Construction

**Plan and organise work**

Welcome.

This module will assist you to review and revise content in the area of ‘**Plan and organise work’** in the NSW HSC Construction syllabus.

You will have studied the competency [CPCCCM1013A Plan and organise work](https://training.gov.au/Training/Details/CPCCCM1013A), which addresses the scope of learning.

This module is broken up into:

* Important notes regarding the HSC focus area
* Key terms and concepts; constructing a mind map
* Activities
* Putting the theory into practice

**How to use the resource**

Work through the notes and the suggested activities in any order.

Spread your revision over a number of sessions rather than sitting at one subject for lengthy periods.

Discuss your responses with your teacher, fellow students or an interested family member.

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## Important Notes: HSC Focus Area

You should use the information in this module as a prompt and guide when revising your **study notes** or **text-book information** or **other resources** provided by your teacher. You can also access industry specific information at [SafeWork NSW](https://www.safework.nsw.gov.au/your-industry/construction), [Department of Industry, Innovation and Science](https://www.business.gov.au/Planning/Industry-information/Building-and-construction-industry), [Anti-Discrimination Board of NSW](https://www.antidiscrimination.justice.nsw.gov.au/), [Industrial Relations NSW](https://www.industrialrelations.nsw.gov.au/), and [Australian Council of Trade Unions](https://www.actu.org.au/)

The HSC examination in Construction is based on a set of examinable units of competency (see table below) from the Construction (240 indicative hours) course.

Examinable Units

|  |  |
| --- | --- |
| Code | Title |
| CPCCCM1012A | Work effectively and sustainably in the construction industry |
| CPCCCM1013A | **Plan and organise work** |
| CPCCCM1014A | Conduct workplace communication |
| CPCCCM1015A | Carry out measurements and calculations |
| CPCCCM2001A | Read and interpret plans and specifications |
| CPCCCM2005B | Use construction tools and equipment  |
| CPCCWHS1001 | Prepare to work safely in the construction industry |
| CPCCOHS2001A | Apply OHS requirements, policies and procedures in the construction industry |

This module helps revise the focus area ‘**Plan and organise work**’ (based on [CPCCCM1013A Plan and organise work](https://training.gov.au/Training/Details/CPCCCM1013A)).

This unit of competency specifies the outcomes required to plan and organise individual and group work activities on a construction site. The unit includes identifying task requirements, planning steps and organising work.

The scope of learning describes the breadth and depth of the HSC Content, the minimum content that must be addressed, and the underpinning knowledge drawn from the associated unit(s) of competency.

The full scope of learning is available from Construction Curriculum Framework 2020 HSC exam and beyond, Syllabus Part B, [Mandatory units of competency ‘Plan and organise work](https://educationstandards.nsw.edu.au/wps/wcm/connect/37df50f5-9057-4b87-8316-a91f17feb66f/VET%2BConstruction%2B11-12%2BSyllabus%2Bcomponent%2BPlan%2Band%2Borganise%2Bwork%2BPDF.pdf?MOD=AJPERES&CVID=).

The following extract is taken from Syllabus Part B, [Mandatory units of competency ‘Plan and organise work. ©](https://educationstandards.nsw.edu.au/wps/wcm/connect/37df50f5-9057-4b87-8316-a91f17feb66f/VET%2BConstruction%2B11-12%2BSyllabus%2Bcomponent%2BPlan%2Band%2Borganise%2Bwork%2BPDF.pdf?MOD=AJPERES&CVID=) [[2019 NSW Education Standards Authority (NESA) for and on behalf of the Crown in right of the State of New South Wales.](https://educationstandards.nsw.edu.au/wps/wcm/connect/37df50f5-9057-4b87-8316-a91f17feb66f/VET%2BConstruction%2B11-12%2BSyllabus%2Bcomponent%2BPlan%2Band%2Borganise%2Bwork%2BPDF.pdf?MOD=AJPERES&CVID=)](https://educationstandards.nsw.edu.au/wps/portal/nesa/mini-footer/copyright)

Required knowledge for this unit is:

* work activity that needs to be planned and organised
* work safety, environmental and quality requirements
* workplace personnel that are to be involved in planning and organising tasks
* workplace reporting requirements.

