence includes knowing what workplace hazards to look for— and the causes.



# Theory Training Task 3

Performance Criteria: 1.4

Before starting any job on a worksite it is important you talk to appropriate people to find out about any site rules, procedures or policies that may affect the way you carry out your work. List three people you may need to check with about site hazards and issues related to working on a site.

1) Answer may include:

- Safety officers

2) • Colleagues

- Authorised managers

3) • Supervisors

- Site engineers.





# Theory Training Task 4

Performance Criteria: 1.4

A rigger should know what hazards to look for in the workplace and the kinds of situations that may cause them. You should be aware of possible hazards above head height, between ground and eye level and below ground level.

a) Give examples of hazards you should look for before you begin work

Answer:

May include but is not limited to:



### Above head height

- powerlines and transmitters
- trees
- buildings
- other obstructions.

### Ground level to eye level

- other equipment
- machinery/plant
- people and pedestrians
- things in the path of travel
- environmental conditions
- surrounding structures
- facilities
- dangerous materials
- other obstructions
- insufficient lighting.

### Ground level (and below)

- stable/level surface
- spills or wet surfaces
- debris and rubbish
- **trenched or recently filled trenches**
- unstable ground
- underground services
- surface is strong enough to support the weight of any equipment/materials.



b) Tick any of these hazards you may have come across in past/present workplaces.

Trainers: encourage your learners to place a tick beside hazards they have seen in their past or present places of employment.



# Theory Training Task 6

Performance Criteria: 1.4

Check the safe working distances for powerlines in your state or territory.

- a) How many metres is the NO GO zone for **distribution lines on poles in your state or territory?**

The NO GO Zone for ..... (State/territory) is ..... metres.

- b) (If applicable) The NO GO Zone when using a spotter is ..... metres

Trainer to determine if these answers are correct for the state/territory being trained in.



# Theory Training Task 7

Performance Criteria: 1.4

- a) What hazards can be created by the following weather conditions?
- b) What would you do in these circumstances?

## Storms/heavy rain

- a) Hard to see and unstable ground conditions.

.....  
.....

- b) Stop work until rain has cleared and re-check ground conditions before continuing work.

.....  
.....

## Lightning

- a) Crane (particularly the boom), equipment or people could be struck by lightning.

.....  
.....

- b) Stop work until rain has cleared and re-check ground conditions before continuing work.

.....  
.....





# Theory Training Task 8

Performance Criteria: 1.4

You are doing rigging work that requires you to handle hazardous materials.

Where would you find out the correct hazard control measures for dealing with them?



Safety Data Sheets (SDS)

.....  
.....  
.....



# Theory Training Task 9

Performance Criteria: 1.4

Should a rigger work on structural steel that is wet from rain or fresh paint?

Why/why not?

No, because the person may slip and injure themselves on the structure or they could fall.

.....  
.....  
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Performance Criteria: 1.4

## Risk controls & Safety Measures

What are risk controls and safety measures? They are actions you take to control or prevent a danger that can injure or hurt you.

You use the actions to do away with or to reduce risk to workmates and property. Take the actions before you start the task.

