Vehicle Body Repairing and Painting

NTQF Level-II

Learning Guide -10

Unit of Competence: - Standardizing and Sustaining 3S

Module Title: - Standardizing and Sustaining 3S

LG Code: EIS VRP2 M04 LO01-LG-10

TTLM Code: EIS VRP2 TTLM 0919v1

LO 01:   Prepare for work

Instruction Sheet	**Learning Guide #-10**

This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics –

- Introduction to kaizen
- Job requirements
- OHS requirements
- Identifying and checking safety equipment and tools
- Preparing and implementing tools and equipment to standardize 3s based on relevant procedures

This guide will also assist you to attain the learning outcome stated in the cover page.

Specifically, upon completion of this Learning Guide, **you will be able to –**

- Know iintroduction to kaizen
- Identify job requirements
- Observe OHS requirements
- Identify and check safety equipment and tools
- Prepare and implement tools and equipment to standardize 3s

Learning Instructions:

1. Read the specific objectives of this Learning Guide.

2. Follow the instructions described in number 3 to 20.

3. Read the information written in the "Information Sheets 1". Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.

4. Accomplish the "Self-check 1" **in page -.**

5. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-check 1).

6. If you earned a satisfactory evaluation proceed to "Information Sheet 2". However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #1.

7. Submit your accomplished Self-check. This will form part of your training portfolio.

Information Sheet-1	Introduction to kaizen

"Kaizen is a philosophy of continual, participatory and self-disciplined innovation management having its own integrated systems and problem solving tools, implemented with the highest level of commitments at all levels of owners, leaders and employees through enhancing their absorptive capability step by step aiming at creating new and advanced corporate culture to catch-up and attain world class competitiveness".

1.1.1 Elements or targets of Kaizen

PQCDSMEG are elements or targets of Kaizen activities. PQCDSMEG stands for Productivity, Quality, Cost, Delivery time, Safety, Moral, Environment, and Gender equality (added by EKI). If this eight targets can be achieved then success of the organization and customer satisfaction are confirmed. QCD refers to the three elements of satisfying customer requirements: Quality, Cost and Delivery.

Productivity: is expressed as the ratio of output to input. A general productivity measure often used in production control is the quantity or value of products produced per unit time. Another commonly used productivity measure is labour productivity, i.e., the quantity or value of products produced per worker per hour.

Quality: means degree of fulfillment of requirements. In a market economy or where competition is prevalent, these requirements are ultimately what the customers' demand of products or services they want to purchase. In other words, quality refers to conformance to specifications and customer requirements. For instance, Product quality requirements relate to the product's shape, appearance, performance, reliability, durability, and so forth. These product requirements are ultimately what the customers want.

Cost: is monetary value of all the inputs to produce a product. In accounting terms, cost includes cost of labour, cost of materials, and other expenses. The cost items that can be directly attributable to a product manufacturing process is called direct expense, while others are called indirect expense. Cost is one of the three primary targets of improvement in KAIZEN activities along with quality and deliver.

Delivery time: refers to the timely delivery of the volume of products or services to meet the customer's needs. On-time product delivery to the customer or adhering to the due date is critical to achieve customer satisfaction together with quality and cost in a competitive market environment.

Moral / Motivation: Morale generally refers to people's confidence, enthusiasm and discipline as a person or as a group. Morale at workplace is therefore employees' confidence, enthusiasm and discipline in terms of the work and goals of the workplace. People have the desire to demonstrate their capability fully, to be recognized, to grow, and to become fulfilled. KAIZEN activities at the workplace with genuine participation of employees provide such opportunities to the employees, and as the result, boost their morale. This is to create a virtuous cycle of KAIZEN's advancement and the employees' growth as individual persons progressing in tandem.

Safety: Kaizen is also used as a methodology for making safety improvements. Safety is the condition of a "steady state" of an organization or place doing what it is supposed to do. In the world of everyday affairs, not all goes as planned. Some entity's steady state is challenged.

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Ensuring that a workplace is safe and lively to the satisfaction of the employees working there, and it is also indispensable as corporate activities. In particular, safety is directly related to each worker. The employees are expected to have a strong stance of creating a workplace which is safe and full of vitality. There are nine key sets of actions that you can take to improve safety in your work place.

- Mark emergency exits and put up warning signs
- Provide protective clothing and tools
- Raise safety awareness
- Establish safety standards and regulations
- Set up safety committees and patrols
- Ensure facilities and equipment are safe
- Keep accident records
- Set safety targets
- Be prepared to deal with disasters

A safe workplace is a place with decreased in negligent errors, decreased or zero accidents, reduction of fatigue, comfortable environment, proper arrangement, clean etc.

Environment: The environment has many resources essential for life. These resources must be used wisely for generations to continue. Such resources include air, water, light, land/space etc. which should be utilized efficiently. Wastes that occur on the environment should be reduced by recycling as much as possible. Applying Kaizen also helps to make efficient use of the environment and to conserve it. Hence, environment should be one of the targets of Kaizen..

Gender equality: Gender can refer to the unconsciously constructed roles of men and women, as well as their mutual relationships, based on such factors as culture, tradition, and customs. Deep-rooted gender inequality, especially in developing nations, frequently places women in a disadvantaged position with regard to education, healthcare, labor, and other aspects of society. The promotion of gender equality and empowerment of women is a priority of the Millennium Development Goals and will remain an important part of the development agenda. Kaizen can convey this gender equality by changing the attitude of people. Hence bringing gender equality should be one of the targets/elements of Kaizen. Gender should be considered in conducting any activities.

1.1.2 Ways to improve Kaizen elements

1. **Start with Yourself** – Many entrepreneurs are so busy "sawing" they have little time to step back, read, ponder, analyze, plan, and essentially "sharpen the saw." Get connected with your numbers (leading and lagging indicators), and with customer, employee, and vendor feedback. Read skill-based business books and articles. Spend time in the Zone working on your business .Seek ways to improve your own personal performance, and encourage those around you to do the same. Your company people, products, and processes will improve at the rate you improve. Lead by example!
2. **Involve Everyone** Kaizen is a strategy that involves every employee, from management to the cleaning crew. Hold business improvement workshops at the company, department or team level perhaps at the location of the business system you are attempting to improve. Challenge employees to routinely submit suggestions for positive change.

3. **Challenge the Status Quo** Throw out all your old fixed ideas on how to do things. Replace "sacred cows," personal opinions, and "it's the way we've always done it" with performance facts and data. Numbers are the language of improvement. Avoid the emotional traps of blaming people or making excuses that prevent you from discovering the real problem. Once you have established the new best-way of doing something, stick with it until a better way is found. When confronting old ideas and traditions, apply the Rules of Engagement.

4. **Get Specific:-** The dollars made or lost are in the details of your business systems and processes. Drill down. Use a 5-Whys Analysis and keep asking "why" until you get to the root cause of the problem. Improve specific steps *or* components in your business systems and processes

5. **Keep It Simple and Inexpensive**:- Ideas for incremental improvements that bubble up from workers are usually easier to implement and less expensive.

6. **Focus on the Right Things**:- Improve the core business systems that enable you *to* find and keep customers, and earn more money. Find ways to provide customers greater value and a better buying experience. Zero in on removing the obstacles, bottlenecks, and weak links in your business processes that slow lead-time, order completion, and collection of cash. Fast throughput of products and services creates happier customers and more profit. Remember: quality plus speed equals low cost.

7. **Provide Training**:- Kaizen involves setting performance standards for your business systems and processes and then striving to elevate those standards. Continuous Improvement requires ongoing development of your most important asset.

8. **Look for Breakthroughs**:- Up to this point, we have focused on small incremental changes. However, Kaizen will sometimes produce breakthrough improvements. a moment to celebrate! What's a breakthrough?

9. **Never Stop Improving**:- Halt the process immediately to fix quality or customer-related problems. Don't let problems accumulate for later handling. Reflect daily (in the Zone) on your opportunities for improvement and innovation. Make business improvement workshops a weekly habit. Implement a suggestion-box system that calls for employees to submit so many improvement ideas per month *or* year. And be sure to compensate people appropriately for implemented solutions. Just one improvement a day is 260 improvements a year!

10. **Get Box Theory Products**:- Forgive me if this seems a bit like a sales pitch. Applying the Box Theory Way and software tool is the most important thing you can do to get **Continuous Improvement** working in your company. It is a one of a kind product based upon decades of proven principles not too hard, not too basic, but just right for the owner of a small to midsize business.

1.1.3 Benefits of improving kaizen elements

when we implement kaizen elements by improving each in an organization or in the work place have the following benefits.

