

Student workbook

MSL913004

Plan and conduct laboratory/field work

­

**TAFE NSW would like to pay our respect and acknowledge Aboriginal and Torres Strait Islander Peoples as the Traditional Custodians of the Land, Rivers and Sea. We acknowledge and pay our respect to the Elders, both past and present of all Nations.**

Version: 1.0

Date created: 06/05/2019

Date modified:

For queries please contact:

Innovative Manufacturing, Robotics and Science

© NSW TAFE Commission 2018  
RTO Provider Number 90003 | CRICOS Provider Code: 00591E

This resource can be found in the TAFE NSW Learning Bank.

The content in this document is copyright © NSW TAFE Commission 2018, and should not be reproduced without the permission of the TAFE NSW. Information contained in this document is correct at time of printing: 24 February 2020. For current information please refer to our website or your teacher as appropriate.

Contents

[Icon legends 4](#_Toc33446375)

[1. Plan and organise daily work activities 6](#_Toc33446376)

[Clarify allocated work activities and resources 6](#_Toc33446377)

[Prioritise work activities as directed 8](#_Toc33446378)

[Break down work activities into small achievable components and efficient sequences 9](#_Toc33446379)

[Review work plan 11](#_Toc33446380)

[Update work plan and communicate changes 12](#_Toc33446381)

[2. Complete allocated work 19](#_Toc33446382)

[Locate relevant workplace procedures for required tasks 19](#_Toc33446383)

[Following instructions to undertake work task(s) 20](#_Toc33446384)

[Seek assistance from relevant personnel when difficulties cannot be handled 21](#_Toc33446385)

[Record completion of activities to confirm outputs in accordance with plan 23](#_Toc33446386)

[3. Identify and resolve work problems 27](#_Toc33446387)

[Recognise opportunities for improved work performance 27](#_Toc33446388)

[Apply agreed problem solving strategies 29](#_Toc33446389)

[Work team conflict 30](#_Toc33446390)

[Identify and access appropriate sources of help 32](#_Toc33446391)

[Consider available alternatives 33](#_Toc33446392)

[4. Work in a team environment 36](#_Toc33446393)

[Cooperate with team members 36](#_Toc33446394)

[Work team function and types 36](#_Toc33446395)

[What makes a successful team? 39](#_Toc33446396)

[How work teams reach agreement 43](#_Toc33446397)

[Recognise personal abilities and limitations 44](#_Toc33446398)

[Confirm personal role and responsibility 45](#_Toc33446399)

[Roles within teams 46](#_Toc33446400)

[The leadership role 49](#_Toc33446401)

[Demonstrate sensitivity to the diversity of the team 50](#_Toc33446402)

[5. Update knowledge and skills as required 53](#_Toc33446403)

[Recognise own strengths and weaknesses 53](#_Toc33446404)

[References 58](#_Toc33446405)

[Image attributions 59](#_Toc33446406)

[Document checklist 60](#_Toc33446407)

# Icon legends

| Icons | Descriptions |
| --- | --- |
|  | **Practice activity**  Learning activities are the tasks and exercises that assist you in gaining a clear understanding of the content in this workbook. It is important for you to undertake these activities, as they will enhance your learning.  Activities can be used to prepare you for assessments. Refer to the assessments before you commence so that you are aware which activities will assist you in completing your assessments. |
|  | **Collaboration**  Whether you discuss your learning in an online forum or in a face-to-face environment discussions allow you to create and consolidate new meaningful knowledge. |
|  | **Self-check**  A self-check is an activity that allows you to assess your own learning progress. It is an opportunity to determine the levels of your learning and to identify areas for improvement. |
|  | **Readings (Required and suggested)**  The required reading is referred to throughout this Student workbook. You will need the required text for readings and activities.  The suggested reading is quoted in the Student workbook, however you do not need a copy of this text to complete the learning. The suggested reading provides supplementary information that may assist you in completing the unit. |

Topic 1

Plan and organise daily work activities

# Plan and organise daily work activities

## Clarify allocated work activities and resources

Throughout the shift or workday tasks may be performed as part of a team but there may be other functions which are performed as an individual such as:

* equipment calibrations
* testing
* sampling
* routine laboratory/field operations
* process or equipment changes
* housekeeping
* completing reports.

Even though work may be carried out in complete isolation without direct supervision, you are still part of a team. If difficulties are encountered, assistance should be sought from your laboratory supervisor before completing the task(s).

### Equipment calibration

Routine work may involve calibrating/maintaining test equipment and instruments to ensure acceptable results.



Figure 1.1 – pH meters need to be calibrated so that they work within an expected range. © TAFE NSW

### Testing

Testing is a key function performed by a laboratory technician where it is necessary to check product and process parameters for reliability, quality and performance.

### Sampling

Sampling is required so that the quality or characteristics of various process materials can be determined. The technician/sampler must take samples on a routine periodic basis or when directed.

### Routine lab operations

Lab operations are general tasks that keep the lab running where such tasks may be making up solutions or re-stocking chemicals.

### Maintenance and cleaning tasks

Maintaining a clean and tidy work area is a common duty performed in the laboratory. It assists in the efficient and safe performance of tasks and activities performed there. Standards may vary according to the type of work performed.

### Inspections

Laboratory inspections are performed by a laboratory technician, supervisor or designated inspection group on a routine basis so that housekeeping non-conformities are detected and action is commenced as soon as possible. Some types of inspections are performed by outside organisations as part of regulatory requirements and in order to maintain accreditation and/or registration.

### Completing reports

All test results and equipment calibrations need to be recorded in test reports, logbooks or other appropriate documents. Action may need to be taken such as notifying supervisors or production personnel of any out-of-target results.

All of these activities should be clarified. This may mean checking:

* Standard Operating Procedures (SOPs)
* procedure or protocol sheets/manuals
* job cards
* batch cards
* production schedules
* position or job descriptions.

A further level of clarification can be sought from your laboratory supervisor.

The resources (buffers, chemicals, personnel and other equipment) required for each activity can also be clarified by reference to the above documentation, or further clarification sought from your laboratory supervisor.

|  |  |
| --- | --- |
| Practice activity icon | Activity 1.1 – Workplace activities |

1. *List four work activities that you carry out at your laboratory. For each activity, list how you can clarify the task and any resources required.*

## Prioritise work activities as directed

Some tasks have to be performed at specific times. Other jobs will be the result of someone else’s work (perhaps even another member of your team). Although these tasks will be a fixed part of your day there will also be some things that you will need to prioritise. Developing sound work routines helps with efficiency, saving you time and minimising stress.

Your laboratory supervisor may specifically instruct you on which tasks are to be prioritised. Alternatively, SOPs or protocols for particular operations or tasks may list or be coded to relate the priority assigned to them.

Usually, samples to be processed or tested or order forms that come with them may indicate the priority and may be marked ‘urgent’.

|  |  |
| --- | --- |
| Practice activity icon | Activity 1.2 - Prioritising routine tasks |

1. *Prepare a list of some of the tasks you perform at your laboratory. For each task, how do you determine what priority these tasks are given?*

## Break down work activities into small achievable components and efficient sequences

It is helpful when organising the day to break tasks down into small achievable steps. Complex operations such as the setting up and packing away of equipment are made more manageable and safer, with less likelihood of missing important steps.

At times the work flow will be sequential, meaning that some tasks cannot be started until another is completed. For example, testing of samples cannot begin until the standard solutions have been prepared and the testing equipment calibrated.

Breaking large tasks into smaller manageable tasks is also helpful where a large task requires more than one day to be completed. The smaller tasks can be more easily scheduled to be completed within allocated work time.

For example, Table 1.1 shows the steps involved in preparation of a fixed specimen of tissue for microscopic examination. The time required for some stages of the process may be up to 24 hours. By describing the process in terms of each step and breaking the task into smaller and more manageable components the process should become more efficient and manageable.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Time  (hrs)**  **Task** | **02** | **04** | **06** | **08** | **10** | **12** | **14** | **16** | **18** | **20** | **22** | **24** |
| Fixation |  |  |  |  |  |  |  |  |  |  |  |  |
| Dehydration |  |  |  |  |  |  |  |  |  |  |  |  |
| Embedding |  |  |  |  |  |  |  |  |  |  |  |  |
| Sectioning |  |  |  |  |  |  |  |  |  |  |  |  |
| Staining |  |  |  |  |  |  |  |  |  |  |  |  |

Table 1.1 Specimen preparation for microscopic examination and allocated time.

|  |  |
| --- | --- |
| Practice activity icon | Activity 1.3 – Achieving tasks |

1. *Choose two tasks performed in your laboratory. Show how you could break each of the tasks into small achievable steps.*

## Review work plan

It is important to be able to change our work plan in response to particular occurrences. You must ensure that the work plans are kept within the operational constraints of the laboratory, otherwise a problem could arise.