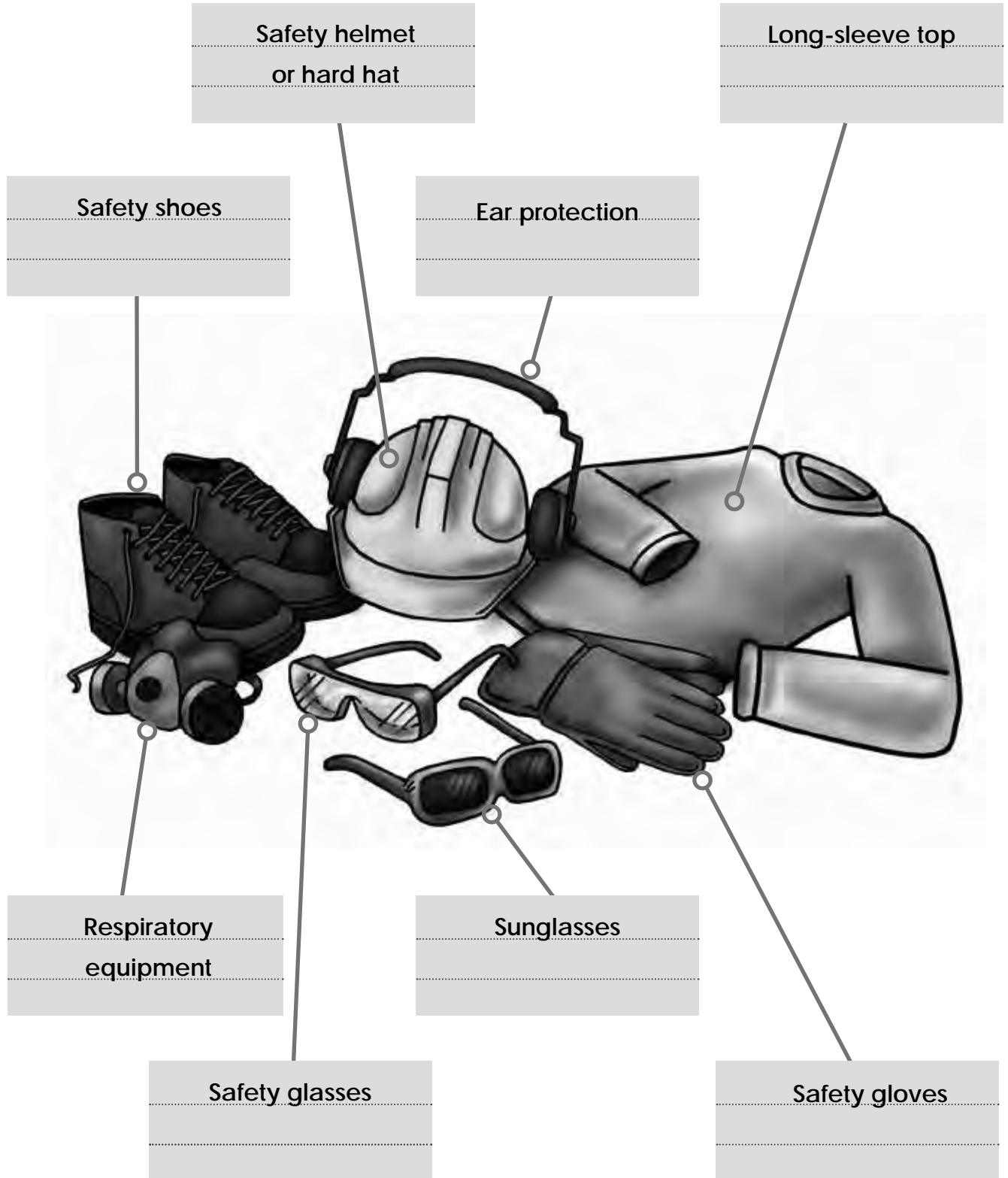




# Theory Training Task 12

Performance Criteria: 2.1

Label the personal protective equipment (PPE) shown below.





Performance Criteria: 1.7

# Forces and loads in rigging work

Before you start any rigging work you need to think about the forces and types of loads that you will use and the type of work you will do. You will also need to talk with other personnel when planning the job.



## Theory Training Task 15

Performance Criteria: 1.7

What are three pieces of information you would need to know when lifting special or unique loads?

- 1) • **Lifting and stress points**
- **Spread of load**
- 2) • **Weight of load**
- **Centre of balance (gravity)**
- 3) \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_



## Theory Training Task 16

Performance Criteria: 1.7

The weight of a load determines the lifting equipment you need to move it. Always check the weight of a load **before** you sling it.

List three ways to find out the weight of a load.

- 1) **Answer may include but is not limited to:**
- **Check if the weight is marked on the load**
- 2) • **Weigh the load**
- **Calculation**
- 3) • **Check the weighbridge certificate**
- **Check the consignment note.**





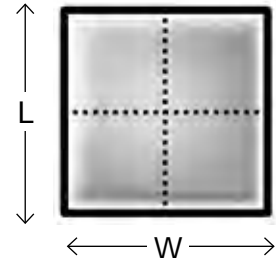
# Theory Training Task 18

Performance Criteria: 1.3

Calculate the area of a square. A square is flat. The area is how much space the square covers.