## Key terms and concepts

### You can use the following information to revise the key terms and concepts from this unit of competency. Perhaps you could:

* Copy the table into your own file, remove all the key terms, then fill in the blanks (without peeking at the original file) with your own answers.
* Copy the table into your own file and remove the definitions. Write a definition in your own words – it doesn’t have to word perfect but should show you understand the concept.
* You could add an example of this term or concept relevant to the construction environment. If the key term was ‘Gantt chart’ your construction example might be ‘The builder distributed the construction schedule, in the form of a Gantt chart, to all of the contractors at the beginning of the project’,

## Constructing a mind map

Creating a mind map is a great way to organise your knowledge and understanding of the content of a topic.

* draw up your own mind map showing the connection between the various concepts listed
* use the key terms and concepts to add to your mind map
* add examples or case study prompts to show how the concept is applied in the construction working environment

You could use software such as a hierarchy chart, download ‘MindNode’ or similar or use a large sheet of paper (or several A4 sheets taped together)!

It is important to try to include all the detail you can, so add definitions, case studies or examples to prompt your memory. Include the information downloaded from the unit of competency and also from the Scope of Learning and Key Terms and Concepts.

|  |  |
| --- | --- |
| Key term or concept | and Definition |
| Coordination | The organisation of the different elements of an activity so as to enable them to work together effectively. |
| Communication | The imparting or exchanging of information through verbal and/or non-verbal forms. |
| Construction Schedule | A schedule that outlines each step in a prescribed order and when it should start and be completed by, to allow the next step to begin. A successful schedule ensures all steps are completed in a timely manner, while minimising delays and completing the construction project on or before time. |
| Consultation | The action or process of consulting or discussing a topic between parties. |
| Daily Work Routines | A plan of tasks that need to be completed throughout the day. Usually completed in a specific order. |
| Environmental Requirements | Laws and requirements relating to human, health, safety and protection of the environment. |
| Formal | Completed in accordance with convention or etiquette; official; structures; a set of rules. |
| Gantt Chart | A chart in which a series of horizontal lines shows the amount of work to be completed, when it is to start, its duration and completion date. |
| Informal | Relaxed, friendly, casual. Not in an official or formal context. |
| Planning | The process of making plans or arrangements in advance |
| Prioritisation | The action or process of deciding the importance of one thing over another. |
| Procedure | An official way of doing things; a series of actions conducted in a certain order or manner. |
| Project / Site Safety Plan | A WHS plan specific for a project / site. A plan outlining safety procedures and protocols for evacuating the site, working in a high risk environment and working in a public space. |
| Negotiation | A discussion aimed at reaching an agreement. |
| Objectives | A thing aimed at or sought; a goal; a target. |
| Organising | To arrange systematically, in an order; To coordinate activities. |
| Quality Assurance | The maintenance of a desired level of quality in a service or product. |
| Quality Requirements | Outlines the required quality of the various elements of the project – material, contractors, work and the expectations of the customer. |
| Recording | The action or process of writing or documenting actions and / or processes. To state or set down publicly or officially. |
| Reporting Procedures | The process that is followed in the reporting of an incident. |
| Safe Work Practice | These include identifying potential hazards, training and inducting staff, ensuring all staff use the appropriate Personal Protective Equipment and ensuring that all equipment is properly maintained. |
| Specifications | A document outlining details relating to materials and quality of work, quality assurance, nominated subcontractors, provision of site access / facilities, material types, standards of work, tolerances, treatments and finishes. |
| Targets | An objective or result towards which efforts are directed. |
| Task / Work Requirements | Specific requirements in relation to a task or work procedure. |
| Time Frames | A specified period of time in which something occurs or is planned to take place. |
| Work Sequencing | To arrange work tasks in a particular order. |
| Workplace Documentation | Documents specific to the workplace or project. |
| Workplace Personnel | Personnel specific to the workplace. |
| Workplace Reporting | The reporting procedures for a specific worksite or workplace. |

# Activities

Answer the following questions on your own paper or enter text between the questions.