* Make optimal use of peoples' skills
* Reduce overall cost
* Maintain high quality (or improve quality)
* Reduce or eliminate wastes (MUDA)
* Improve productivity
* improve Safety
* Shorten lead time & improve delivery time
* Reduce space-use
* Increase in profit
* Enhancement in competitiveness
* Increase in wage
* increase job generation
* Increase in payable tax → Contribution to National finance
* increase customer satisfaction

1.1.4 Relationship between Kaizen elements
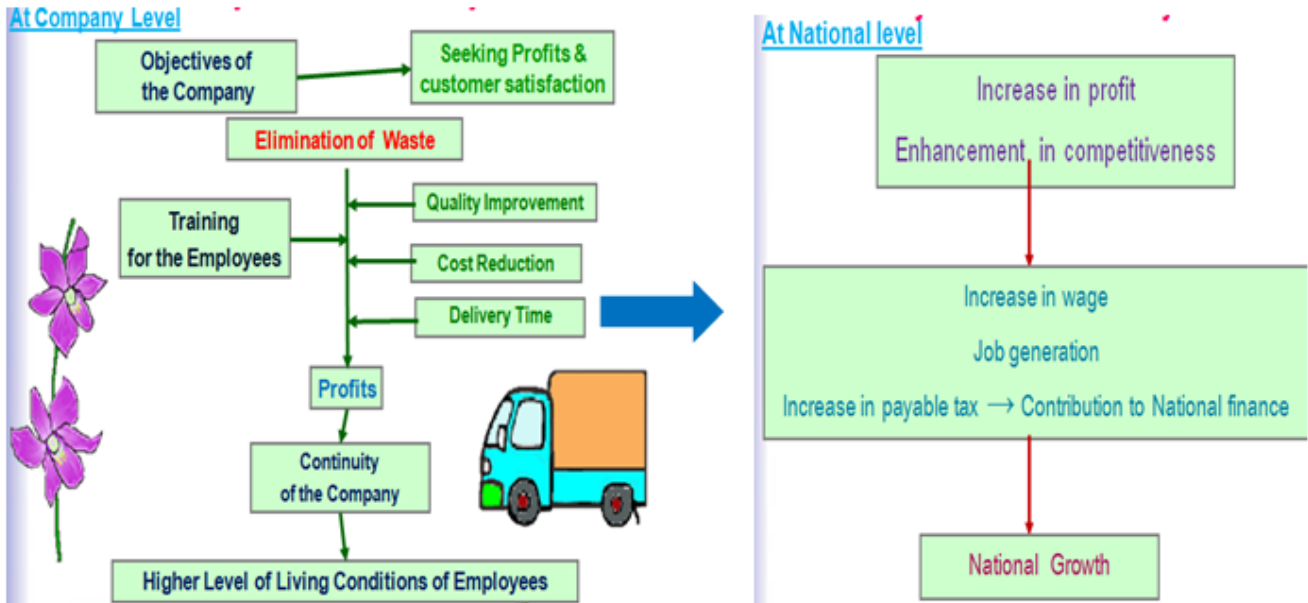
As indicated in the above diagrams, one of the objectives of a company is increasing profits. If sufficient profits are generated, the continuation of a company and the living conditions of its employees also ensured. Quality, cost reduction, and delivery time are the three biggest contributors to the profit increase through elimination of wastes/Muda.

Self-Check -1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. what is kaizen? (4)

2. List eight Elements or targets of Kaizen (8)

3. Mention at least eight benefits of improving kaizen elements (8)

Note: **Satisfactory rating - 15 points   Unsatisfactory - below 15 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

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Score = _____

Rating: _____
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Name: _____   Date: _____

Short Answer Questions

Information Sheet-2	Job requirements.

A Job can be defined as:

- A piece of work, especially a specific task done as part of the routine of one's occupation or for an agreed price.
- A post of employment; full-time or part-time position
- Anything a person is expected or obliged to do; duty; responsibility
- An affair, matter, occurrence, or state of affairs.
- The material, project, assignment, etc., being worked upon.
- The process or requirements, details, etc., of working.
- The execution or performance of a task.

The requirements for a job vary according to the nature of the job itself. However, a certain work ethic must be cultivated to succeed in any job and this is fundamental to an individual's sense of himself as a worker, as part of production relations and a fundamental economic being. The basic requirements for a job remain the same no matter what the job is, where it is located or what professional and educational qualifications are required for it. These are as follows:

Discipline: Nothing is possible without discipline. Any job requires a fundamental core of discipline from the worker or the employee and this is a quality which is independent of age, post, stature, job and so on. Discipline is absolutely indispensable and provides the impetus for work that can be strenuous, repetitive, boring and even unsatisfactory at times.

Enthusiasm: Enthusiasm for work is also a pre-requisite for any job. An innate love for the job, which in modern parlance is known as job satisfaction, is a core requirement for any job. The drive to succeed, to innovate, to do well and to make one's profession into one's livelihood is a critical drive which needs to be present in the employee or cultivated as soon as possible. No job, however perfectly carried out, can evoke the feeling of satisfaction of a job well done without the instinct for success.

Qualifications: This is a more material, tactile need for a job which can be conveyed through degrees and certificates. However education is not limited to what is taught in colleges or vocational training courses. It is the burning desire to learn more, to reach the depths of knowledge about a particular field of interest, to complete the job and learn from it that marks the true enthusiast and the truly learned.

Soft Skills: Soft skills include those skills which ensure that a job is executed well, and the employee can carry himself in the proper manner too. For example, good and smooth communication, computer skills, proficiency in language if needed, presentable appearance, the ability to manage crises are all soft skills which are fundamentally important in any job and which must be cultivated consciously.

Thus, the requirements of a job, though specific to it, cover also a general spectrum. These make for better employees and better individuals

Work instructions
Information about the work

- Describe what workers need to be able to do on the job
  - ➤ Work functions
  - ➤ Key activities of each work function
  - ➤ Performance indicators
- Describe what task to be done or work roles in a certain occupation

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Work instruction is a description of the specific tasks and activities within an organization. A work instruction in a business will generally outline all of the different jobs needed for the operation of the firm in great detail and is a key element to running a business smoothly.

In other words it is a document containing detailed instructions that specify exactly what steps to follow to carry out an activity. It contains much more detail than a Procedure and is only created if very detailed instructions are needed. For example, describing precisely how a Request for Change record is created in the Change Management software support tool.

Procedures vs. Work Instructions

Many people confuse "procedures" with "work instructions". In fact, most people write work instructions and call them procedures. Knowing the differences of procedures vs work instructions can help you understand the documentation process much better and, therefore, procedure documentation.

Procedures describe a process, while a work instruction describes how to perform the conversion itself. Process descriptions include details about the inputs, what conversion takes place (of inputs into outputs), the outputs, and the feedback necessary to ensure consistent results. The PDCA process approach (Plan, Do, Check, Act) is used to capture the relevant information.

Questions that need to be answered in a procedure include:

- Where do the inputs come from (suppliers)?
- Where do the outputs go (customers)?
- Who performs what action when (responsibilities)?
- How do you know when you have done it right (effectiveness criteria)?
- What feedback should be captured (metrics)?
- How do we communicate results (charts, graphs and reports)?
- What laws (regulations) or standards apply (e.g., ISO 9001, 8th EU Directive, IFRS, Sarbanes-Oxley)?

Job Specification

A job specification also known as employee specifications, which is a written statement of educational qualifications, specific qualities, level of experience, physical, emotional, technical and communication skills required to perform a job, responsibilities involved in a job and other unusual sensory demands. It also includes general health, mental health, intelligence, aptitude, memory, judgment, leadership skills, emotional ability, adaptability, flexibility, values and ethics, manners and creativity, etc..

Components: Job specification emphasizes human qualities essential for a job. It involves the following elements:
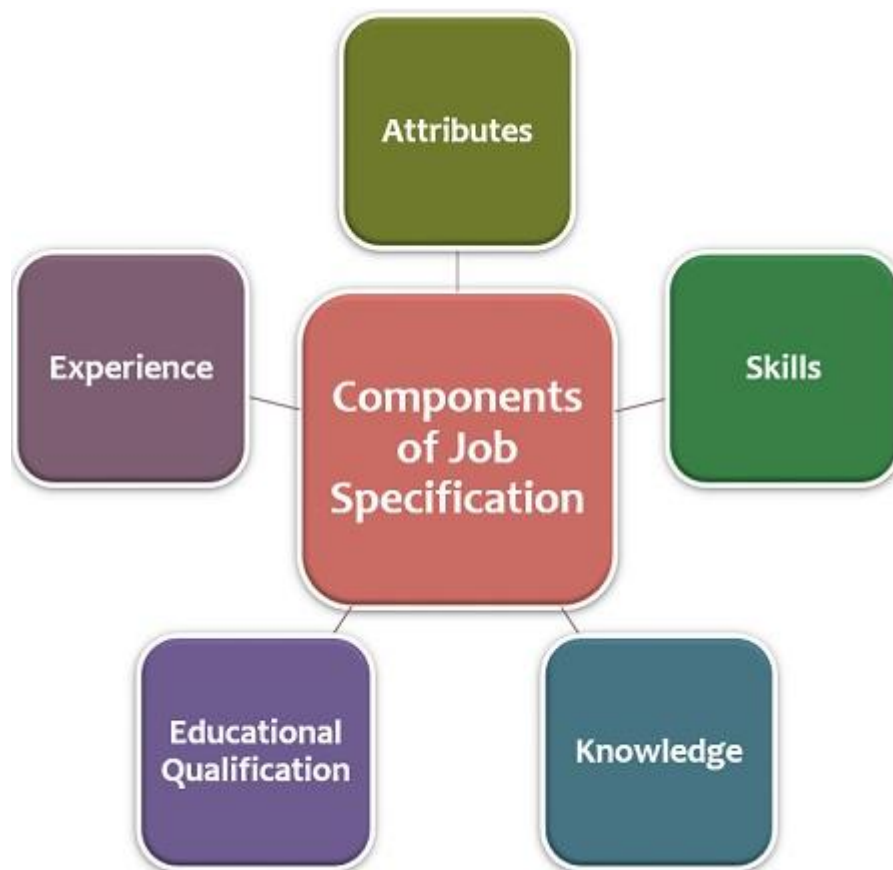
- **Educational Qualification** defines the specific requirement regarding academic knowledge of a person. It includes his school education, graduate, post-graduation and other such qualifications of which he holds degree or mark sheet.