**Formula:**  $A^2 = L \times W$

L = length    W = width    A = area (m<sup>2</sup>)



a) Calculate the area of a square:

L = 9.5 cm    W = 9.5 cm

$A^2 = L \times W$

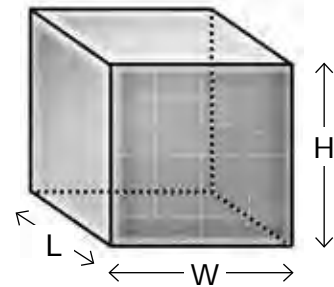
$A^2 = 9.5 \times 9.5$

$A^2 = 90.25 \text{ cm}^2$

Calculate the volume of a cube. A cube is a 3D box. Volume is how much space is inside the cube.

**Formula:**  $V^3 = L \times W \times H$

L = length    W = width    H = height



b) Calculate the volume of a cube with these measurements:

L = 6.2 cm    W = 6.2 cm    H = 6.2 cm

$V^3 = L \times W \times H$

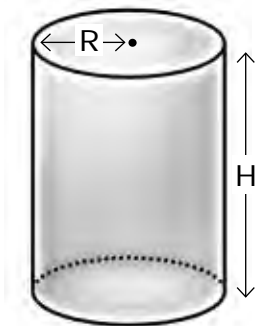
$V^3 = 6.2 \times 6.2 \times 6.2$

$V^3 = 238.33 \text{ cm}^3$

Calculate the volume of a cylinder. A cylinder is a 3D pipe. Volume is how much space is inside the cylinder.

**Formula:**  $V^3 = \pi \times R \times R \times L$

$\pi = 3.14$     R = radius    L = length    V<sup>3</sup> = volume



c) Calculate the volume of a cylinder with these measurements:

R = 1.6 m    L = 5 m

$V^3 = \pi \times R \times R \times L$

$V^3 = 3.14 \times 1.6 \times 1.6 \times 5$

$V^3 = 40.2 \text{ m}^3$

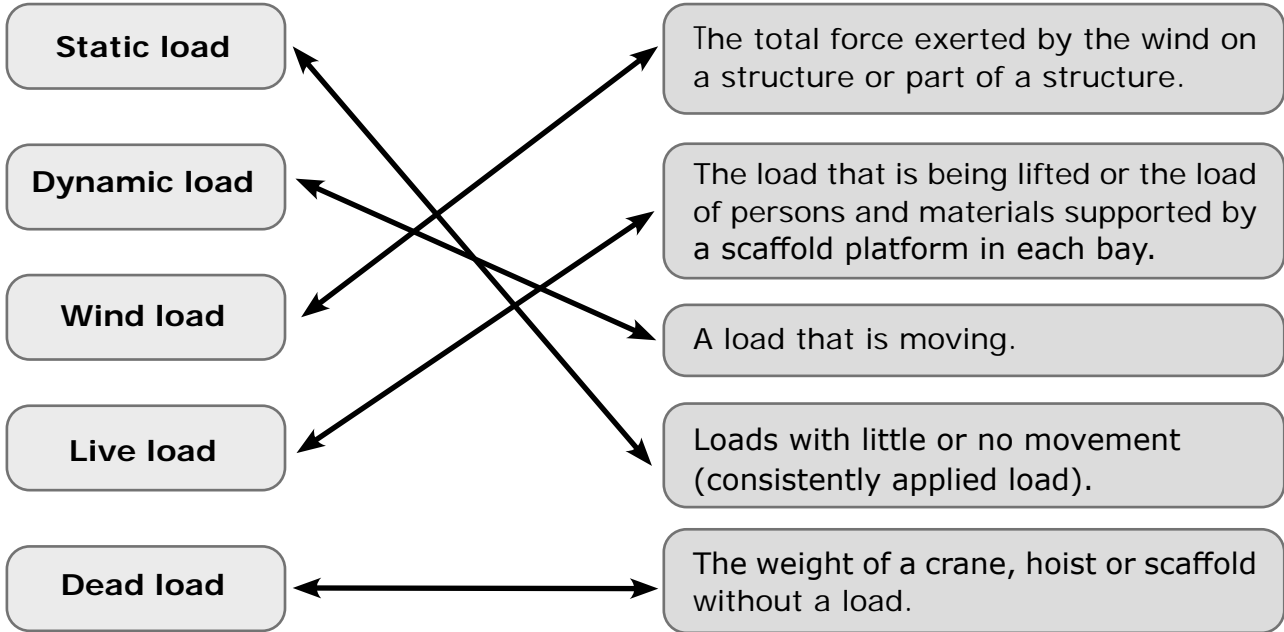


# Theory Training Task 20

Performance Criteria: 1.7

There are a number of forces and loads to think about when you plan a task.

Draw a line to join the word with the right meaning.



b) When using structural steel, give examples of loads you need to think about.

- Dead load
- Live load
- Static load



c) When working with precast panels, give examples of loads you need to think about.

- Dead load
- Live load
- Wind load
- Static load





# Theory Training Task 21

*Performance Criteria: 1.7*

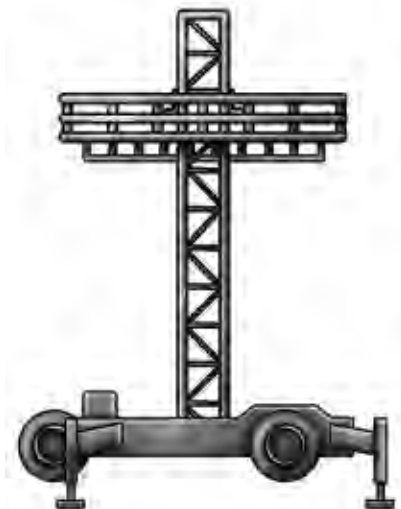
Pictured below are some equipment and plant associated with rigging work.

- a) Label them with their correct names.
- b) Describe what they are used for.

- a) **Static line** .....
- b) **A wire line used to anchor you to the building, but still offering the freedom to walk around and work freely.** .....



- a) **Mast climber** .....
- b) **A platform raised for temporary access to heights.** .....



- a) **Safety net** .....
- b) **A temporary structure used to catch falling debris or people.** .....





## Theory Training Task 22

Performance Criteria: 1.6

As a rigger it is likely that you will work with many different types of cranes.

a) Identify the following cranes.



Non-slewing mobile crane



Derrick crane



Self erecting crane



Vehicle loading crane



Hammerhead tower crane



Mobile slewing crane

# Select and Inspect Equipment



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*Performance Criteria: 2.3*

## Select and inspect rigging/safety equipment

When you start a job you need to select and inspect the rigging equipment that's right for the job.



## Theory Training Task 28

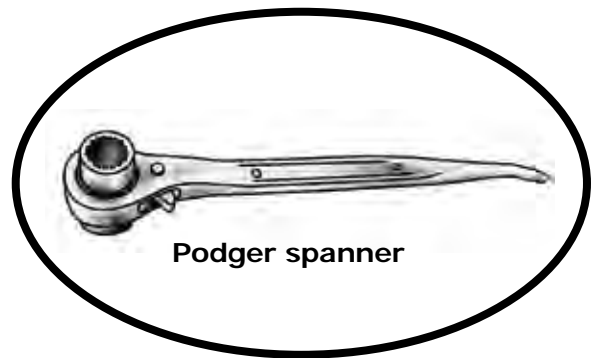
*Performance Criteria: 2.3*

Which of the following items of rigging equipment would you **not** need to use when installing a static line?

Circle the correct answer.