You may find it easier to print out some pages, for example the ‘steps in construction’ or the ‘Gantt chart’.

1. What are the benefits of good planning within the construction industry?
2. What are some of the impacts of poor or no planning within the construction industry?
3. What are some ways work instructions can be given or received?
	1. Verbal
	2. Non-Verbal
4. What are some methods or items you can use to record information in the planning of a construction job?
5. When preparing to complete a task, what do you need to consider?
6. Who should be consulted when planning a task on a construction site?
7. Why is consultation important when planning a task on a construction site?
8. What environmental considerations need to be made when planning a task on a construction site? Separate your answer into the following stages.
	1. Site establishment
	2. Throughout construction
	3. Job completion
9. What safety requirements need to be considered when planning a task?
10. Name some of the WHS documents that can be used when planning a task on a construction site?
11. Why do we sequence work?
12. Refer to the following construction steps for a standard single storey house and, use the table on the next page to place them in the correct sequence.

|  |  |
| --- | --- |
| Steps in Construction |  |
| Lay flooring – Timber laminate and carpet | Carpenter – Setout house frames, Erect house frames and Roof Trusses |
| Install fascia and gutter | Install waterproofing membrane to all wet areas |
| Lay tiled roof | Plumber, Electrician & Air Conditioning Internal services rough in (Pipes, Cables, Ducting) |
| Plumber – Finish Off (Install Toilets, Taps and Showers) | Hand over project |
| Install Kitchen, Bathroom & Laundry joinery | Site Establishment – Temporary Fences, Signage, Toilet, Temp Power) |
| Excavate site in preparation for the concrete slab | Carpenter – Fixout (Install door jambs, doors, architraves and skirtings) |
| Electrician – Finish Off (Install Lights, Fans, Power Points and Switches) | Plumber & Electrician - Groundworks |
| Plasterer – Sheet walls in plasterboard, set all joints and install cornice | Pour concrete slab & allow for curing |
| Install remaining appliances and fixtures | Install insulation in ceiling and walls |
| Form up house slab, install waffle pod system and lay reinforcement for concrete slab | Air Conditioning – Finish Off (Install Vents, Sensors and Switches) |
| Painting – walls, ceiling and timberwork | Install Windows and Wall Sarking |
| Floor Tiler - Tile bathrooms and Laundry | Lay brickwork |

|  |  |  |
| --- | --- | --- |
|  | Steps in Construction  | Duration |
| 1 |  | ½ week |
| 2 |  | ½ week |
| 3 |  | ½ week |
| 4 |  | 1 week |
| 5 |  | ½ week |
| 6 |  | 1 week |
| 7 |  | ½ week |
| 8 |  | ½ week |
| 9 |  | ½ week |
| 10 |  |  1 week |
| 11 |  | 1 week |
| 12 |  | ½ week |
| 13 |  | 1 week |
| 14 |  | 1 week |
| 15 |  | ½ week |
| 16 |  | ½ week |
| 17 |  | 1 week |
| 18 |  | 1½ weeks |
| 19 |  | ½ week |
| 20 |  | ½ week |
| 21 |  | ½ week |
| 22 |  | 1 week |
| 23 |  | ½ week |
| 24 |  | 1 Day |

1. Using the information from the table above, program the job using the Gantt chart on the next two pages.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Week 1 | Week 2 | Week 3 | Week 4 | Week 5 | Week 6 | Week 7 | Week 8 | Week 9 | Week 10 | Week 11 | Week 12 | Week 13 |
| Site Establish |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Hand Over Project |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

1. From the above construction program, choose three of the trades and the tasks they undertake. Fill out the table with the materials, tools and equipment required and the procedures to follow to complete the task. The table will grow as you enter text.