- **Skills & Knowledge:** This is an important parameter in job specification especially with knowledge and skill based profiles. The higher the position in a company, the more niche the skills become and more is the knowledge required to perform the job. Skills like leadership, communication management, time management, team management etc are mentioned.

- **Experience:** Job specification clearly highlights the experience required in a particular domain for completing a specific job. It includes work experience which can be from a specific industry, position, duration or in a particular domain. Managerial experience in handling and managing a team can also be a job specification criteria required for a particular position

- **Personality traits and characteristics**: The way in which a person behaves in a particular situation, handles complex problems, generic behavior etc are all covered in the characteristics of a job description. It also covers the emotional intelligence of a person i.e how strong or weak a person is emotionally

Advantages of Job Specification

A job specification is the foundation of the recruitment process since it defines criteria for the selection of candidates. Let us understand the various benefits it has:

- Job specification saves time while the screening of the resumes of the prospective candidates by scrutinizing those who fulfil the eligibility criteria the most.
- It acts as a benchmark by the human resource manager for the training and orientation of the employees.
- It provides an overview of all the relevant requirements of a particular job to the prospective candidates.

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- Job specification also helps candidates to find a suitable job by fitting in their skills and qualification in the mentioned job profile and eligibility criteria.

Disadvantages of Job Specification

As we know, job specification arises from the job description; it also has some related problems. Let us have a look at those limitations:

- Change in technology impacts the requirement of the company, i.e. changing of skills, qualification, experience, knowledge needed to execute the roles and responsibilities properly.
- A job specification is a lengthy process and requires complete knowledge of the job position.

Purpose of Job Specification

- Described on the basis of job description, job specification helps candidates analyze whether are eligible to apply for a particular job vacancy or not.
- It helps recruiting team of an organization understand what level of qualifications, qualities and set of characteristics should be present in a candidate to make him or her eligible for the job opening.
- Job Specification gives detailed information about any job including job responsibilities, desired technical and physical skills, conversational ability and much more.
- It helps in selecting the most appropriate candidate for a particular job.

Working manual.

An operations manual is a comprehensive documentation of how your company functions. If written correctly, it should guide someone unfamiliar with your company through the day-to-day procedures for operating your business.

Before you start writing, plan the physical layout of the manual. You'll find that the layout tends to dictate the manual's usability.

- ✓ Divide your manual into sections that coincide with the departmental organization of your company. This will facilitate employee contributions during the writing process and allow easy access to information once the manual is in circulation. Include a table of contents that lists subsections.
- ✓ Have authors create the document using the same word-processing software. Common software will not only make it easier to construct the manual now but it should also ensure the document can be easily modified in the future. Always have a hard copy of all the versions at a safe location.
- ✓ Number the sections and then the pages within sections. For example, page 4 of section 10 would be numbered "10.4." This will save you from having to reprint the entire document each time you make a change. The popular word-processing programs provide this page numbering option.
- ✓ On each page, add a footer indicating when the page was last modified. Photocopied pages frequently lie around, and an outdated one could do much damage.
- ✓ You can also include an appendix for interim additions or changes, so that you will not have to edit and reprint the manual to include periodic alterations.

Operations manuals typically include four types of information:

1. How-to procedures, e.g., how to enter a new account into your billing system, how to perform computer file back-ups.
2. Locations of items, e.g., keys.
3. Contacts, e.g., insurance company.
4. Business-related policies, e.g., not accepting personal checks.

Descriptions of department-specific tasks will make up the bulk of your manual, but you'll also want to include:

- Job descriptions. Formal job descriptions help individuals understand their roles within your company and also allow new and existing staff to identify each other's responsibilities.
- Emergency procedures. In most cases, you can obtain detailed emergency procedures from your landlord or from community groups. You will have to personalize some of the text, such as a gathering point in the event of a fire, but most of the information will already be prepared for you. Make two additional copies of your emergency procedures section to keep at reception and in the staff room for easy access.
- Disaster recovery plan. Document how to re-establish your business following a fire, theft or earthquake. Having a plan prepared in advance will help you restore normal operations quickly and thus prevent significant revenue loss. It's also good for public relations because customers will see that you are dedicated to providing uninterrupted service.

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Self-Check -1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. The following are true according to job definition except (2 pts)
    A. The execution or performance of a task.
    B. A post of employment; full-time or part-time position
    C. Anything a person is expected or obliged to do; duty; responsibility
    D. None
2. which of the following is true about work instruction? (2 pts)
    A. Describe what workers need to be able to do on the job
    B. Describe what task to be done or work roles in a certain occupation
    C. a description of the specific tasks and activities within an organization
    D. describe a process of an activity
3. The following are components of job specification except (2 pts)
    A. Experience   B. Knowledge   C. skills   D. organizational structure

Note: **Satisfactory rating - 5 points   Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____   Date: _____

Short Answer Questions

Information Sheet 3	**OHS Requirements**

OHS Requirements

OHS requirements are legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of firefighting equipment, enterprise first aid, hazard control and hazardous materials and substances.

Occupational safety and health can be important for moral, legal, and financial reasons. In common-law jurisdictions, employers have a common law duty (reflecting an underlying moral obligation) to take reasonable care for the safety of their employees. Good OSH practices can also reduce employee injury and illness related costs, including medical care, sick leave and disability benefit costs.

Policy

Not every term in the legislation is defined or explained in detail. Also, sometimes new circumstances arise (like increases in non-standard forms of employment, such as casual, labour hire and contract work, or completely new industries with new technologies which produce new hazards and risks) which could potentially impact on the reach of the law, or its effective administration by Work Safe. Therefore, from time to time Work Safe must make decisions about how it will interpret something that is referred to in legislation, or act on a particular issue, to ensure clarity. In these circumstances, Work Safe will develop a policy. A policy is a statement of what Work Safe understands something to mean, or what Work Safe will do in certain circumstances.

The Regulations

The Occupational Health and Safety Regulations 2007 are made under the Act. They specify the ways duties imposed by the Act must be performed, or prescribe procedural or administrative matters to support the Act, such as requiring licenses for specific activities, keeping records, or notifying certain matters.

Guidance

Effective OHS regulation requires that Work Safe provides clear, accessible advice and guidance about what constitutes compliance with the Act and Regulations. This can be achieved through Compliance Codes, Work Safe Positions and non-statutory guidance ("the OHS compliance framework"). For a detailed explanation of the OHS compliance framework, see the Victorian Occupational Health and Safety Compliance Framework Handbook.

Dust and fume collection, breathing apparatus and eye and ear personal protection needs

In nearly every industrial manufacturing facility you will find some form of dust, mist, or fume collection requirement. These could be sandblasting dust, metal debris, cutting or cooling oil mists, as well as weld and exhaust fumes, just to name a few. These contaminants can not only pose safety hazards to the surrounding machinery, they can cause both acute and long-term health issues for your employees. Maintaining a safe, clean, contaminant-free work environment is not only prudent, in many cases it is required by local, state, and federal regulations. We offer numerous types of dust, mist, and fume collection equipment in integrated, self-contained, and portable configurations. A dust, mist, and fume collection system can be for single use or designed to handle multiple collection points.

A **dust collector** is a system used to enhance the quality of air released from industrial and commercial processes by collecting dust and other impurities from air or gas. Designed to

handle high-volume dust loads, a dust collector system consists of a blower, dust filter, a filter-cleaning system, and a dust receptacle or dust removal system. It is distinguished from air purifiers, which use disposable filters to remove dust.

Companies are obliged by law to keep welding fumes in the breathing zone of a welder below a certain limit. As welding fumes are potentially dangerous for people's health, they should be reduced and/or extracted from the area where welding fume collects.