Work plans are based upon information known at the time and possible conditions in the future. An unforeseen event or operational constraint, however, may mean the work plan cannot be commenced or maintained.

This may occur when:

* equipment breaks down or malfunctions
* interruptions to supply and quality of consumables take place
* environmental/occupational health & safety issues arise
* atmospheric conditions alter
* changes in customer requirements arise
* your laboratory supervisor instructs you to alter procedures or processes
* a request is marked ‘urgent’.



Figure 1.2 – Equipment breakdown (such as the autoclave used to sterilise equipment and treat contaminated wastes) can cause a change in a schedule or plan. © TAFE NSW

When changing needs or conditions are identified, it is essential that the implications of these are discussed with your laboratory supervisor and a decision made whether to proceed. It may mean that to continue with present practices, output may have to be reduced, or the time for completion may be delayed. Other process or equipment parameters may need to be changed so that output and/or quality is maintained. Alternatively, assistance from other groups may be required in order to complete the required tasks.

|  |  |
| --- | --- |
| Practice activity icon | Activity 1.4 – Reviewing tasks and priorities |

1. *List three examples from your workplace where tasks and priorities are reviewed due to changing needs or laboratory conditions.*

## Update work plan and communicate changes

Whenever changes to work plans are received, it is essential that the changes are recorded. Updating your work priority list and ensuring that subsequent shifts and/or other workgroups do not use the old work plans is important as the use of old work plans could result in major problems.

Changes to work plans must also be communicated to personnel in other sections of the workplace that may be affected by the change(s). You should consider groups that:

* use the equipment/reagents/buffers
* perform maintenance and/or testing.

It is also important to remember that changes in work plans may have an impact on laboratory OHS. You should also notify your safety officer and any other relevant personnel.

|  |
| --- |
| **PRIORITY LIST** |
| Organise service of equipment  Set up tests in new laboratory  Check equipment has been serviced.  Record results. |

### Updated priority list

The proposed changes to work plans must be recorded in the appropriate reports, such as process area logs, project reports and maintenance reports.

A handover meeting should be organised and used to communicate changes to work plans to the incoming personnel.

### Ensuring legal concerns are planned and managed

Most of the work that you perform could be linked to some legislation, whether it be public health or environmental. If this is the case, then that statutory requirement must be met in your work.

Usually, these requirements are built into the operating model of your organisation, such as safety being managed through use of procedures, but other times it requires a different approach (such as an ‘ad hoc’ style for a ‘one off’ job).

#### Ensure personal safety and that of others

Safety in the workplace is paramount to you, your workmates and the general public. Staying safe involves a number of considerations that you need to keep in mind whenever you walk onto your worksite. These are:

* follow the rules, and
* wear and use the appropriate personal protective equipment (PPE).

Following the rules or “following established work practices” is a normal process in many walks of life. Drivers follow the road rules (established work practices) and also use appropriate PPE – seat belts, air bags, proper footwear, etc.

You will usually find out about the work practices in a number of ways. These include:

* verbally on induction
* in printed form on induction
* verbally from your fellow workers
* from signs and notices in the workplace
* from written instructions and SOPs

#### Minimise environmental impacts of sampling and generation of waste

The modern world now has an emphasis on the environment, waste management, recycling, pollution and similar matters. Your workplace is no different, and as you go about your work collecting site samples you should keep the following factors in mind:

* What environmental impacts will my work have?
* How can I minimise these impacts?
* What waste will be generated as a result of my samplings?
* How can I minimise this waste?

The process is relatively simple and can be summed up in a number of steps:

* Identify all environmental impacts and waste generation situations.
* Think of ways to reduce these factors without compromising the accuracy of the sampling.
* Replace any dangerous aspects if possible.
* Reduce the amount/number/size of dangerous reagents, equipment, wastes, etc.
* Reuse materials if possible.
* Bring wastes and left over materials back with you. Do not leave them on-site.

What would you do in the following situations to minimise impacts and reduce waste. Think of all possible changes, even unusual ones.

* The current reagent being used is arsenic-based.
* The methodology requires a one metre cubed hole to be dug in a lawn covered area.
* Birds are collected by shooting them.
* You need to access a high alpine area to collect fragile plant specimens from around a high tension pylon.
* The petroleum sampling port always leaks about 5 litres on the ground because of a faulty seal.
* The measuring process produces a lot of consumable waste items that are buried on site.

#### Legal issues

What the law says about the clean-up and disposal of your sampled material is an issue. Your equipment, containers, work area and processing tools may be contaminated, and unused sample may be left over. In the case of human tissues and related samples, which may be diseased and contagious, disposal is carefully regulated. Radioactive or highly toxic pharmaceutical or mineral materials have similar restrictions. All materials that can lead to a breach of Commonwealth and state laws, (for example, OH&S, Dangerous Goods, Environmental Penalties and Offences Acts are subject to legal controls).

What are you going to do to ensure legal compliance?

In all cases, you must follow the set procedure for that particular sample. Each sample will have had its dangers assessed and the necessary disposal, cleaning and protective measures described in the disposal procedure.

#### Environmental issues

Disposal can also have an impact on your immediate and remote environment. Remember that environment includes living and non-living aspects of the air, water and land around us. It includes timescales that start from now and extend indefinitely into the future. Environmental problems and effects may be caused by well understood chemical and biological processes as well as completely unknown and poorly understood ones. Your workplace will have investigated potential environmental dangers and developed strategies to deal with them.

In all cases, you must follow the set procedure for that particular sample. Each sample will have had its dangers assessed and the necessary disposal, cleaning and protective measures described in the disposal procedure.

|  |  |
| --- | --- |
| Practice activity icon | Activity 1.5 - Communicating changes |

1. *Using three examples from your laboratory, explain why it is necessary to communicate any changes to work plans to appropriate personnel.*

|  |  |
| --- | --- |
| Practice activity icon | Activity 1.6 – Adapting to tasks |

### Scenario 1

#### The background:

*You work as a food laboratory assistant in a milk factory. There are four other members of your work team. The other members include two other laboratory assistants and two laboratory technicians. An industrial dispute has given rise to a backlog in production at the milk factory. The whole laboratory work team has been working late.*

*Last week, a breakdown in procedure allowed a batch of your company’s product (a perishable flavoured yoghurt) to leave the factory before the test results had been seen by the bacteriologist. By the next morning, when the bacteriologist discovers that the bacteria count is too high, the product was already on the supermarket shelves.*

*Your laboratory records could be subpoenaed if anyone gets sick and sues the company. This would reveal that the laboratory knew that the product was unfit for human consumption. The product was recalled immediately. There have not been any further developments yet.*

#### The problem:

*The bacteriologist calls a meeting of the laboratory work team to find out:*

* *how the breakdown in procedure occurred*
* *what can be done to prevent a similar occurrence in the future.*

#### The task:

1. *Before the meeting is called, you need to:*
   1. *Plan and write a memo to the members of the work team. They will need to know when, where and why the meeting is being called. The bacteriologist has asked that everyone come to the meeting prepared to offer suggestions for improving procedures.*
   2. *Write your own version of events to refer to in the meeting. Base this on what you saw happen when the breakdown occurred.*

### Scenario 2

#### The background:

*You work as a laboratory assistant in the local water quality and testing authority. There are four other members of your laboratory work team. They include two other laboratory assistants and two laboratory technicians.*

#### The problem

*Your shift has just finished and it is time for you to fill out the job diary. On your shift you:*

* *placed a purchase re-order*
* *did three loads in the sterilising autoclave*
* *put these loads away*
* *received a request for sample containers from another section (you have not yet filled this request)*
* *had a chemical spill*
* *received a phone-call from one of the team members to organise a birthday celebration after work*
* *noted that the protective clothing supplies are running low.*

#### The task:

*You need to:*

1. *Record in a job diary, or log book, entries explaining what happened during the shift.*
2. *Plan and write a memo of anything that the other members of the work team might want to know, but that you would not record in the job diary, or log book.*
3. *Draft a request (e-mail or letter) to a glassware supplier asking them to send a copy of their price list. You have been asked to do this because your laboratory supervisor thinks the supplier that the company is using may not be competitive.*
4. *Plan and write a report on the chemical spill. You may use your usual laboratory documentation. Include a flow chart of the process that your laboratory follows.*

Topic 2

Complete allocated work

# Complete allocated work

## Locate relevant workplace procedures for required tasks

### Operating procedures and quality manuals

It is important in a laboratory that everyone knows exactly how to carry out the work routines. This ensures that all work meets the safety, environmental and quality standards needed to comply with legislation and laboratory or company policies. It is usual that for all work routines there are set procedures and quality requirements to be followed.