|  |  |
| --- | --- |
| Trade 1 |  |
| Trade: |  |
| Tools and equipment: |  |
| Materials: |  |
| Procedure: |  |

|  |  |
| --- | --- |
| Trade 2 |  |
| Trade: |  |
| Tools and equipment: |  |
| Materials: |  |
| Procedure: |  |

|  |  |
| --- | --- |
| Trade 3 |  |
| Trade: |  |
| Tools and equipment: |  |
| Materials: |  |
| Procedure: |  |

1. What are some circumstances that would impact on the progress of a project?
2. Why is it important to meet deadlines on a program?
3. What are some ways to improve efficiency when completing your task within the project?
4. What can be the impact of speed in terms of quality?
5. What is the importance of recording job specific information?
6. At the completion of a task, who do you report to and why?
7. Why is it important to reflect on your work once you have completed it?
8. What considerations need to be taken when organising the clean-up of a project?

# Putting the theory into practice

The following questions are from past years’ NSW HSC examination papers for this subject. HSC exams are intended to be rigorous and to challenge students of all abilities. To better understand a question, you should look for key words and identify the aspect of the course to which these relate. You are then in a position to formulate your answer from relevant knowledge, understanding and skills.

All questions in ‘Putting the theory into practice’ are acknowledged © [2019 NSW Education Standards Authority (NESA) for and on behalf of the Crown in right of the State of New South Wales.](https://educationstandards.nsw.edu.au/wps/portal/nesa/mini-footer/copyright)

### Multiple Choice

1. What does a work plan include?
	1. Costings, materials and suppliers
	2. Council approval to commence work
	3. A list of tools, equipment and reporting procedures used on site
	4. An overview of safety equipment and a work method statement for each task
2. What is the main purpose of work sequencing?
	1. To use qualified tradespeople
	2. To organise and carry out a task
	3. To delegate roles to each individual on site
	4. To develop a Safe Work Method Statement
3. What is the first task a site manager should undertake at the beginning of each day?
	1. Plan the day
	2. Check the tools
	3. Review the project budget
	4. Conduct a toolbox meeting
4. What is the clearest way to communicate a work sequence?
	1. Checklist
	2. Database
	3. Gantt chart
	4. Column chart
5. The construction of a new building involves coordinating the work of many different trades. What would be the correct sequencing of trades for constructing a new building efficiently?
	1. Concreters, roofers, plasterers, carpenters
	2. Concreters, carpenters, roofers, plasterers
	3. Concreters, formworkers, carpenters, plasterers
	4. Formworkers, concreters, plasterers, roofers
6. Which of the following is the best method of communicating a change to an emergency evacuation procedure?
	1. Staff rosters
	2. Work schedule
	3. Tool box meetings
	4. Safe Work Method Statement
7. What is the first step in good planning of a construction task?
	1. Check that tools are available
	2. Pre-order materials to avoid delays
	3. Break the job down into simple steps
	4. Confirm the cost of labour and availability of workers

### Questions from Section II

These questions should be answered in the suggested number of lines (handwritten in the exam) as it gives a guide to the length of your response.

Plan out your answer and key points before you commence writing.

You may need to bring together knowledge from several areas of study/competencies to do justice to the answer.

Question 1

A trench, five metres in length, for stormwater pipes is to be excavated by hand across a pedestrian pathway.

What actions should be taken prior to beginning the excavation? (6 marks)

Question 2

* 1. Outline TWO types of work a carpenter would do on a residential construction site. (2 marks)

* 1. Describe the purpose of ONE checklist that could be used by a carpenter wanting to produce high-quality work. (2 marks)

* 1. Explain factors that could affect the planned progress of a carpenter on a construction site. (6 marks)

Question 3

Describe the benefits of a mandatory site induction for an employee. (4 marks)

### Questions from Section III

In the HSC –

* there will be one structured extended response question (15 marks)
* the question will have an expected length of response of around four pages of an examination writing booklet (approximately 600 words)

### Questions from Section IV

In the HSC –

* there will be one structured extended response question in Section IV (15 marks).
* the question will have two or three parts, with one part worth at least 8 marks
* the question will have an expected length of response of around four pages of an examination writing booklet (approximately 600 words) in total.