Welding fumes contain a mix of metal particles and gasses. Unlike many other processes, the fumes are often directly in the welder's breathing area. Welding fume extraction removes hazardous materials from the area. As a result, welders are protected from exposure.

Hierarchy for treatment of welding fumes

There are international standards for the preferred order in which welding fumes must be captured. This order is listed below. The next solution is chosen only when the previous one cannot be applied or is only a partial solution. In practice the total solution for a workshop is often a mixture of methods.

1. Reduce or avoid the production of welding fumes
2. At-source capture of welding fumes
3. Separate source and human by automation and e.g. an extraction hood
4. General ventilation and personal protection

Breathing apparatus device intended to supply the wearer with a source of breathable air which is isolated from the wearer's immediate environment.

1. **Closed-circuit escape breathing apparatus** that allows the wearer to re-breathe exhaled air after carbon dioxide concentration has been effectively reduced and oxygen concentration has been enriched. Is used either with a full face mask or with a mouthpiece and nose clip. Is primarily intended to be used for escape from hazardous atmospheres
2. **Compressed-air line apparatus** that supplies the wearer with air from a source of compressed air
3. **Escape breathing apparatus** simple short-duration self-contained apparatus intended primarily to be used for escape from hazardous atmospheres
4. **Fresh-air hose apparatus** that supplies the wearer with air drawn from a fresh air source with or without the assistance of a blower
5. **Open-circuit self-contained breathing** apparatus in which compressed air, carried in cylinders, is fed through a demand valve and a breathing tube to a full mask and exhaled air passes through a non-return valve to the atmosphere
6. **Respirator device** worn over the nose or mouth (or both), intended to protect the wearer from contaminated air by filtering the outside air before it is inhaled

Eye and ear protection

Eyes

Hazards Chemical or metal splash, dust, projectiles, gas and vapour, radiation

Options :- Safety spectacles, goggles, face screens, face shields, visors

Note:- Make sure the eye protection chosen has the right combination of impact /dust/splash/molten metal eye protection for the task and fits the user properly

Ears

Hazards Noise a combination of sound level and duration of exposure, very high-level sounds are a hazard even with short duration

Options Earplugs, earmuffs, semi-insert/canal caps

Note

- Provide the right hearing protectors for the type of work, and make sure workers know how to fit them
- Choose protectors that reduce noise to an acceptable level, while allowing for safety and communication

1. Ear-plugs An ear-plug is a device that is inserted into an individual's ear canal to protect them from exposure to loud noises. Ear-plugs come in wide variety of forms, mostly manufactured from soft plastic, PVC, silicone and Polyurethane. They provide good sound attenuation when fitted correctly. The type of ear-plug chosen will depend on each individual's needs and personal preference.

Custom-moulded ear-plugs

Advantage
  - ➢ small and easily carried
  - ➢ easy to use and store more protection at lower frequencies than ear muffs
  - ➢ various noise reduction ratings available inexpensive, therefore cheap to buy and replace
  - ➢ can be custom moulded for individual workers convenient to use with other personal protective equipment such as safety glasses comfortable to wear for longer periods, especially in hot and humid work environments

Disadvantage
  - ➢ improper insertion reduces noise reduction rating value
  - ➢ can be difficult to insert and remove (e.g., for individuals with small ear canals)
  - ➢ requires good personal hygiene practice (can introduce dirt into ear canal)
  - ➢ may irritate the ear canal more difficult to monitor usage.

2. Ear-muffs Earmuffs, also known as ear defenders, are hard plastic cups that fit over and surround the individual's ears and are sealed to the head by cushion seals. These are usually manufactured from plastic materials with a metal or plastic head band and foam or liquid ear cushion. Depending on the material used, the ear-muffs can irritate skin around the ears, particularly in warm weather.

Advantage
  - ✓ More protection at higher frequencies than ear-plugs
  - ✓ Designed to fit most people -
  - ✓ Less time and effort required to apply
  - ✓ Easy to supervise and monitor
  - ✓ Not easily misplaced or lost
  - ✓ Various noise reduction ratings available
  - ✓ Can be worn with minor ear infections
  - ✓ Re-useable, durable and longer lasting than ear-plugs.

Disadvantage
  - ✓ Rather less portable and relatively heavier than ear-plugs
  - ✓ Requires adequate storage facilities
  - ✓ Can be uncomfortable in hot and humid environments
  - ✓ Rather expensive to buy or to replace
  - ✓ Can be inconvenient to use with other personal protective equipment.

3. Canal caps/semi-insert earplugs Canal caps have rounded heads that cover the entrance to the ear canal, while semi-insert plugs generally have conical tips that are pushed into the ear canal. Both types are convenient for situations where the hearing protection has to be taken on and off frequently. Firm pressure from the head band is required to maintain an effective seal, which can be uncomfortable over longer use. These are normally recommended for use in areas of intermittent noise.

Advantages
 ➢ Various noise reduction ratings available
 ➢ Easy to insert - may be used several times
 ➢ Ideal for people going in and out of noisy areas.

Disadvantages
 ➢ correct size may be required
 ➢ improper insertion reduces effectiveness
 ➢ more expensive than ear plugs
 ➢ typically have lower noise reduction ratings than plugs or muffs.

Personal protective equipment (PPE) is anything used or worn by a person to minimize a risk to the person's health or safety. Protect workers and visitors from hazards within the workplace to ensure that your company complies with OH&S "Duty of Care" regulations. Choose from Seton's wide range of Personal Protective Equipment (PPE) solutions including hard hats, eye & ear protection, respiratory & hand protection, disposable clothing, safety harnesses, hydration drinks, sunscreens and storage boxes to ensure that your employees are kept safe and Personal Protection is visible and accessible.

Safe operating procedures

Safe operating procedures include the conduct of operational risk assessment and treatments associated with workplace organization.

Use of tooling and equipment

When working any activity with tools and equipments, you should be use a proper tools and equipments they designed for the purpose in order to improve safety.

Tools and Equipment Safety
 ✓ Keep fingers and clothing away from rotating equipment.
 ✓ Sanding and buffing wheels must be securely attached.
 ✓ Protective guards must be in place.
 ✓ Use a box end wrench or socket whenever possible.
 ✓ Use only impact sockets with impact wrenches.
 ✓ Never use pliers to loosen or tighten.
 ✓ Never use screwdrivers as chisels.
 ✓ Never strike two hammers together
 ✓ Do not dump residue from steam cleaning in sewers.
 ✓ Wear protective gloves and a face shield.
 ✓ Use only approved cleaning solutions.
 ✓ Observe all environmental regulations.
 ✓ Keep tools in good condition.
 ✓ Use the proper tool for the job.
 ✓ Do not put tools in your pocket.
 ✓ Keep tools with cutting edges sharp.

- ✓ Keep tools clean and free from grease.
- ✓ Pull wrenches toward you, do not push.
- ✓ Do not use power equipment or tools on which you have not been trained.
- ✓ Keep power cords away from the path of vacuum cleaners, floor polishers and grinders.
- ✓ Do not carry plugged in equipment or tools with your finger on the switch.
- ✓ Do not carry equipment or tools by the cord.
- ✓ Disconnect the tool from the outlet by pulling on the plug, not the cord.
- ✓ Turn the tool off before plugging or unplugging it.
- ✓ Do not leave tools that are "On" unattended.
- ✓ Do not handle or operate electrical tools when your hands are wet or when you are standing on wet floors.
- ✓ Turn off electrical tools and disconnect the power source from the outlet before attempting repairs or service work. Tag the tool "Out of Service".
- ✓ Do not drive over, drag, step on or place objects on a cord
- ✓ Follow the tool manufacturer's directions.

when working on power tools

- The instruction for using any equipment should be studied carefully before the equipment is operated
- Hands and clothes should be kept away from the running machineries
- Disconnect the power source when you stop working on machines
- Clean, lubricate and cover the machine every time you finish working
- Never get under a vehicle which is standing on a jack. Support it with car stands and chock the wheels to keep the car from rolling
- Always use your legs and not and shoes while you are working in the shop

Workplace environment and safety

The preparation of work shop to supply equipment helps to -

- ✓ Keep environment well being
- ✓ Finish with specified our time pre-summing
- ✓ Identify the work and its implementing tools and equipment
- ✓ Decide the work procedure
- ✓ Keep tools, equipment and resource prevent ourselves from injury
- ✓ Done the work with quality

Hazards in the work shop

a) Faulty work habits
b) Misuse of equipment
c) Misuse of hand tools

   a) **Faulty work habits**
     i) Smoking around fuel and solvents
     ii) Incorrect handling of paint, thinners, solvents, flammable liquids etc..
     iii) Blocking exits. A block exit could mean serious injury or even death during an emergency case such as fire.