The quality manuals specify the quality standards required for a particular operation or result. For example, a refrigerator may have to be within one degree of –5°C.

The Standard Operating Procedure (SOP) in your laboratory will have been developed for the tasks that are required to be carried out. These SOPs will tell you how to safely complete your work and should be in accordance with relevant OHS legislation.

|  |  |
| --- | --- |
| Practice activity icon | Activity 2.1 – Operating procedures and quality |

1. *Locate your laboratory SOP and quality manual.* 
   1. *List the tasks that you perform in your job role which are found in these documents.*
   2. *Are there tasks/duties that you perform that are not in these documents? Why?*

## Following instructions to undertake work task(s)

In your laboratory you may encounter tasks that are prescribed in the plan or schedule and others that are routine in nature which may be outlined in the relevant SOP.

Employees need to take account of these prescribed and routine tasks, prioritising them according to operational requirements and work schedules at the time.

Examples of prescribed tasks are:

* operation of equipment
* calibration
* methods for tests
* interpretation of results.

Examples of routine tasks are:

* laboratory area checks
* housekeeping
* taking samples
* checking safety equipment
* recording test results.

A prescribed task may require many steps, such as the shutdown and decommissioning of equipment for maintenance or turnaround, as outlined in the plan or SOP.

Some prescribed tasks may take several days to complete, therefore these tasks will need to be managed efficiently and effectively to ensure each step is safely completed before starting the next work phase.

A priority list or a ‘things to do today’ list should be used to accommodate prescribed work into the normal routine activities. If there is a conflict with any work activity, your laboratory supervisor or other appropriate person should be notified to resolve these issues.

It is important to remember that when you are in the field performing tests, collecting samples and transporting equipment that you need to have copies of the relevant documentation available.

|  |  |
| --- | --- |
| Practice activity icon | Activity 2.2 – Maintaining work areas |

1. *Identify and list tasks you perform related to maintaining work areas.*

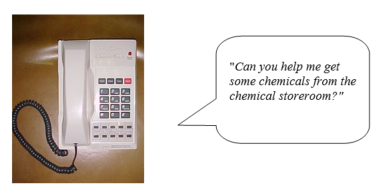
1. *Indicate which tasks are prescribed and which are routine work-related sequences.*

## Seek assistance from relevant personnel when difficulties cannot be handled

You must be able to seek assistance from the appropriate personnel when difficulties arise in the course of your duties. Difficulties may arise from a particular task or breakdown of equipment, where the required outcomes cannot be maintained or quality may be affected. Generally, you should be able to obtain assistance from personnel such as:

* the quality officer
* a supervisor or senior laboratory staff
* other laboratory staff
* the safety officer
* maintenance personnel
* scientists/product specialists.

If the problem is immediate, try to contact these personnel directly for immediate assistance, otherwise contact them by telephone, e-mail or other workplace communication system.

Figure 2.1 - Effective communication between all sections in the laboratory and related departments outside the laboratory is essential for smooth operations. © TAFE NSW

You are usually required to inform the senior technician or relevant laboratory supervisor of any difficulties that may arise and any immediate actions, so that they are kept informed of events.

Inexperienced employees should always notify the relevant person first and discuss the situation with them.

It is important to notify the appropriate personnel of the exact nature of the difficulty so they can make informed decisions. Faulty instrument readings could be a reason to seek assistance from relevant personnel.

It may also be beneficial to contact other sections in your workplace to check if they are experiencing any difficulties. Problems in one area may be detected in other areas in the laboratory.

|  |  |
| --- | --- |
| Practice activity icon | Activity 2.3 - Who to contact when in difficulty |

1. *Who can provide assistance at your laboratory when difficulties arise?*
2. *Explain why it is sometimes necessary to contact people in other sections of your workplace when difficulties arise.*

|  |  |
| --- | --- |
| Practice activity icon | Activity 2.4 – Seeking help/assistance |

*A staff member is part of two work teams in a laboratory. Deadlines set by the two work teams often clash, so they are unable to get work done on time. The employee is the only person who is a member of both work teams.*

1. *In this example, outline how the staff member could attempt to resolve the problem and have the capacity to get work done by the deadlines.*

## Record completion of activities to confirm outputs in accordance with plan

All jobs involve some paperwork and you will probably find that your laboratory is no different. What is important to remember is that the paperwork associated with your job is a critical part of the work. Accurate paperwork is essential. Incorrectly completed paperwork is very costly.

In the case of sample tracking and recording, hours of experimental work could be wasted or someone’s life could be endangered, because the information on a sample is missing or incorrect.

These are some of the common types of paperwork that you are likely to find in a typical laboratory:

* sample tracking and recording
* records of consumables, stocks and supplies
* equipment logs
* lab logs and/or work sheets
* calibration/maintenance reports
* accident/incident reports.

|  |  |
| --- | --- |
| Practice activity icon | Activity 2.5 – Reports and records |

1. *List the types of records you are required to keep in your laboratory. What is the purpose of these records or reports?*

Recording all activities and events is important in experimental work as it allows all personnel to be informed of what actions have occurred during the workday. Understanding what tasks have transpired is also helpful to establish the cause of any problems that may arise. This assists other staff and the enterprise to ensure that such problems are not repeated.

Recording activities in a log book also helps other personnel on subsequent days. This information could possibly be forgotten and not passed on during a handover meeting, especially if they occurred some days ago.

Typically, information recorded should be:

* tasks performed
* condition of the equipment
* isolation of equipment (from energy sources)
* equipment taken out of service
* where work instructions were obtained
* time and date
* safety information relating to hazards associated with the tasks
* information regarding equipment being worked on — specify the equipment’s unique item number so you know which of several similar items was utilised for the testing and for matching to calibration reports
* personnel reported to for the task
* comments and observations
* changes to or deviations from plans, schedules, etc
* authority or signatory to change plans of the task
* present status of equipment and laboratory
* next step to be started.

The Standard Operating Procedures (SOP) should indicate what information should be recorded.

|  |  |
| --- | --- |
| Practice activity icon | Activity 2.6 – Recording activities |

*Below is an example of a service log for a spectrophotometer to determine the concentration of particular mixtures.*

*Examine the information provided below and determine;*

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Event** | **Comments** | **By** |
| 3/2/06 | Installation | Spectrophotometer Operative | Jane |
| 11/2/06 | Calibration | Spectrophotometer OK | Max |
| 18/2/06 | Calibration | Spectrophotometer OK | Colin |
| 25/2/06 | Calibration | Spectrophotometer OK | Colin |
| 27/2/06 | Routine service | Replaced lamp | Jane |
| 28/2/06 | Set-up and pre-use | Spectrophotometer not zeroing | Colin |
| 29/2/06 | Malfunction service | Re-aligned lamp | Jane |
| 30/2/06 | Calibration | Spectrophotometer OK | Colin |
| Today |  |  |  |

*Summary of records to be kept in this Service Log:*

* *set-up and pre-use checks: daily – only discrepancies recorded*
* *safety checks: daily – only discrepancies recorded*
* *calibration checks: weekly – details recorded*
* *Jane servicing: quarterly & malfunctions – details recorded.*

1. *If you should use the equipment today?*
2. *What would be recorded if the equipment was not functioning correctly?*
3. *If you can use the equipment today, fill in the details required.*

Topic 3

Identify and resolve work problems

# Identify and resolve work problems

## Recognise opportunities for improved work performance

The ability to recognise problems in your laboratory is an important skill. Recognition is a necessary step before you can take any corrective action. Problems in your laboratory may arise as a result of:

* regular equipment failure/breakdown
* inability of team members to communicate effectively
* poorly organised work areas
* dangerous or unsafe practices
* lack of resources.

|  |  |
| --- | --- |
| Practice activity icon | Activity 3.1 - Problems in the laboratory |

1. *List some of the problems that may occur in the laboratory. Group them into the categories listed. Are there any other categories that are appropriate for your laboratory:*
   1. *Equipment*
   2. *Procedures*

Problems in the laboratory or field usually impact directly on the ability to produce quality and achievable results, and can affect the expected work output(s). That is why it is important to detect them as early as possible.