**FSWR**



**Podger spanner**

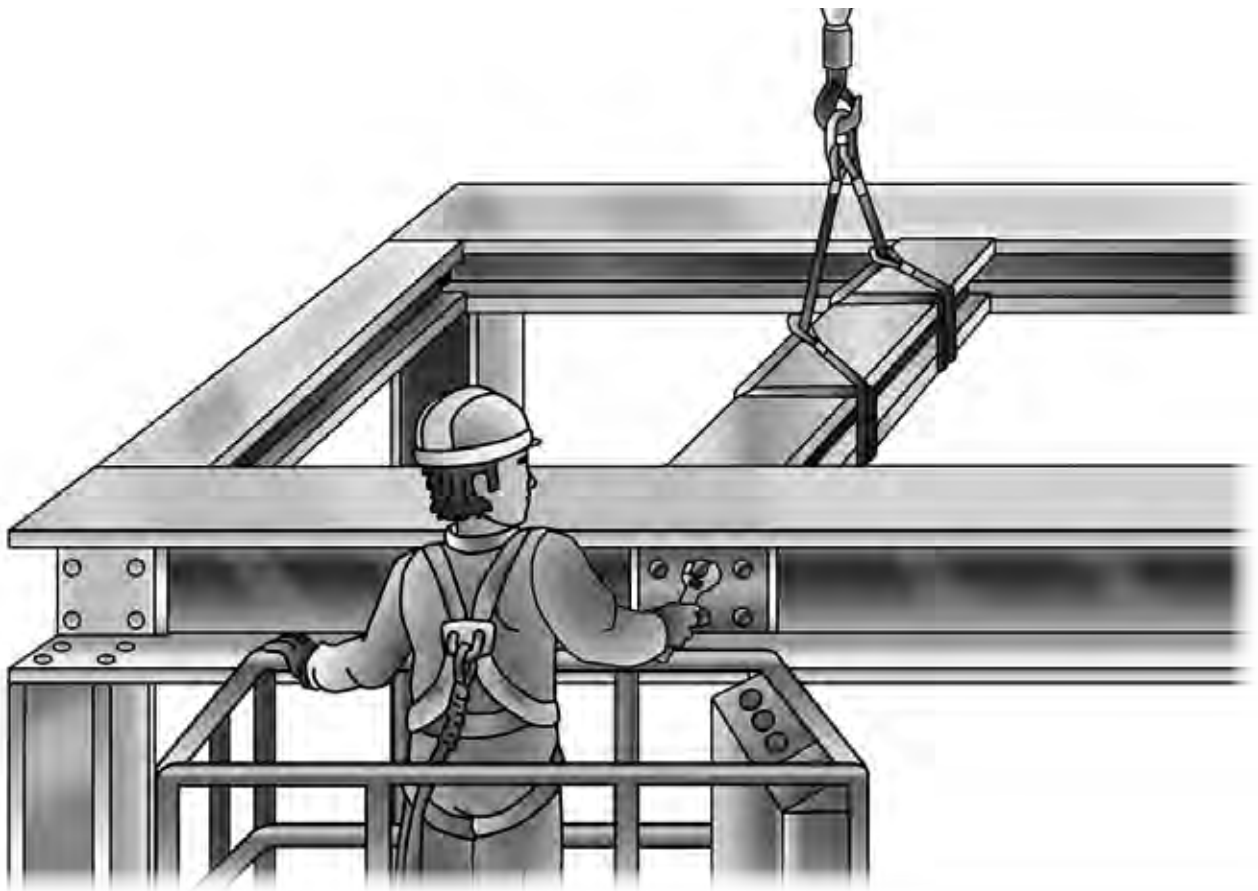


**Turnbuckle**



**Rope grips**

# **Undertake Basic Rigging Activities**



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## Theory Training Task 56

*Performance Criteria: 4.1*

Below are two pieces of equipment that a rigger can use to avoid climbing when disengaging lifting gear from a load.

What are they called?