   b) **Misuse of equipments**
     i) Incorrect safety guarding of moving machinery
     ii) Misuse of flexible electric cords or worn cords. When used through holes the may cause fire
     iii) Improperly stored composed gas cylinders
     iv) Using hand held electric tools improperly grounded

   c) **Misuse of hand tools**
     i) Keeping hand tools dirty and in poor conditions
     ii) Improper storing of hand tools
     iii) Using defective hand tools

iv) Keeping sharp tools in pockets

Handling of material

There are many potentially dangerous materials encountered in the auto body shop. These materials can cause bodily harm and property damaged if improperly handled. Always follow the manufacturer's suggestions when working with any materials

The National Safety Council suggests employers relay the following information to employees to help reduce workplace incidents when handling and moving materials:
- ✓ Avoid lifting materials from the floor or while seated.
- ✓ Make use of available handling aids.
- ✓ Refrain from using sudden or jerky movements.
- ✓ Never lift a load over an obstacle.
- ✓ Perform lifts in areas with adequate footing, space and lighting.
- ✓ Modify objects and redesign jobs to make moving easier.
- ✓ Seek assistance from co-workers.
- ✓ Stay in good physical shape.
- ✓ Begin lifts close to the body.
- ✓ Use containers made of lighter materials.
- ✓ Reduce load sizes when possible.
- ✓ Do not twist or bend while lifting objects.
- ✓ Always bend your knees ,Maintain balance, Keep feet apart and in a comfortable position , Minimize bending at the waist, Bend your knees to a semi squat
- ✓ **.** Turn your feet in the direction that you want to move the load, Avoid unnecessary bending, twisting, and reaching, Change direction by turning your feet and not your back, To set down a load, squat down and keep your head up. Let your legs do the work

Move Close   Firm Grip   Bend your knees   Lift with your legs

- ✓ Ensure repetitive, heavy and bulky lifts are not performed.
- ✓ Keep lifts between shoulder and knuckle height.
- ✓ Use conveyors, slides or chutes to eliminate pushing or pulling.
- ✓ Team lifts are appropriate if:
  - ➢ The load is too heavy for one person
  - ➢ The load is large, bulky, or oddly-shaped
  - ➢ You feel uncomfortable lifting the load by yourself (and do not have the proper equipment)

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Use of fire -fighting equipment

Fire Extinguisher

A fire extinguisher is an active fire protection device used to extinguish or control small fires, often in emergency situations. It is not intended for use on an out-of-control fire, such as one which has reached the ceiling, endangers the user (i.e., no escape route, smoke, explosion hazard, etc.), or otherwise requires the expertise of a fire brigade. Typically, a fire extinguisher consists of a hand-held cylindrical pressure vessel containing an agent which can be discharged to extinguish a fire. Fire extinguishers manufactured with non-cylindrical pressure vessels also exist but are less common.

There are basically four different classes of fire extinguishers, each of which extinguishes specific types of fire. Newer fire extinguishers use a picture/labeling system to designate which types of fires they are to be used on.

Older fire extinguishers are labeled with colored geometrical shapes with letter designations. Both of these types of labels are shown below with the description of the different classes of extinguishers.

1. **Class A** Extinguishers will put out fires in ordinary combustibles, such as wood and paper. The numerical rating for this class of fire extinguisher refers to the amount of water the fire extinguisher holds and the amount of fire it will extinguish.
2. **Class B** Extinguishers should be used on fires involving flammable liquids, such as grease, gasoline, oil, etc. The numerical rating for this class of fire extinguisher states the approximate number of square feet of a flammable liquid fire that a non-expert person can expect to extinguish.
3. **Class C** Extinguishers are suitable for use on electrically energized fires. This class of fire extinguishers does not have a numerical rating. The presence of the letter "C" indicates that the extinguishing agent is non-conductive.
4. **Class D** Extinguishers are designed for use on flammable metals and are often specific for the type of metal in question. There is no picture designator for Class D extinguishers. These extinguishers generally have no rating nor are they given a multi-purpose rating for use on other types of fires.

Types of Fire Extinguishers

1. **Dry Chemical extinguishers** are usually rated for multiple purpose use. They contain an extinguishing agent and use a compressed, non-flammable gas as a propellant
2. **Hualon extinguishers** contain a gas that interrupts the chemical reaction that takes place when fuels burn. These types of extinguishers are often used to protect valuable electrical equipment since them leave no residue to clean up. Halon extinguishers have a limited range, usually 4 to 6 feet. The initial application of Halon should be made at the base of the fire, even after the flames have been extinguished.
3. **Water** These extinguishers contain water and compressed gas and should only be used on Class A (ordinary combustibles) fires.
4. **Carbon Dioxide (CO2) extinguishers** are most effective on Class B and C (liquids and electrical) fires. Since the gas disperses quickly, these extinguishers are only effective from 3 to 8 feet. The carbon dioxide is stored as a compressed liquid in the extinguisher; as it expands, it cools the surrounding air. The cooling will often cause ice to form around the "horn" where the gas is expelled from the extinguisher. Since the fire could re-ignite, continue to apply the agent even after the fire appears to be out.

How to Use a Fire Extinguisher

Even though extinguishers come in a number of shapes and sizes, they all operate in a similar manner.

✓ Pull the pin at the top of the extinguisher that keeps the handle from being accidentally pressed.

- ✓ Aim the nozzle toward the base of the fire.
- ✓ Stand approximately 8 feet away from the fire and squeeze the handle to discharge the extinguisher. If you release the handle, the discharge will stop.
- ✓ Sweep the nozzle back and forth at the base of the fire. After the fire appears to be out, watch it carefully since it may re-ignite!

Enterprise first aid,

Give first aid whenever required using the first aid kit available in the shop

Depending on the type of accident, call for help (doctor or ambulance).

First aid" is a catch-all phrase that refers to two distinctly different medical needs. Emergency first aid is exactly that the first response to a life-threatening (or limb-threatening) medical emergency, either an illness or an injury. It's often called first responder training

The aims and objectives of first aid

The objectives of first aid, is just that, to provide the "first aid" to a person who has been injured. In may cases, such as a scraped knee, a small cut, or minor illness, that is all the aid that a person needs. In more severe cases, the first aid is meant to stabilize the person until better, trained and equipped providers arrive. An example is CPR, the first aider starts CPR and the rescue squad shows up and provides care beyond the training of the first aider such as medications, airway adjuncts and IV's.

- Preserve life.
- Prevent illness or injury from becoming worse.
- Relieve pain, if possible.
- Promote recovery.

The office can seem like a safe place to work, but, there are risks you wouldn't think of until they happen. An accident can occur at any time and if it did, who in the workplace is trained to help? It is a legal requirement as a company to ensure your employees receive immediate attention. Here are 10 reasons why you should consider First Aid Training for employees.

1. It can save lives
2. Reduce the number of workplace accidents
3. Positive work environment
4. Your company will be safer place to work
5. First aid kits are used properly
6. It can reduce recovery time
7. It can keep employees safe outside of the workplace
8. It's a great team-building exercise
9. It gives your employees confidence and clarity during an emergency
10. The cost of a First Aid at Work Training course is nothing compared to that of potentially saving alive.

hazard control and hazardous materials and substances

Hazardous materials include any materials that can cause seriously physical harm or pose a risk to the environment. These materials are identified and regulated by the united states Environmental Protection Agency (EPA)

There are four types of hazardous materials found in the body shop

- Flammable materials
- Corrosive materials
- Reactive materials
- Toxic materials

"Hazardous Substances" are classified based only on health effects which have the potential to harm human health. They may be solids, liquids or gases; they may be pure substances or

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mixtures. When used in the workplace, these substances often produce vapours, fume, dusts and mists. There are many industrial, laboratory and agricultural chemicals which are classified as hazardous. Hazardous substances may cause immediate or long-term health effects. Exposure could result in:

- Poisoning;
- Irritation;
- Chemical burns;
- Sensitization;
- Cancer;
- Birth defects; or
- Diseases of certain organs such as the skin, lungs, liver, kidneys and nervous system.

Common hazardous substances

Many industrial, agricultural and medical organizations use hazardous substances. The degree of hazard depends on the concentration of the chemical. Common hazardous substances in the workplace include:

- acids
- caustic substances
- disinfectants
- glues
- heavy metals, including mercury, lead, cadmium and aluminum
- paint
- pesticides
- petroleum products
- solvents.

Possible side effects of exposure to hazardous substances

Health effects depend on the type of hazardous substance and the level of exposure (concentration and duration). A hazardous substance can be inhaled, splashed onto the skin or eyes, or swallowed. Some of the possible health effects can include:

- poisoning
- nausea and vomiting
- headache
- skin rashes, such as dermatitis
- chemical burns
- birth defects
- disorders of the lung, kidney or liver
- nervous system disorders

Hazard control system

A hazard control program consists of all steps necessary to protect workers from exposure to a substance or system, the training and the procedures required to monitor worker exposure and their health to hazards such as chemicals, materials or substance, or other types of hazards such as noise and vibration. A written workplace hazard control program should outline which methods are being used to control the exposure and how these controls will be monitored for effectiveness.