In the same way, work practices (not necessarily problems) may also affect outputs and there may be opportunities to improve work performance.

Monitoring of work and/or expected output is a useful way of identifying problems that are occurring in the workplace. It is important to remember that some form of monitoring is required and that your laboratory may have these processes built-in to SOPs and procedures.

|  |  |
| --- | --- |
| Practice activity icon | Activity 3.2 - Identifying improvements in work |

1. *Identify and list two processes or procedures that you perform at your laboratory;*
2. *For each, prepare a flow chart of the relevant steps. Identify where problems may occur in each step and record possible ways of detecting and monitoring for problems.*

## Apply agreed problem solving strategies

It is important to report problems to your laboratory supervisor when they are detected. Sometimes you may be able to implement or take corrective action yourself. However, in many situations your laboratory may require you to notify appropriate personnel.

Once notified, your laboratory supervisor may consult with other personnel. For example, changing a particular work practice may require alteration to a SOP which may be a controlled document. In this case changes may only be made by designated personnel and in accordance with laboratory and/or regulatory guidelines.

|  |  |
| --- | --- |
| Practice activity icon | Activity 3.3 - Notification of problems |

1. *Locate your laboratory procedure for notification of problems or lowered output.*
2. *Who needs to be contacted when problems are detected? What (if any) follow up is required?*

It is important to remember that problems may arise via a number of different causes and that there may be a range of alternative solutions to any particular problem. Your SOPs and/or procedures may list common problems and possible solutions or steps to be taken in the event of a particular problem occurring. When the problem encountered is outside the range of any documentation, you should consult with your laboratory supervisor and note any strategies which you have employed. These may include:

* sequencing a process
* identifying and rectifying a problem step
* obtaining timely help
* implementing preventative strategies
* accessing relevant documentation (new and/or efficient processes and/or procedures.

It is through consultation with your laboratory supervisor that an agreed strategy may be implemented.

Remember that these strategies may relate to individuals within a team environment or to teams as a whole. You may need to consider any up-stream work (work performed on a sample before you processes it) that may contribute to problems that you encounter at your particular stage. It is useful to have an understanding of what processes occur in your laboratory and how they may impact your own or your team’s work.

## Work team conflict

Conflict and/or disagreement within a work team may cause problems and requires specific strategies to successfully resolve. Disagreement and conflict are inevitable in work teams and can be seen as necessary for any progress to be made. Conflict can be caused by a clash of opinions, values or needs. It can be positive and constructive, or negative and destructive, depending on the way team member’s deal with it.

Work team conflict is often feared but can be regarded as simply a stage on the way to success.

Most people would say that the main problem with working in teams is not solving the problems, but in dealing with the personalities. You probably regard conflict as a negative term, however it doesn’t need to be. Conflict is a means to bring about radical change. Sometimes the greater the conflict, the greater is the consensus once a decision is reached.

Nevertheless, for a work team to reach goals and objectives the team must cooperate and make decisions. Too much conflict produces negative feelings between members of the team, which can result in the destruction of the team.

There may be anger towards other team members or towards the team leader for various reasons – perhaps no guidelines have been provided or the team leader has made promises that cannot be fulfilled. Alternatively, the team members may feel overwhelmed by the task or the information they have been given or have gathered.

### Simple strategies for dealing with conflict

To help the work team avoid or get over conflict at the storming stage, the leader can do the following things:

* organise for the work team to have training to help them work together effectively (for example, study this module)
* only make promises that can be fulfilled
* share the leadership with other team members
* rotate among members the positions of minute-taker and chairperson
* have the minute taker write ‘action minutes’ as a means of keeping the work team on task.

Other strategies that could be used to cope with conflict at this stage would be to seek some small success as a team – perhaps a small introductory task. This would make the members feel they can work together successfully.

At this stage, conflicts should be dealt with openly. They should be acknowledged and identified, and attempts made to compromise and reconcile.

### Five approaches to managing conflict by negotiation

#### The ‘WIN/LOSE’ approach

This approach means you win and they lose. The focus is on winning at all costs rather than searching for the best solution.

When to use:

* for quick, decisive action in emergencies
* when unpopular changes need to be carried out
* when other approaches have been tried and failed
* when there is low trust among the members of the work team.

#### The ‘LOSE/WIN’ approach

This approach means you lose and they win.

When to use:

* when your relationship with other member(s) of the work team is more important than the issue
* when the issue is more important to the other member(s) of the work team than you
* when you want to show how reasonable you are.

#### The ‘LOSE/LOSE’ approach

This approach means that you and the other members of the work team choose to avoid the conflict.

When to use:

* if more time is required
* if you and the other members need time to cool off
* if you and the other members see the issue as trivial
* if others can resolve the conflict more effectively.

#### The trade-off ‘WIN/LOSE - LOSE/WIN’ approach

This approach involves trade-offs, swapping and flexibility.

When to use:

* when you and other members have equal power
* when it is necessary for you to maintain your relationship with other members and to at least partially achieve objective(s)
* to reach common ground when you and other members have competing goals.

|  |  |
| --- | --- |
| Practice activity icon | Activity 3.4 – Managing conflict |

1. *Describe a time when you used (or could have tried) the WIN/WIN approach.*

## Identify and access appropriate sources of help

Identifying appropriate sources of help depends upon the type of problem you encounter in your laboratory. For example, if there is an equipment malfunction or failure, the appropriate sources of help may include the SOP trouble-shooting section, the operation manual for the particular piece of equipment, a team member who has experience with the equipment, your laboratory supervisor or the supplier/product specialist/manufacturer of the equipment!

The initial source of help may be related to the severity of the problem. For example, you may not have operated the equipment correctly or used the correct sequence and you cannot find anything in the SOP or the operation manual which relates to the problem you are experiencing. However, contact with personnel familiar with the day-to-day operation of the equipment may resolve the problem quickly. If the problem cannot be solved at this level, it is likely that you will have to look at the next level of help (your laboratory supervisor or manager).

|  |  |
| --- | --- |
| Practice activity icon | Activity 3.5 – Sources of help |

1. *Select a procedure that you use at your laboratory and list it below;*
2. *Prepare a flow chart of the steps required. For each step, list the type(s) of problem(s) that may occur and what the appropriate source of help may be.*

## Consider available alternatives

A useful team technique in problem solving is called ‘brainstorming’. Brainstorming involves having a meeting. Your work group will sit around a table and each person in turn offers an idea. Nobody is allowed to criticise an idea. One person acts as the note taker and writes the ideas down.

In this way, the group may arrive at a number of alternative courses of action which may be available to solve a particular problem which has occurred. It is important that in discussions with either your work team or laboratory supervisor that you consider all available alternatives. Part of teamwork also involves being open to other points of view and this may be helpful when others contribute to discussions relating to alternatives and reaching agreement on the most appropriate course of action.

|  |  |
| --- | --- |
| Practice activity icon | Activity 3.6 - Alternative courses of action |

*At the start of the shift you check the tasks and priorities for the day. You are required to use an ELISA reader to detect the presence of a particular antibody in blood samples. You then turn on the ELISA and notice the display doesn’t light up. The ELISA gives no reading and you need to complete an analysis before the end of the day. The expected time for the service technician to come is later today and the work must be completed on time.*

|  |
| --- |
| **Job Sheet for ELISA Laboratory 1: Date: 3/9 Test samples 1, 2, 3 from Company B By 5.00 p.m. Test samples 4, 5, 6 from company X.** |

*As the equipment has malfunctioned, you should note the problem and action taken in the equipment log book.*

|  |
| --- |
| **ELISA laboratory 1 Log Book Date: 3/9 No display – called service, expected today** |

1. *To complete today’s tasks what should you do? What options do you have?*
2. *Your laboratory supervisor asks you to take the samples to the work area next door and complete the testing there. They have a different model ELISA reader from the one you are familiar with. What will you need to take with you? What will you need to check?*

Topic 4

Work in a team environment

# Work in a team environment

While individuals may be allocated certain tasks, the best method of working is to be part of a team where tasks, duties and responsibilities are shared equitably by the team to achieve a common goal through negotiation and agreed outcomes to meet timelines and priorities.