1)



Remote release ratchet

2)



Elevating work platform

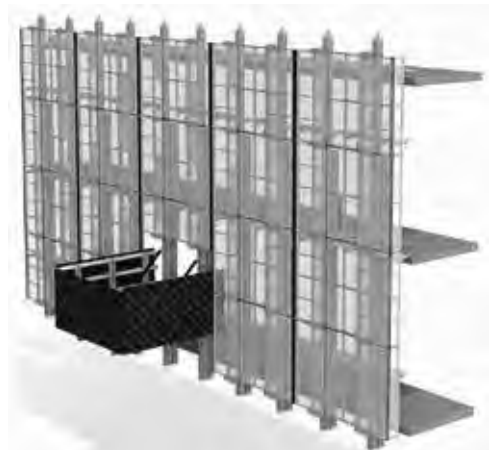


## Theory Training Task 57

*Performance Criteria: 4.6*

Your task is to dismantle a perimeter safety screen. Where should the narrowest screen be placed in relation to the other screens?

The narrowest screen should be placed at the top of the pile. If it drops, there will be less debris than a larger screen. Also, placing the largest screen at the bottom and the smallest at the top will create a more balanced pile. This will reduce the chance of an accident.





# Theory Training Task 58

Performance Criteria: 4.1



Should you erect steel structures or precast concrete panels in high winds?

Why/why not?

Answer may include but is not limited to:

- The wind could make the structure unstable
- It could cause workers to fall from the structure
- It could cause load swing with the concrete panels.



# Theory Training Task 59

Performance Criteria: 4.1

Name four (4) things you should make sure of when installing a mast climber.

1) Answer may include but is not limited to:

- Check ground conditions/bearing pressure
- Check for powerlines in the area

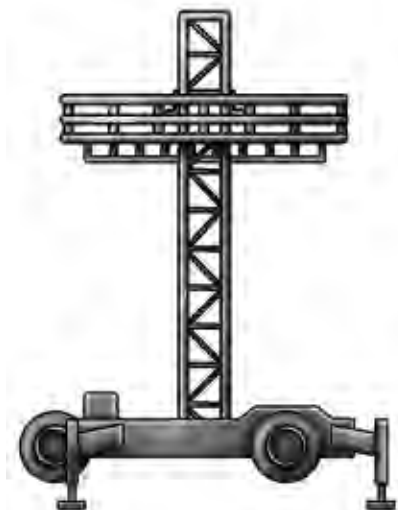
2) • **Read manufacturer's specifications**

- Barricade the area
- Do not erect in high winds

3) • **Extend, lock and pack outriggers**

- Anchor the mast
- Keep the platform fully lowered when not in use

4) • **Install and test limit switches.**



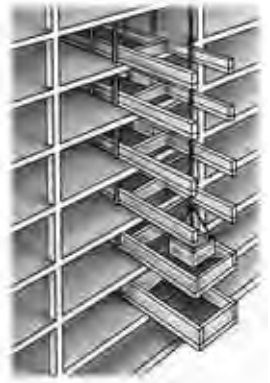


# Theory Training Task 60

Performance Criteria: 4.1

What would you need if you wanted to alter a cantilevered crane loading platform or use it for a purpose it was not designed for?

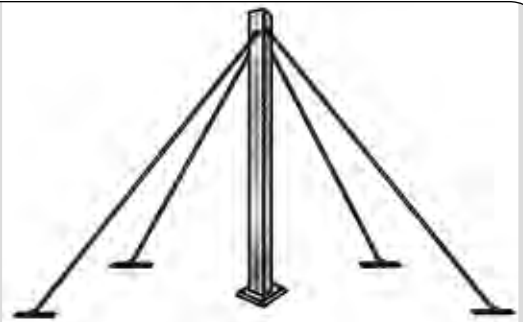
- You should use the platform only for its designed purpose
- Any alterations or different use should be to an engineered design.



Performance Criteria: 4.1 & 4.2

## Structure and plant stability

Keep structures stable during erection.



# Theory Training Task 61

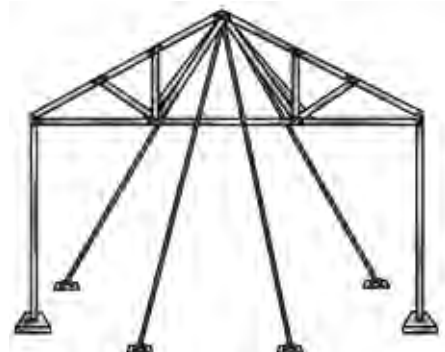
Performance Criteria: 4.1 & 4.2

a) What techniques can you use to keep structures stable during erection?