Hazard prevention and control program requires:

1. political will and decision-making;
2. commitment from top management, with a clear and well circulated policy basis;
3. commitment from workers;
4. well defined goals and objectives;
5. adequate human and financial resources;
6. technical knowledge and experience;
7. adequate implementation and competent management of program;
8. establishment of multidisciplinary teams;
9. mechanisms for communication;
10. monitoring mechanisms (indicators);

11. continuous improvement of the programme.

Steps for hazard control

1. Be aware of the problem
2. Accept the problem
3. Know the cause
4. Learn of possible solutions
5. Accept a solution

6. Know the supplier (of solution)
7. Finance
8. Implement solutions
9. Evaluate

Emergency procedures

Emergency procedures include emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation.

An emergency procedure is a plan of actions to be conducted in a certain order or manner, in response to a specific class of reasonably foreseeable emergency, a situation that poses an immediate risk to health, life, property, or the environment.[1] Where a range of emergencies are reasonably foreseeable, an emergency plan may be drawn up to manage each threat. Most emergencies require urgent intervention to prevent a worsening of the situation, although in some situations, mitigation may not be possible and agencies may only be able to offer palliative care for the aftermath. The emergency plan should allow for these possibilities.

Steps to Asses and respond to an emergency situation

1. **Assess the Situation**

The first thing you should do is assess the situation. Look to see who is at the emergency scene, and find out what others at the scene are doing. If anyone is in danger or hurt, you should **immediately take charge of the situation**. In high stress situations, people tend to panic if they or someone they know has been injured. Bystanders will often ignore the situation completely if there are many other people around, assuming that someone else must have taken care of the situation already (this is a psychological phenomenon known as the bystander effect). If you feel you are able to help, take steps to lead and delegate to those around the emergency scene. When scared people, who are not used to or have never even thought of dangerous situations taking place, do not know how to react, they oftentimes just shut down. Lead them by giving them direct instructions and often they will step up and follow.

2. Get Help

The first step to establishing some sort of leadership is to shout out or signal for help. Don't yell abstract things like, "Why are you just standing there?" .

3. Assess the Environment

The initial recon should be of the area, not the people involved. Be aware of your surroundings and of your options for making it safe, both for yourself and anyone else in the vicinity. Don't perform first aid on an injured person right next to a burning vehicle – this seems obvious, but when there's not much time to think, it's possible to quickly turn an incident of one casualty to a crisis of many. Be smart and consider all of the various environmental factors involved before rushing into hero-mode. Be on the lookout for the following things:

- Smoke, gases, and fumes. Locate and shut off the source and move casualties to fresh/open air. If you can't shut off the source, then you'll likely need to move the casualties farther. Carefully relocate them taking every possible precaution.
- Fires lead to structural instabilities and potential explosions, so if there's fire involved and you're trying to help out, remove casualties from the scene as quickly as possible. Of course, it need not be said, but check on the casualties prior to even thinking about tackling the fire, even if the fire may spread to take out more property – a human life is more important than any building or physical possession.
- In terms of motor accidents, turn off the ignition if at all possible, and be on the look out for pools of gasoline and smoke. Carefully carry the injured away from the wreckage if

it is possible to do so, as gas leaking gas tanks + shorted wires are a sometimes lethal combination.

- With electrical accidents, separate and/or break contact somehow between the injured individual and the electrical source. If there are live wires on the ground, use a non-conductive material to move them out of the way (a broom, a stick, or a branch would be ideal if you can get your hands on any of these things).

4. Triage: Assess the Injured

At this point, you can perform basic triage and assess the injured people involved in the emergency situation. Look to the most vulnerable individuals first, see if you can help any of the ones with the most immediate medical needs. Ideally, you'd have an EDC bag with a first aid kit on you, or perhaps even a trauma kit in a bug out bag to use. If not, do the best you can with what you have: alcohol in your car or tearing up clothes to use as bandages would be great in these types of situations. Check for loss of consciousness, major bleeds, and asphyxiation, and deal accordingly, again, from the most to least injured. Your goal is never to completely heal victims, but to keep as many of them alive as possible until the physicians arrive. Never forget that.

5. Know Your Limits

Don't take extreme risks. In periods of high pressure, it can be tempting to go beyond your knowledge or expertise to try to help, but unless you are 100% sure that you need to do something incredibly risky (like a tracheotomy) do **not** take the risk in doing it yourself and instead **wait for professional assistance**. That doesn't mean you should watch someone asphyxiate when you think you could've helped, but if it's possible to get a person breathing by any other means, take the least risky way, or at least keep the casualty alive until the medical staff arrive and are able to do the tracheotomy themselves. Try to react to issues that may arise as calmly as possible, and direct your focus on the immediate dangers – is the victim stable? If yes, move on to someone else who needs help. All you have to do is hold down the fort long enough for the EMTs to arrive. When they finally get there, keep out of their way, courteously explain to them what you've been doing, and assist them only if they ask for your help. Once their hands are on the casualties, your job is done and has been successful. Take a step back and let them handle the situation from then on.

Personal protective equipment

Personal protective equipment include those prescribed under legislation/ regulations/codes of practice and workplace policies and practices. Protective wear and equipment should be used to guard against the hazards in the shop environment. Prevention is the best defense against injury.

Personal protective equipment falls into three broad categories:

1. Face protection
2. Body protection
3. Respiratory protection

Face Protection

- The face and eyes should be protected at all times when working in the auto body shop.
- A face shield or safety glasses should be worn to protect the eyes.

Additional Protection when working with chemicals
- Welders, Grinders, Drills, Chip removal

The ear should be protected when grinding, pounding, or working areas where **noise intensity** may exceed allowable limits.

Body Protection

The skin acts as a natural barrier to the elements Chemicals can break down the skin barrier and allow secondary infections to manifest.

TYPES OF BODY HAZARDS

1. **Temperature stress**
   - Exposure to heat (hot metals) or cold (dry ice) which results in burns
2. **Chemical Contact**
   - Chemical splash
   - Contact with potentially infectious materials
3. **Radiation**

Respiratory Protection:- Relating to breathing is used in breathing or the system in the body that takes in and distributes oxygen.
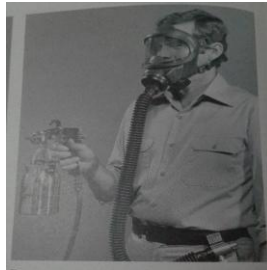
Self-Check -1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What is OHS requirements? (1 pts)

2. Define the word fire-extinguisher. (1 pts)

3. Write methods of how to use fire extinguisher? (4 pts)

Note: **Satisfactory rating - 5 points**   **Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____   Date: _____

Short Answer Questions

Information Sheet 4	Identifying and checking Safety equipment and tools

1.3.1 dust masks/ goggles

A **dust mask** is a flexible pad held over the nose and mouth by elastic or rubber straps to protect against dusts encountered during construction or cleaning activities, such as dusts from drywall, brick, wood, fiberglass, silica (from ceramic or glass production), or sweeping.

Dust masks just don't provide a good face seal and they protect about as well as nose hair, which is **to** say not that well. Replace them when they look dirty or after about 8 hours of **wear**.

A **dust mask** is worn in the same fashion as a paint mask or surgical mask, but it is dangerous to confuse the three because they each protect against specific airborne dangers. Using the wrong mask for a job can present a significant and possibly deadly danger as many dust masks with widely varied levels of protection may look similar, and even masks that do not protect against dust at all, such as paint masks and surgical masks. Miss fitting masks are also a danger as they allow a material to bypass the mask entirely. A correct fit may not be as critical in masks that are intended to protect against splattering liquids or mists. Dust masks are manufactured to protect against only certain dangers, and do not protect against chemicals such as vapors and mists. For this reason, it is dangerous to confuse dust masks with paint masks.

Dust masks are a cheaper, lighter, and possibly more comfortable alternative to respirators, but may not provide as much protection, and may be more susceptible to misuse or poor fit.

Goggles, or **safety glasses**, are forms of protective eyewear that usually enclose or protect the area surrounding the eye in order to prevent particulates, water or chemicals from striking the eyes. They are used in chemistry laboratories, welding and in woodworking. They are often used in snow sports as well, and in swimming. Goggles are often worn when using power tools such as drills or chainsaws to prevent flying particles from damaging the eyes. Many types of goggles are available as prescription goggles for those with vision problems..

Glove a piece of clothing that is worn on the hand and wrist for warmth or protection, with separate parts for each finger

More examples

- ➢ gardening gloves
- ➢ hand-knitted gloves
- ➢ a pair of latex surgical gloves
- ➢ Tuck your gloves in your pocket so that you don't lose them.
- Those gloves look nice and warm.

1.3.2 Working cloth is clothing worn for work, especially work that involves manual labour. Often those employed within trade industries elect to be outfitted in work wear because it is built to provide durability and safety.

1.3.3 First aid and safety shoes

A basic **workplace first aid kit should include**: Plasters: Used for small cuts and grazes.