## Cooperate with team members

In the laboratory or in the field there will be tasks that will be carried out by:

* individuals
* work team(s)
* several teams involving personnel from other areas (such as safety or environmental control).

There are many team tasks such as:

* plant and laboratory operations
* plant or process planning
* communication and reporting
* daily operations
* start-ups and shutdowns
* turnaround and maintenance work
* emergencies and abnormal conditions.

However, most of the team activities will be between laboratory workers, production personnel and supervisors.

It is important to remember that being able to work with others is a critical ability in the laboratory environment. At some stage you will depend on others in order to achieve your required results or output and good communication skills will be vital.

## Work team function and types

Working in teams is one of the most powerful processes for getting things done in the modern workplace. Getting together to do a job is much easier and more efficient than doing it on your own.

### What is a work team?

A work team is made up of at least two people with the responsibility to complete a task/project or to reach a specified goal. The team members usually depend upon one another to complete the task or to reach the goal.

### What is a work group?

However, not all people who work together are in work teams. A work group may consist of any number of people who work in the same department or in the same location. From time to time, they may form work teams to focus on specific projects. For example, a pathology laboratory at a big hospital might have a work group of 18 staff members. Within the work group there might be four work teams, with some members belonging to more than one team.

Within your own team, there must be an awareness of the importance of timelines and priorities. When these are clearly understood by all members, then hopefully, the outcome(s) and/or output(s) are achieved. Good negotiation skills may be required in order to achieve required outcomes/outputs. This is important when members of a team or work group are not all present during work times (due to shift work). Consider how interactions may occur in the following scenarios.

### Plant and laboratory operations

A laboratory technician may work in conjunction with a plant operator to adjust or perform checks on equipment in the field. They may also be required to work together to decide when samples should be taken following an adjustment to the process.

When difficulties are encountered with plant equipment or processes, the technician may need to work with a plant operator to resolve the difficulties by performing tasks that will overcome them. It may be necessary, for instance, to check the calibration of an in-line instrument at a certain time.

### Plant or process planning

A production planner will formulate the work plans and schedules for the operations team to follow for the next planned period. The lab technician may need to work with production people to take required samples or provide certain results.

### Communication and reporting

All technicians must be able to communicate and report to supervisors and other groups within the organisation when necessary. Communication is a vital function in a business.

### Daily operations

Lab technicians, plant operators and supervisors work cooperatively to safely achieve production targets. Lab technicians work as a team to ensure sampling and testing is completed to satisfy production and other customers.

### Startups and shutdowns

Startups and shutdowns of equipment and/or instruments are required in the laboratory or in the plant so that they are available for all users.

### Turnaround and maintenance work

Turnarounds usually require sections of the plant or equipment to be shut down; therefore many work groups will need to work effectively together to achieve an effective turnaround.

### Emergencies and abnormal conditions

During emergencies, the objective will be to achieve personnel, lab and plant safety. Consequently, lab personnel will need to work cooperatively with other personnel such as fire crews, safety officers and incident controllers.

|  |  |
| --- | --- |
| Practice activity icon | Activity 4.1 – Team tasks |

1. *List four examples of team tasks performed at your workplace.*
2. *How may people are in each of the teams?*
3. *How do they work together to achieve work requirements?*

## What makes a successful team?

Team work is based on the simple truth that if we all put our ideas together we will come up with better ideas than if we all work on our own. To be effective, teams need to:

* have a clear goal or reason for existing
* include only those people who are needed
* have clear procedures by which they are run
* get results.

Teams in the workplace have meetings to share ideas and make decisions. So if we want our team to work well, we need to know how to have productive meetings. Meetings are also an opportunity to discuss, negotiate, clarify and/or define:

* expected outcomes
* required timelines
* work priorities.

### Informal and formal meetings of work teams

The vast majority of work team meetings are informal gatherings of relevant people, simply because this is convenient and all that is needed. Formal meeting procedures are only warranted if the meeting is:

* very important
* likely to involve disagreement or difficulty in achieving the co-operation of members
* legally binding.

The most important thing with meetings is that the things you agree on are translated into written agreement and eventual action.

### Formal meetings

With formal meetings, the best way to achieve agreement is by:

* advance notice of the meeting time and purpose
* a detailed meeting agenda with items in order of importance
* people at the meeting willing to take on actions
* someone willing to hand out responsibilities arising out of actions agreed on (chairperson)
* an accurate record of decisions made (minutes).

### Advance notice and agenda

For a successful formal meeting, it is often necessary to provide advance notice of the meeting to everyone who has a right to attend. They need to know the time and place of meeting as well as what it will be about. This can be achieved by an agenda that is listed in order of priority, so the most important items are dealt with first.

|  |  |  |
| --- | --- | --- |
| Trainee Laboratory Assistants Resources Committee Meeting Monday 19 March  9.00–11.00 am Seminar Room, 7th Floor D Block Chairperson: Mr Neal Baudinette | | |
| AGENDA | **Minutes** |  |
| 1. Apologies for absence | 5 |  |
| 2. Minutes of the previous meeting | 10 |  |
| 3. Business arising from minutes | 5 |  |
| 4. Correspondence | 5 |  |
| 5. Reports | 25 |  |
| 6. General Business |  |  |
| 6.1 Finances | 9 |  |
| 6.2 New Technology | 15 |  |
| 6.3 Training Issues | 20 |  |
| 6.4 New Staff | 15 |  |
| 7. Any other business | 10 |  |
| 8. Date and time of next meeting | 1 |  |

Figure 4.1 Example of a meeting agenda which should be distributed in advance of the required meeting.

### The role of the person in charge (chairperson)

At a formal meeting, the role of the person in charge is to ensure that the meeting is orderly, that people get a fair go and that proceedings are not side-tracked. The most important task is that what people agree to is written down and that someone is delegated to ensure it is carried out.

The person in charge needs to work closely with the agenda. When the agenda is listed in order of priority (most important to least important) and an amount of time set for the discussion of each item, the person in charge has a much easier task.

The person in charge needs to make the meeting run on time. Those who attend are entitled to know how much of their time the meeting will take. The employer will also have rules about how much time employees can spend away from work. Meetings may have to be conducted in lunch breaks.

### Keep an accurate record of decisions made (minutes)

It is vital that the decisions of the meeting are recorded to prevent misunderstandings at a later date. Before an informal meeting starts, a responsible person should be asked to take minutes, with particular emphasis on what is decided, who has agreed to carry it out, and when it should be completed. These are called ‘action minutes’.

#### Example of action minutes

This is a suggested method for recording the proceedings of the meeting. Each agenda item is treated as a Topic.

|  |  |  |  |
| --- | --- | --- | --- |
| **Topic** | **Summary** | **Person** | **Action/Agreed Timeframe** |
| 1. OHS Rep | The chair called for nominations. Tran, Sue and Maria were nominated and Maria was voted in. | Maria Buenos | Maria will enrol in the course in OH&S investigating and reporting procedures. This course starts next Monday and runs for six weeks. |
| 2. etc. |  |  |  |

|  |  |
| --- | --- |
| Practice activity icon | Activity 4.2 - Efficient team meetings |

*Consider a formal work team meeting you have attended and write answers to the following questions:*

1. *Was the meeting run effectively?*
2. *How could efficiency have been improved? When considering how efficiency may have been improved, ask the following questions:*
   1. *was there advance notice of the meeting?*
   2. *was there an agenda?*
   3. *was there a responsible chairperson?*
   4. *were there accurate minutes taken?*
   5. *did the meeting finish on time?*
   6. *were you able to have your say?*

When you are part of a work team, you will be speaking, listening, summarising, negotiating and dealing with conflicts in order to reach solutions. Because you want your work team to be effective, you will need communication rules. These rules include:

* frank expression of ideas
* restating ideas and feelings – this involves summarising and clarifying for meaning
* recognition of team members’ needs and feelings (empathy)
* self-disclosure of relevant past experiences
* supporting team members
* listening without judging
* taking on responsibilities
* inviting individuals to self-examine behaviour
* applying past experience to the present situation
* illustrating points with examples.

To work effectively and efficiently as a team you need to support and not judge the members of your work team. You need honesty and trust: trust in yourself, in your team members and in the process.

## How work teams reach agreement

The way work teams reach agreement largely depends on the communication skills of the members. Nevertheless, the following tips for reaching agreement can be helpful.