- Guying
- Lashing
- Bracing

b) What should guys be made of when they are left overnight?  
(Tick the correct answer/s)

- Fibre rope
- Flexible steel wire rope (FSWR)
- High tensile chain
- Hairy string



Performance Criteria: 4.4

# Work Safely at Height

Make sure you are anchored correctly while working at heights.



## Theory Training Task 62

Performance Criteria: 4.4

a) What is the pendulum effect?

The side-to-side swinging motion that can occur when a person falls while attached to a lanyard.

.....

.....

b) What hazards are created by the pendulum effect?

Answer may include but not limited to:

- The person may hit surrounding structures and equipment
  - The lanyard may break.
- .....
- .....

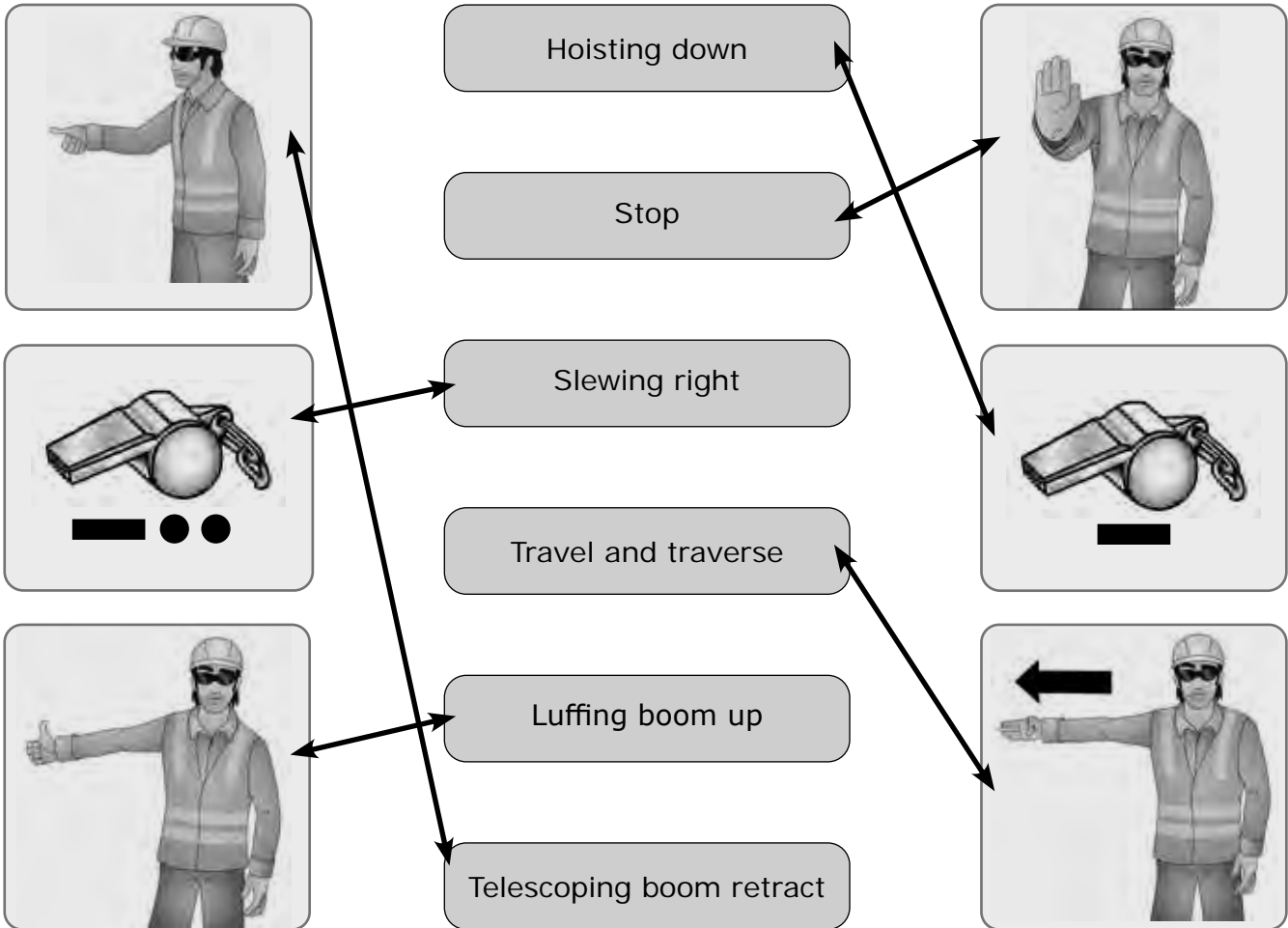




# Theory Training Task 65

Performance Criteria: 1.8

Draw a line from the crane boom motion in the centre with the hand or whistle signal.



Performance Criteria: 4.1

# Work with associated plant and rigging equipment

Ensure someone has trained you to use plant and rigging equipment the way the maker designed it. Always check the user manual if you are unsure how to use any plant or rigging equipment.



## Theory Training Task 66

Performance Criteria: 4.1

Should you modify equipment or use it for tasks it was not designed for?  
(Circle the correct answer.)

Yes

**No**

Performance Criteria: 4.1

# Guying, bracing and propping

If you have to leave columns or structural steel unsupported overnight you must use temporary bracing or guying. This keeps the columns or structural steel stable.



## Theory Training Task 67

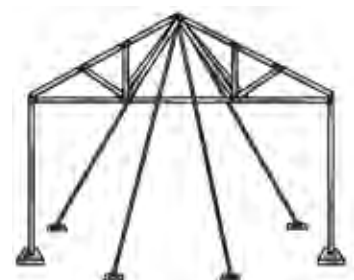
Performance Criteria: 4.1

Wire ropes should be used as guys.

Why should you **NOT** use fibre rope for guying?

Fibre ropes shrink when wet and stretch when dry.

.....  
.....  
.....  
.....



## Practical Training Task 4

*Element 4—Undertake Basic Rigging Activities*

*Performance criteria 1.7, 1.8, 2.4, 4.1, 4.2, 4.4, 5.1, 5.2*

# Undertake Basic Rigging Activities

**Learners:** You **must** do this task under the **control of a licensed operator**.

Please wait for your trainer to advise you before trying the task.