Dressings: Used to apply pressure to larger wounds and help to stop bleeding. ... Scissors or

tweezers: Used to cut bandages or sticky tape or someone's clothing if you need to get to a

wound

The contents of your first aid kit should be guided by your first aid needs assessment, this

should take into account the level of hazards, workplace environment and number of

employees**.**

A basic workplace first aid kit should include:

- **Plasters:** Used for small cuts and grazes
- **Dressings:** Used to apply pressure to larger wounds and help to stop bleeding
- **Bandages:** Used to support joints, hold dressings in place, put pressure on wounds and to stop swelling
- **Disposable gloves**: Used to reduce the risk of infection
- **Face shields or pocket masks:** Used to prevent infection when you give rescue breaths
- **Cleansing wipes, alcohol free wipes:** Used to clean the skin around the wound
- **Adhesive tape:** Used to hold dressings or the loose end of bandages in place
- **Scissors:**

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Self-Check -1	**Written Test**

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Define the following words. (6 pts)
    A. dust mask
    B. Goggles
    C. Glove
2. List 8 materials a basic workplace first aid kit should include (8 pts)

Note: **Satisfactory rating - 11 points**   **Unsatisfactory - below 11 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____   Date: _____

Short Answer Questions

Information Sheet 5	Preparing Tools and Equipment to standardize 3S

Preparing and implementing Tools and equipment to standardize 3S based on relevant procedures

You are required to prepare and use tools and equipment to implement sort, set in order and shine activities in to your work station. The following are some tools and equipment that help you in the implementation of 3S.

Tools and materials used to implement Sort activity

Tools and materials are required to implement sort, set in order and shine activities in work stations. The following are some tools and materials used to implement the first pillar of 5S-Sort.

- red tags
- hook
- shelves
- sponge
- pencil
- formats (for recording necessary and unnecessary items, plans etc…)

• sticker
• nails
• chip wood
• broom
• shadow board/ tools board

Tools and materials used to implement set in order

The following are some tools and materials used to implement the second pillar of 5S-Set in order.
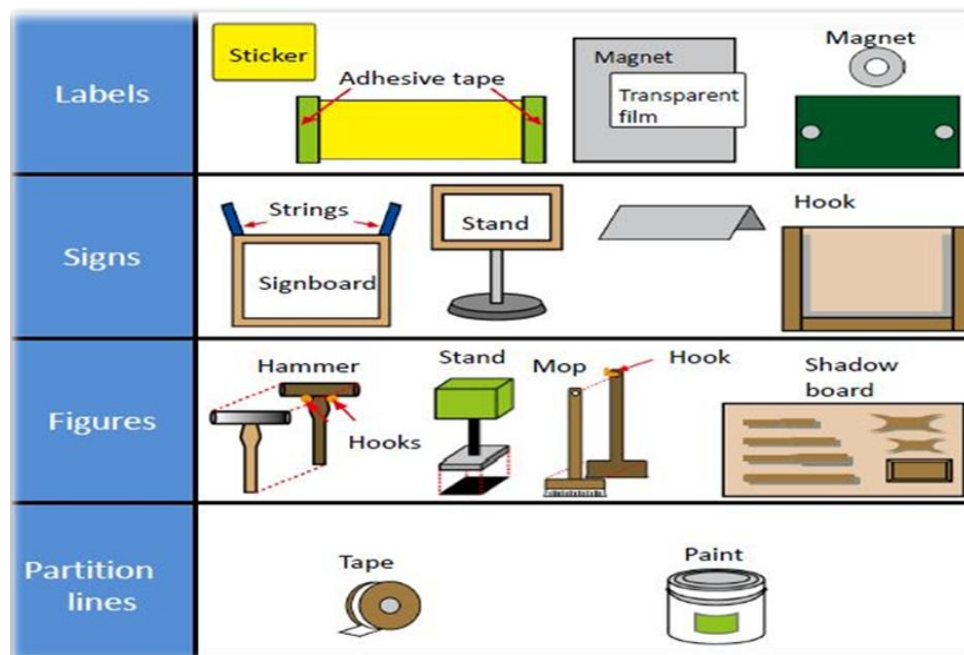
Tools and materials used to implement shine

The following are some tools and materials used to implement the third pillar of 5S-Shine.

- sponges
- spades
- dust bins
- detergents
- bolts

• brooms
• vacuum cleaners
• gloves
• containers
• screws

• brushes
• waste baskets
• dust masks
• oils
• boots shoes Etc…

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The Three Steps to Make the 3S Activities a Habit/Standardize using the Tools and Techniques of 3S Standardization

1. **Assign 3S Responsibilities**

When it comes to maintaining three pillar conditions, everyone must know exactly what they are responsible for doing and exactly when, where and how to do it. If people are not given clear 3S job assignments based on their own workplaces, the Sort, Set in Order, and Shine activities will not have much meaning. Similarly, clear 3S instructions must be given to the people who deliver goods from outside suppliers. The delivery sites should be clearly marked and a 5S Map posted to show where each supplier's goods are to be unloaded. At each unloading site, signboards should make it clear whose things go where and in what amount. The suppliers should be made responsible for maintaining 3S conditions at their own unloading sites and encouraged to join in full 5S implementation.

Tools for assigning 3S responsibilities include:
- 5S Maps
- 5S schedules
- 5S job cycle charts,

2. Integrate 3S Duties into Regular Work Duties

If people carry out three pillar maintenance duties only when they see three pillar conditions slipping, then the five pillar implementation has not yet taken root. Maintenance must become a natural part of everyone's regular work duties. In other words, the five pillars - centered on maintaining 3S conditions-must be part of the normal work flow. We sometimes refer to this as "5S line integration" or establishing a five pillars flow. Visual 5S and Five-Minute 5S are two approaches that help make maintenance work part of the everyday work routine.

3. Check on 3S Maintenance Level

After we have assigned the three pillar jobs and have incorporated the three pillar maintenance into the everyday work routine, we need to evaluate how well the three pillars are being maintained. For this, we can use a Standardization-level Checklist as shown in the figure below.

Figure: Standardization Level Checklist

To evaluate the effectiveness of the maintenance activities, the evaluator ranks the Sort, Set in order, and Shine levels on a scale of 1 to 5. Such checklists can be made for specific workshop and/or production processes. One example is shown in the Figure below. 5S Checklists like the one in the figure are used to check five pillar levels in the factory as a whole. When a company implements 5S Month of intensive activities, 5S Checklists should be used to make weekly evaluation of five pillar conditions.

Figure: checklists for an entire factory

Creating conditions to sustain your plans

When we find that tools have not been put back correctly, we immediately take care of them. When we find an oil puddle on the floor, we immediately mop it up. Making these actions habit is the foundation of Standardize. However, when the same problems keep on happening over and over again, it is time to take the concept of Standardize to the next level: prevention.

To take this pillar to a higher level, we must ask "why?" Why do unneeded items accumulate (despite Sort procedures)? Why do tools get put back incorrectly (despite Set in order procedure? Why do floors get dirty (despite Shine procedures)? When we ask "why" repeatedly, we eventually find the source of the problem and can address that source with a fundamental improvement. Such improvements can help us develop Unbreakable standardization, which means:

- Unbreakable sorting
- Unbreakable setting in order
- Unbreakable setting shining

Unbreakable Standardization	=	Unbreakable Sorting + Unbreakable Set in order + Unbreakable Shining

Prevent unneeded items from Accumulating (Preventive Sort Procedures)

The Red-Tag Strategy described sorting out unneeded items. This strategy is a visual control method that enables anyone to see at a glance which items are no longer needed. However, we should note that the Red-Tag Strategy is an after-the-fact approach that deals with unneeded items that have accumulated. No matter how often we implement this strategy, unneeded items will accumulate in the interim.

Nowadays, smart companies are shifting from this type of "alter the-fact" sorting to preventive sorting. Preventive sorting means that instead of waiting until unneeded items accumulate; we find ways to prevent their accumulation. We could also call this approach "unbreakable' sorting because once sort procedures have been implemented, having only needed items in the workplace becomes an "unbreakable" condition.

To achieve unbreakable sorting we must prevent unneeded items from even entering the workplace. These words- «only what is needed" -have a familiar ring to anyone acquainted with the just-in- time (JIT) philosophy and program. To prevent the accumulation of unneeded inventory, we must find a way to procure and produce only those materials that are needed, only when they are needed, and only in the amount needed.

For example, suppose your company is scheduled to produce a certain number of units of a product during a particular month. Ideally, at the beginning of this month, only the parts needed to produce the scheduled number of units would be delivered to you from your suppliers. For any given part, your company might even receive the part in several deliveries, depending on the type of part and the delivery considerations.

Receiving parts just-in-time for production rather than storing large quantities of parts in advance eliminates many of the potential costs associated with maintaining inventory. As well, receiving parts just-in- time is a preventive measure that avoids the accumulation of parts that needed to be sorted.