### How to *seek* agreement:

* Make sure the work team’s purpose and goals are clear.
* Accept new and different ideas.
* Try to approach others in a friendly and goal-focussed manner.
* Take on task roles as required.
* Show interest by building constructively on others’ ideas.
* Allow time for proper discussion – do not cut people off.

### How to enable agreement:

Show you are listening by means of appropriate facial expression, nodding, questioning and summarising.

* Speak clearly and concisely – avoid clichés and jargon.
* Use open ended questions such as ‘why?’, ‘how?’, and, ‘in what way?’
* Ask questions to make sure you understand, such as ‘Is this what you mean?’
* Query unclear points with statements such as ‘I am not sure what you mean. Please explain’
* Anticipate peoples’ reactions in advance by taking into account their opinions, interests and biases.

### What to do if:

* someone is aggressive
* deal with aggression by restating the view being presented
* someone is wandering off the point
* bring them back on the point by asking questions such as who, what, when, and how
* someone talks too long
* interrupt them tactfully and ask them to summarise.

|  |  |
| --- | --- |
| Practice activity icon | Activity 4.3 – Agreement within the team |

1. *List three examples of when you or a team you were a part of agreed on a course of action to be taken, what tasks to perform or the timeline of a project.*
2. *Describe how the team reached agreement or why it did not and what happened. Were there any difficulties in reaching agreement?*

## Recognise personal abilities and limitations

It is important to have an understanding of what tasks and/or jobs you are qualified to perform and what may be beyond your abilities. When dealing with tasks that require a team approach it is vital that you do not take on roles that are beyond your expertise. Remember, not everyone may know what your level of expertise and training may be. It is important that in a team setting you communicate effectively with other members. In this way a team can identify possible gaps in its knowledge and/or expertise and rectify these and gain a clear understanding of what the team can actually complete with respect to a given request.

You should act honestly and openly when asked if you have experience in particular techniques or procedures. Ultimately, work will suffer and results may be unreliable when inexperienced and/or unqualified personnel perform duties they are not qualified to perform. In addition, you may place yourself and/or others at risk when you operate equipment dangerously or if you do not understand safety issues relating to equipment and/or procedures you perform.

|  |  |
| --- | --- |
| Practice activity icon | Activity 4.4 – Abilities and limitations |

1. *List the procedures and tasks you routinely perform at your laboratory given your current level of skill and training.*
2. *What would happen if someone with none of your expertise performed your duties? What would the possible effects on the workplace be?*

## Confirm personal role and responsibility

### The structure of a work team

A work team:

* has a reason for working together
* has members who need each other’s talents, skills, knowledge and experience to reach the team’s goal(s)
* has members who believe that working together (at least on a particular project) is better than working alone
* is part of a larger organisation.

### The goal-based work team

This type of work team functions by forming goals and deciding on plans of action to achieve those goals. The theory is that team members work more effectively together when focused on a common goal(s). Goal-based teams are often called action teams especially when part of an organisation which has undergone Total Quality Management (TQM) training.

TQM:

* emphasises the participation of workers in the continually improving production of better quality goods and services
* outlines a cooperative approach to worker – management relations
* means quality determined by customer, not producer
* means decision-making based on data, not guesswork.

### The communication-based work team

This type of team stresses the importance of the communication skills of members. It could include people from across a number of areas within the organisation. The emphasis is on establishing open communication channels within an organisation. The theory is that all organisational problems are caused by the breakdown of communication skills and channels. When information flows smoothly, the efficiency and morale of the employees improves.

### The role-based team

This type of team stresses the importance of establishing clear roles for its members. Regular and well-run meetings occur to define the roles of members and to get them working effectively together.

## Roles within teams

People take different roles in teams and these roles are most obvious in the critical stages of team development when the team is developing and communicating. It is important that you confirm and/or clarify your personal role and responsibilities within the team you are a part of. This helps avoid problems later, when individuals thought someone else was doing a particular task and work suffers as a result or there is a failure to meet deadlines.

There are at least three different types of roles that people take in work teams.

1. Task roles are played by people when they focus on getting the job done.
2. Maintenance roles are played by people when they focus on the human qualities of working in a team such as feelings, values and opinions about the task or even beyond the task.
3. Destructive roles are played by people when they consciously or unconsciously sabotage the work of the team and frustrate the work of the team or meeting.

### Task roles

|  |  |
| --- | --- |
| Brainstormer or Surpriser | Often comes up with valuable new ideas but their creativity may need to be kept on track. They may need to be protected from some more ‘practical’ members of the team who may ignore or belittle their ideas. |
| Expert | Considers it important to stay on task and stick to facts. They are intolerant of meeting politics and more creative ideas. |
| Judge | Likes to settle disputes but sometimes tries to reach decisions before full discussion has taken place. |
| Devil’s Advocate or Clarifier | Plays a valuable role by keeping situations under control. Makes sure everyone understands issues. |
| Implementer | Has an important ‘can do’ mentality but may encourage team to make a decision too early. |
| Chairperson | Likes to keep team on task and when a stalemate is reached will often sum up differing viewpoints. |
| Recorder or Note-taker | Likes to be the memory of the meeting and has the important role of recording the decisions of the meeting. This role is even more important in formal meetings when agendas and ‘action minutes’ may be used. |
| Representative | Often interacts with outside interests and stake holders. Generally plays a constructive role but may have divided loyalties. |
| Motivator | Likes to get things done and encourage others to as well. A positive force at meetings. |
| Pacifier | Likes to keep the peace and seek a consensus. A positive force at meetings. |
| The Clown | Uses humour to ‘break the ice’ during orientation stage of meeting and to defuse conflict. Generally a positive force but needs to be sensitive to mood of meeting. |
| Confronter | If more assertive than aggressive can be very useful to help meeting acknowledge real differences of opinion. |

Table 4.1 – Examples of Task Roles within a team

### Destructive roles

|  |  |
| --- | --- |
| Blocker | Is negative and destructive to work of meeting. Sees problems in everything and thus frustrates work of meeting. |
| Avoider | Likes to put things off and avoid making a decision. A procrastinator who often frustrates the work of the meeting. |
| Distracter | Behaves as though meetings are social occasions. Distracts members from purpose of meeting with silly behaviour. |
| Victim | Exhibits masochistic tendencies to want to fail. |
| Personaliser | Exhibits ‘chip on shoulder’ mentality. Tends to personalise discussion. |
| Recognition Seeker | Likes to relate most things back to self and so be centre of attention. Keeps getting meeting off-track. |
| Aggressor | Is a very hostile personality. If allowed, will dominate meeting and subvert will of meeting. |
| Shadow | May have good things to say, but unless encouraged will say very little. |
| Husher | Wishes to avoid conflict at all costs. Likely to promote harmony at the expense of proper discussion. |

Table 4.2 – Example of destructive team roles

|  |  |
| --- | --- |
| Practice activity icon | Activity 4.5 – Teams in the workplace |

1. *For each of the team types listed record the different teams you have worked in that best match these and give examples of the role you performed and the responsibilities you had. Could you have performed you role better? Why? Why not?*
   1. *Goal based:*
   2. *Communication based:*
   3. *Role based:*

## The leadership role

Work teams don’t always have an official leader. However, if one is not appointed, it is important that someone within the team takes on the role. This leadership role might even be rotated.

Leadership is an important element in the operation of any team. Leaders often set the standard by which other team members evaluate their performance.

### Leadership tasks

The leader is expected to focus the team on its goals and ensure the team works towards them as efficiently as possible. Leaders do this by appropriate types of task and leadership behaviours.

### Leadership behaviours

There are three main leadership behaviours. They are based on the amount of control a leader wants to exert.

Autocratic leaders:

* make all decisions
* have all knowledge and power
* will make the team accept their decisions.

Democratic leaders:

* discuss and consult
* outline what has to be achieved
* encourage individuals to contribute to team’s achievements
* assume team has the knowledge and skills to achieve the team’s goals
* assume the group is committed.

Laissez faire leaders:

* let the team do mostly what it likes
* get involved only to a small extent.

It is important to remember that particular work tasks may involve different leadership styles. Some leaders use different styles in relation to individual members of a team as everybody may respond differently. For example, some members of a team may require close attention whereas others may work well and achieve team and individual goals with little contact.

## Demonstrate sensitivity to the diversity of the team

Communication is a two-way process. Group members might think that they have made messages clear, but they have not succeeded if the receivers of those messages don’t understand them, or don’t want to understand them. Group communication skills involve the recognition of people’s needs and feelings (empathy), honesty, and trust in group members and in the process.