In Practical Task Three, you planned to set up a steel portal frame. You will now erect the steel portal frame.

First, your trainer will take you to an area where you will erect the steel portal frame.

Second, your trainer will choose the panels for you to erect the steel portal frame.



When you erect the steel portal frame, make sure you:

- Carry out rigging work. This means you do all rigging work in line with workplace procedures, user manuals and site information.
- Keep structures and plant stable. This means you use guying, lashing and bracing to keep structures stable while you are putting them up.
- Work safely at height. This means you make sure you anchor yourself correctly when working at heights.
- Use appropriate communication methods and equipment. This means you must give crane operators clear verbal, hand and whistle signals when you direct crane movements.
- Use associated plant and equipment according to procedures. This means you make sure someone has trained you to use the plant and rigging equipment the way the maker designed it.

# Complete Task



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Performance Criteria: 5.1

# Dismantle structures and associated plant

Always check the maker’s instruction when you dismantle (meaning take apart) any structures and associated plant. Make sure you pack up and store the parts properly.



## Theory Training Task 71

Performance Criteria: 5.1

Who should you talk to before you dismantle structures or equipment?

Other workers who will be helping you  
to dismantle structures or equipment.



Performance Criteria: 3.2 & 5.2

## Working safely at heights

To work safely at heights you should do a number of things.



## Theory Training Task 72

Performance Criteria: 3.2 & 5.2

What are two (2) things that you can do to stay safe while you are dismantling structures and equipment at heights?

1) Answer may include but is not limited to:

- Wear personal protective equipment (PPE)
- Make sure your lanyard is anchored correctly
- Make sure you have effective communication with other workers.

2)  
.....  
.....  
.....