This will provide you with the opportunity to:

* demonstrate knowledge and understanding relevant to the question
* communicate ideas and information using relevant workplace examples and industry terminology
* present a logical and cohesive response

You will note that these questions usually require you to bring together knowledge from several areas of study/competencies to do justice to the answer. You should allow about 25-30 minutes for a question in Section III and the same for Section IV of the exam.

In each of the following, map out your answer using post-it notes or a sheet of paper. Pay particular attention to incorporating a variety of aspects of your Construction curriculum into the plan. Consider why we have included this question within this ‘**Plan and organise work’** module and what other areas of study you would need to draw upon.

Question 1 (15 marks)

Using examples, explain the benefits of using a work schedule in the construction industry.

Question 2 (15 marks)

Describe actions that can be taken to control waste management and reduce hazardous threats to waterways, neighbouring properties and roads and site amenities when working on a building site.

Question 3 (15 marks)

Explain the environmentally sustainable work practices a builder should use on a construction site. In your answer, consider the following:

• materials

• equipment

• legislation and regulations.

Question 4:

Students were asked to answer Part a) and Part b) in separate writing booklets.

You have been asked by a client to build a new timber fence 1.8 metres high and 15 metres long.

A typical fence panel and section are shown (NOT to scale).



* 1. Outline the tools and equipment needed to construct the fence (5 marks)
	2. Describe a method, from beginning to end, for constructing a high-quality fence. (10 marks)

Question 5

Use the following document to answer part (a) and (b).



1. Identify the type of document shown and describe its use in planning a large-scale construction project. (6 marks)
2. Explain why it is necessary to use different modes of communication in the construction project described in the document above. (9 marks)

Question 6

The photographs show two stages of construction for a residential building.

1. Describe how to organise the ordering and delivery of TWO different building materials for the building shown. (6 marks)
2. Explain the scope of work and sequencing required for FOUR different trades involved in the construction of the residential building shown. (9 marks)



|  |  |  |
| --- | --- | --- |
|  | Answers to Q12 Steps in Construction  | Duration |
| 1 | Site Establishment – Temporary Fences, Signage, Toilet, Temp Power) | ½ week |
| 2 | Excavate site in preparation for the concrete slab | ½ week |
| 3 | Plumber & Electrician - Groundworks | ½ week |
| 4 | Form up house slab, install waffle pod system and lay reinforcement for concrete slab | 1 week |
| 5 | Pour concrete slab & allow for curing | ½ week |
| 6 | Carpenter – Setout house frames, Erect house frames and Roof Trusses | 1 week |
| 7 | Install fascia and gutter | ½ week |
| 8 | Lay tiled roof | ½ week |
| 9 | Install Windows and Wall Sarking | ½ week |
| 10 | Lay Brickwork |  1 week |
| 11 | Plumber, Electrician & Air Conditioning - Internal services rough in (Pipes, Cables, Ducting) | 1 week |
| 12 |  Install insulation in ceiling and walls | ½ week |
| 13 | Plasterer – Sheet walls in plasterboard, set all joints and install cornice | 1 week |
| 14 | Carpenter – Fixout (Install door jambs, doors, architraves and skirtings) | 1 week |
| 15 | Install waterproofing membrane to all wet areas | ½ week |
| 16 | Install Kitchen, Bathroom and Laundry joinery | ½ week |
| 17 | Floor Tiler - Tile bathrooms and Laundry | 1 week |
| 18 | Painting – walls, ceiling and timberwork | 1½ weeks |
| 19 | Plumber – Finish Off (Install Toilets, Taps and Showers) | ½ week |
| 20 | Electrician – Finish Off (Install Lights, Fans, Power Points and Switches) | ½ week |
| 21 | Air Conditioning – Finish Off (Install Vents, Sensors and Switches) | ½ week |
| 22 | Lay flooring – Timber laminate and carpet | 1 week |
| 23 | Install remaining appliances and fixtures | ½ week |
| 24 | Hand over project | 1 Day |