It is important that as a team member you demonstrate sensitivity to the diversity of other team members’ backgrounds and beliefs.

Here are some group communication rules that can help you be successful in groups at work:

* think about how your workmates are feeling
* try to see things from the other person’s point of view
* respect and consider other people’s suggestions, rather than wanting your own way all the time
* share information with others who need it
* never listen to or spread gossip
* never show off or behave arrogantly or rudely
* never display envy of the success or authority of others.

If you are aware of group communication skills, then you are in a position to anticipate problems developing and deal with them more effectively.

The types of behaviour that do not demonstrate sensitivity to the diversity of other team members’ backgrounds and beliefs are likely to be taken as discriminatory or harassing and may be in breach of State, Territory and Commonwealth legislation.

Such behaviour may also result in your employer being liable for your actions. Your laboratory should have a staff code of conduct which describes the expected standards of behaviour at work and to your work colleagues and may offer training in particular areas relating to conduct at work.

If your laboratory does not have a code of conduct it does not mean that there are no rules in your workplace. Further information should be provided by your HR manager or laboratory supervisor.

### Ethical considerations

All your work will be completed under your organisations ethical policy. Ethics deals with the morality of what work you are doing and covers topics such as;

* Conforming to industry Codes of Practice (CoP) and Standards
* Dealing with contracts
* Operating under permits
* Dealing with intellectual property
* The morality of the work you are performing
* Etiquette and decorum at work
* Confidentiality.

**Example**

You are required as a laboratory technician to analyse samples. If the samples are from a human (such as a blood sample) then you are required to discharge your work ethically by ensuring that you;

* Follow all policy and procedure diligently
* Treat all data with confidence to protect the client/patient

|  |  |
| --- | --- |
| Practice activity icon | Activity 4.6 - Sensitivity to team members |

1. *Locate your laboratory code of conduct. State the title of the document and its location below;*
2. *List the relevant parts of the code which relate to respect for your work colleagues.*
3. *Why are these important?*

Topic 5

Update knowledge and skills as required

# Update knowledge and skills as required

## Recognise own strengths and weaknesses

Staff must be suitably trained and qualified to be able to carry out the tasks that are expected of them. Training is an ongoing process that is required to support employees in their current work activities and also where changes to work arrangements are anticipated. In addition, training is needed to induct new employees into the organisation so they quickly become familiar with safety, work routines and responsibilities.

A flexible workforce that can quickly adapt to new situations and changes in the workplace is highly desirable.

Staff require training for a variety of reasons:

* safety awareness
* new or additional regulatory requirements
* changing customer needs
* new equipment to be commissioned
* new tests/work methods/SOPs introduced
* promotion (for example, team management skills may need to be studied)
* coverage for staff absences (for example, holidays) and departures
* flexible, multi-skilled workforce
* effective contribution to continuous improvement and other initiatives.

A quality-oriented laboratory or business will place a high value on staff who demonstrate a willingness to adapt and learn. Apart from personal job satisfaction, you will potentially be more useful to the business and will be well prepared to take advantage of opportunities when they come along.

Everyone in the business should continue to learn throughout their working life. Age is no impediment to learning. Some very senior and experienced workers may think that learning is not for them. This is a poor attitude that does not help the business and can actually damage it by setting a poor example to more junior staff.

Learning should create enthusiasm and pave the way to take advantage of opportunities. You will be a more productive and useful member of your team.

In addition, it is important that as an employee you are able to recognise your own strengths and weaknesses and consider both what skills you need to develop further and what new skills sets may assist you in your career development.

### Performance reviews

Many organisations take the opportunity to conduct periodical performance reviews with their employees. The purpose of the reviews is to:

1. evaluate the employee’s overall work performance against organisational values and standards; for example, to do with customer service, interpersonal skills and OHS observance
2. assess the progress of previously established personal work goals such as a specific project or assignment – an example might be to develop a system to improve the flow of samples through the laboratory
3. establish personal work goals for the period ahead (these should be constructed with the goals of the work team and the company in mind) – an example might be to take over responsibility for a particular analysis new to you.

Performance reviews therefore provide an opportunity for you and your supervisor to assess your current skills and other attributes against those that are required for your job, current and proposed. From this, a professional development program can be formulated to bridge any gap that is evident. As well as technical needs, the plan might include personal development aspects such as time management and conflict resolution. Training for compliance with regulatory requirements might also be considered – first aiders and OHS representatives for instance.

Staff training needs may also be identified through specific other means:

* questionnaire to prioritise areas of interest
* management targeting particular areas for change
* skill audits
* skill-gap analysis.

Some people may be reluctant to discuss details of their skills because they feel that they will be under-valued by management. Some of this reluctance may stem from the misconception that skill acquisition should automatically be rewarded financially.

It is hard to get people to agree that money should not be the prime motivation in skill acquisition. Very few people get to use all of their skills, even for part of the time.

If you have skills and management knows this, an opportunity may unexpectedly arise where you get to use them. However, opportunities will be missed by people who hide their skills.

|  |  |
| --- | --- |
| Practice activity icon | Activity 5.1 – Work skills |

1. *Write down what you consider to be the three main work skills that you have and could teach to a new worker in your laboratory. For example, you may have experience with a particular test or piece of equipment.*
2. *List three things that you would like to do training on in the next 12 months to improve your skills. For example, report writing or language skills, operation of a particular piece of equipment, understanding the naming of chemicals.*
3. *Select two items of equipment that you are use in your laboratory or in the field.*
   1. *What are the special skills that are needed to operate the equipment or do the test properly?*
   2. *What are the main things that can go wrong when operating the equipment or doing the test?*
   3. *How could you improve your skills on this equipment (operation or troubleshooting)?*

### Professional development programs

Having identified your training needs, the next step is to plan a development program with your laboratory supervisor. Some training activities may take a little time to finalise if they require locating a specific provider. You should ideally document the plan showing activities and dates – where necessary, make arrangements for work release well in advance. Ensure you follow the plan and review it for completion and effectiveness at the next performance appraisal. It may be useful to seek advice from other sources such as the HR manager.

Training and development can take many forms, examples include:

* informal on-the-job training involving observing an experienced worker (‘buddy system’)
* informal off-the-job attendance at seminars and professional briefings conducted by industry experts
* formal off-the-job structured courses in classrooms, at work or outside, conducted by internal or external trainers
* structured self-paced modular course work – paper based or on-line for delivery at work or home.

It may be necessary to obtain a professional qualification in order to advance to some of the higher positions within a laboratory.

Organisations which provide training and/or offer a wide range of formal qualifications (including certificate, diploma and degree courses) include TAFEs, private training organisations and universities.

Experienced workers are role models for new employees. The experienced workers should set a good example by undertaking professional development, and help the more junior staff members of staff to live up to their potential. Some workers are unwilling to undertake formal training because they feel they may not cope with it, or that other people might do it better, leading to embarrassment.

If you undertake training as some sort of competition then you have entirely the wrong idea. Training for skill and personal development is bench-marked against required industry standards, not against other people.

Modern training methods not only recognise that different people have different aptitudes for learning, but also recognise that there are different ways of learning.

|  |  |
| --- | --- |
| Practice activity icon | Activity 5.2 – Professional development |

1. *What would be the next career step for you in your laboratory?*
2. *What are the additional responsibilities that this would involve?*
3. *What do you need to do to get the promotion?*
4. *If you obtained the skills and the qualification, what advantages will it give to:*
   1. *you personally?*
   2. *your laboratory?*

# References

Pickering, V, 1997, Laboratory Orientation, Australian Training Products Ltd (formerly ACTRAC Products Ltd.)

InterTRAIN Productions Pty Ltd, 1999, Follow Established Workplan, Australian Training Products Ltd (formerly ACTRAC Products Ltd.)

ACTRAC Products Ltd, 1993, Workplace Communication, Australian Training Products Pty. (formerly ACTRAC Products Ltd.)

ACTRAC Products Ltd, 1993, Writing Skills for Work, Australian Training Products Pty. (formerly ACTRAC Products Ltd.)

ACTRAC Products Ltd, 1993, Work Team Communication, Australian Training Products Pty. (formerly ACTRAC Products Ltd.)

Department of Education, Science & Training, Follow established work plan, Learning Guide, 2002, Australian Training Products Ltd

Department of Education, Science & Training, Work efficiently as part of a team, Learning Guide, 2002, Australian Training Products Ltd

# Image attributions

|  |  |  |
| --- | --- | --- |
| Image | Page # | Attribution |
| Cover | 1 | ©By Karn-b - Karn G. Bulsuk (http://www.bulsuk.com). Originally published at http://www.bulsuk.com/2009/02/taking-first-step-with-pdca.html - Own work. Originally developed for Taking the First Step with PDCA, CC BY 4.0, <https://commons.wikimedia.org/w/index.php?curid=5236801> |
| Figure 1.1 | 6 | © TAFE NSW |
| Figure 1.2 | 11 | © TAFE NSW |
| Figure 2.1 | 22 | © TAFE NSW |

# Document checklist

Use this checklist when creating resources using TAFE NSW templates for delivery either as electronic files (PDF or docx) or for printed documents.

**Do not remove this checklist.**These tables will be removed after QA is approved, before the resource goes onto the Learning Bank.

**Formatting text**

|  |  |  |
| --- | --- | --- |
| # | When formatting the text in this document, I have: | Done |
|  | Structured the content logically using section headings, headings, paragraphs, tables, bullet lists and table of contents. |  |
|  | Nested the heading styles in order, for example H1, H2, H3. |  |
|  | Avoided manual styling, for example coloured text and different fonts. |  |
|  | Created bullet and numbered lists using the format in the style gallery. |  |
|  | Formatted bullet lists correctly using one of these two structures:   1. One sentence per line with capitals and a full stop on each line. 2. No capitals and a single full stop at end of the list. |  |
|  | When using heading numbering, I have made sure it is consistent throughout the document. For example, numbering practice activities. |  |
|  | Used sentence case for headings with only the first word capitalised. |  |
|  | Manually checked heading spelling (auto spell checker may not work). |  |
|  | Formatted tables using styles. Avoided using nested cells, merged cells or nested tables. |  |
|  | Repeated table heading rows across new pages. |  |
|  | Ensured tables and forms *have not* been inserted as images. |  |

**Using Word**

|  |  |  |
| --- | --- | --- |
| # | When preparing this resource using Microsoft Word, I have: | Done |
|  | Used the most recent TAFE Digital document template as downloaded from the [Learning Bank](https://share.tafensw.edu.au/share/access/searching.do?in=C53e8944e-5f29-4e1d-af0c-06f64257bfbe&q=&type=standard&sort=rank&dr=AFTER). |  |
|  | Styled each text element using the Word styles built into template. For example, use ‘strong’ style instead of bold. |  |
|  | Used the *Quick Parts* menu to insert new topics and components. |  |
|  | Pasted imported text using the *Text only* setting, with no style. |  |
|  | Not imported styles from other documents. |  |
|  | Used *Page Breaks* to move headings to the next page (*Layout* tab in the *Page Setup* group under *Breaks*), rather than lots of paragraph returns. |  |
|  | Checked the footers include the correct information. For example, page number, file name, copyright statement, student name, etc. |  |
|  | Deleted the template guide text and instructions when finished. |  |
|  | Named documents correctly using [TAFE file naming conventions](https://share.tafensw.edu.au/share/file/ee758805-ee07-4a7b-9f5e-4148a29afc10/1/Training%20Product%20Naming%20Conventions.pdf). |  |

**Inserting images**

|  |  |  |
| --- | --- | --- |
| # | When inserting images in this document, I have: | Done |
|  | Inserted images using the image single or image double quick part. |  |
|  | Ensured the image quality is good quality, using images that are between 500 and 2000 pixels wide and are not blurry or jagged. |  |
|  | Reduced the size of large images of more than 1MB before inserting into documents. |  |
|  | Not ‘squeezed’ images when resizing (e.g. maintaining image aspect). |  |
|  | Ensured all images are kept *Inline with Text*. |  |
|  | Used only images with permission. For example, Creative Commons (CC), ©Copyright, written permission, license purchase. |  |
|  | Listed all image sources underneath each image or placed in the *Image attribution* table at the end of the document or used [copyright compliant labelling](https://share.tafensw.edu.au/share/file/08f92fab-c504-4c31-b405-c1fafaae1784/1/Copyright%20compliant%20labelling%20in%20learner%20resources.pdf). |  |
|  | Provided ALT text for images with text or that contain learning content. Images purely for decoration do not need ALT text; however, they need to be marked as decorative. Examples of this include background images, duplicate logos, decorative page elements, etc. |  |
|  | Obtained written permission to use photos of TAFE students, usually with a release form signed by student. |  |

**Writing content**

|  |  |  |
| --- | --- | --- |
| # | Before and during the writing of content, I have: | Done |
|  | Downloaded and referred to the [TAFE NSW Writing Style Guide](https://staff.tafensw.edu.au/documents/2017/03/writing-style-guide.pdf/). |  |
|  | Used direct language and common words with simple sentence structures. For example, ‘use’ not ‘utilise’, ‘begin’ not ‘commence’. |  |
|  | Used language that is appropriate to the student’s level. |  |
|  | Written the full description of acronyms on first use. For example, Workplace Health and Safety (WHS). |  |
|  | Used words to write the numbers 0-9 in words and all other numbers as numerals. |  |
|  | Used meaningful text for hyperlinks that describes the destination of the link. Don’t use ‘click here’ for links. URLs can be used for print. |  |
|  | Used inclusive, gender neutral and culturally appropriate language. For example, salesperson, firefighter, ‘they’ rather than he or she. |  |

**Accessibility**

|  |  |  |
| --- | --- | --- |
| # | To ensure the accessibility of this resource, I have: | Done |
|  | Used Word styles to format text and to structure your document. |  |
|  | Not used images for decorative text or headings or tables. |  |
|  | Provided long descriptions for images with important text such as graphs or infographics or process diagrams. |  |
|  | Used the *Word Accessibility Checker* on the document and addressed issues where possible. Where concerned I have referred to the [Accessibility checklists](https://share.tafensw.edu.au/share/items/2778f7bf-0b13-4b15-862f-4743dee10d44/1/). |  |
|  | Re-checked the accessibility in PDF format (where the final format is PDF). Where concerned I have referred to the [Accessibility checklists](https://share.tafensw.edu.au/share/items/2778f7bf-0b13-4b15-862f-4743dee10d44/1/). |  |

**Copyright**

|  |  |  |
| --- | --- | --- |
| # | To ensure correct copyright of the material in this resource, I have: | Done |
|  | Not plagiarised text or used third party text without permission. |  |
|  | Used content from third party only within [National Copyright Guidelines](https://www.smartcopying.edu.au/copyright-guidelines/what-can-i-copy-communicate-). For example, 10% or one chapter of a printed work. |  |
|  | Correctly acknowledged original text sources even if they are not directly quoted. Provide full references using a consistent referencing style (e.g. Harvard or APA). |  |

**Cultural protocol**

|  |  |  |
| --- | --- | --- |
| # | To observe appropriate cultural protocols in this resource, I have: | Done |
|  | Ensure that the Acknowledgment of Country is at the front of the document. This is included in the document templates. |  |
|  | Ensure that appropriate [Aboriginal and Torres Strait Islander language and referencing protocols](https://share.tafensw.edu.au/share/file/a5730763-33bb-42fc-bcd6-4f4ba966b9bb/1/Aboriginal%20and%20Torres%20Strait%20Islander%20Protocols%20for%20appropriate%20language%20and%20referencing_V2.pdf) are used throughout |  |
|  | Check that images identified as Aboriginal or Torres Strait Islander are authentic and the use of the work has been negotiated with the owner(s) using appropriate protocols |  |
|  | When using video, images or works that are Aboriginal and Torres Strait islander identified content, the following statement should be included at the front of the workbook:  *WARNING: Aboriginal and Torres Strait Islander learners are warned that the following resource may contain images and voices of deceased persons.* |  |

**Further reading**

* [Copyright Basics, TAFE NSW Libraries](https://tafensw.libguides.com/copyright)
* [National Copyright Guidelines](http://www.smartcopying.edu.au/)
* [TAFE NSW Writing Style Guide](https://staff.tafensw.edu.au/documents/2017/03/writing-style-guide.pdf/)
* [TAFE NSW Aboriginal and Torres Strait Islander Protocols for Appropriate Language and Referencing Guide](https://share.tafensw.edu.au/share/items/a5730763-33bb-42fc-bcd6-4f4ba966b9bb/1/)
* [TAFE NSW Accessibility Checklists](https://share.tafensw.edu.au/share/items/2e1f814c-dcbb-465e-9767-612e7bb8c143/1/)