Prevent Things from Having to Be Put Back (Preventive Set in Order Procedures)

Preventive setting in order means keeping set in order procedure from breaking down. To achieve preventive setting in order, we must somehow prevent the inefficiency that results from the lack of orderly control of any specific item. There are two ways to do this: (1) make it difficult to put things in the wrong place and (2) make it impossible to put things in the wrong place.

The first method relies heavily on discipline and visual controls. Clearly marked storage sites show at a glance what goes where and in what amount. When it is obvious what goes where and in what amount. When it is also obvious that things are not put back properly. As people practice returning things, such visual setting in order becomes habitual. This condition supports setting in order that is difficult to break. However, there is still a big difference between setting in order that is difficult to break and setting in order that is unbreakable. 'Why settle for the first when the second is possible? But how we achieve unbreakable setting in order?

Self-Check 3	**Written test**

Instructions: Perform the following tasks. Write your answers in the answer sheet provided:

1. List at least 10 tools and materials used to implement Sort. (10 points)
2. List at least eight tools and materials used to implement Set in order. (8 points)
3. List at least eight tools and materials used to implement Shine. (8 points)

Note: **Satisfactory rating - 20 points**   **Unsatisfactory - below 20 points**

You can ask your trainer for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____   Date: _____

Operation Sheet 1	Procedures in Implementing 3S

Sequence of 3S

1. Sort

1.1 Plan and procedures for sort activity
Sort activity plan sheet (sample)

1.1 Implementation

```
                     ┌──────────────────────┐
                     │     Preparation       │
                     └──────────────────────┘

   ┌──────────────────────┐          ┌──────────────────────┐
   │   Necessary items     │          │   Unnecessary items   │
   └──────────────────────┘          └──────────────────────┘

   ┌──────────────────────┐          ┌──────────────────────┐
   │ Making a Shop Stock List│        │   Red Tag Strategy    │
   └──────────────────────┘          └──────────────────────┘

   ┌──────────────────────┐          ┌──────────────────────┐
   │    Quantification     │          │ Evaluation of unnecessary│
   │                       │          │ items                 │
   └──────────────────────┘          └──────────────────────┘

   ┌──────────────────────┐          ┌──────────────────────┐
   │ Set-in-order activities│         │ Disposal of unnecessary items│
   └──────────────────────┘          └──────────────────────┘

                                      ┌──────────────────────┐
                                      │ Shine Activity In parallel│
                                      └──────────────────────┘

                                      ┌──────────────────────┐
                                      │ Set-In-Order activity │
                                      └──────────────────────┘
```

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2. Set in order

2.1 Plan and procedures for set in order

Set in order activity plan sheet (sample)

2.2 Implementation stage
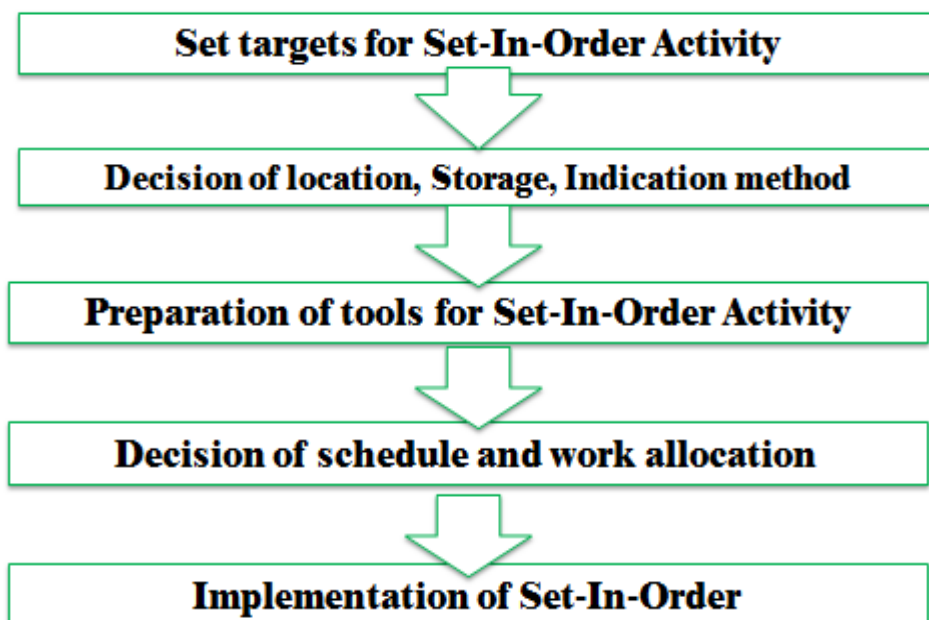
3. Shine

3.1   Plan

Area : M-1

Preparation date: Year   Month   Day
Prepared by 5S Committee

Basic Plan		Seisou Activity																														
		5th month																														
Activity		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Preparing necessary tools	Plan	■	■																														
	Result																																
Determining activity area	Plan					■	■	■																									
	Result																																
Designing procedures for the Seisou Activity	Plan								■	■																							
	Result																																
General cleaning	Plan												■	■	■	■	■		■	■	■	■	■										
	Result																																
Working out the problems revealed through the general cleaning	Plan																										■	■	■	■			
	Result																																

Shine activity plan sheet (sample)

3.2 Implementation
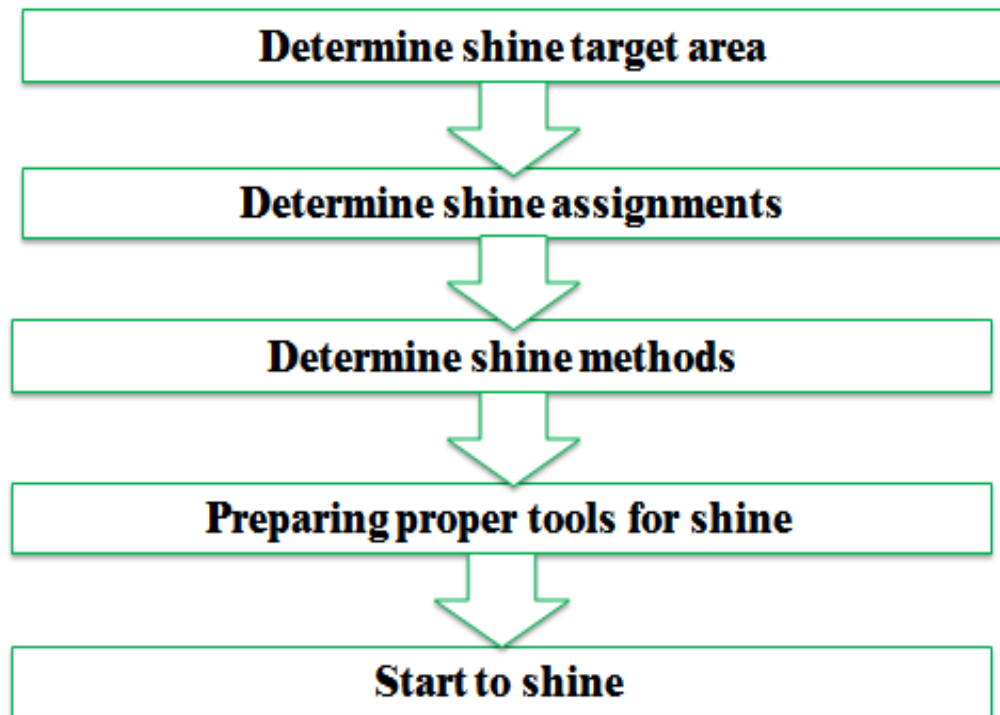
Determine shine target area

⬇

Determine shine assignments

⬇

Determine shine methods

⬇

Preparing proper tools for shine

⬇

Start to shine

LAP Test	**Practical demonstration**

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, workshop, tools and materials you are required
to perform the following tasks within 4 hours.

Task 1. Use work instructions to determine job requirements, including method, material and equipment.

Task 2. Read and interpret job specifications following working manual.

Task 3. Observe OHS requirements, including dust and fume collection, breathing apparatus and eye and ear personal protection needs throughout the work.

Task 4. Identify and check Safety equipment and tools for safe and effective operation.

Task 5. Prepare and use Tools and equipment to implement 3S.

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22. http://www.ozarc.com/Fume%20Extraction.aspx

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24. http://www.hse.gov.uk/toolbox/ppe.htm

25. https://www.iosh.com/media/1725/the-main-types-of-hearing-protection-factsheet.pdf

26. https://www.seton.net.au/work-wear-ppe-first-aid/personal-protection.html

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Vehicle Body Repairing and Painting NTQF Level-II

Learning Guide -11

Unit of Competence: - Standardizing and Sustaining 3S

Module Title: - Standardizing and Sustaining 3S

LG Code: **EIS VRP2 M04 LO02-LG-11**

TTLM Code: **EIS VRP2 TTLM 0919v1**

LO 02:   Standardize 3S

Instruction Sheet	Learning Guide #-11

This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics –

- Introduction to standardize
- Preparing and using plan for standardize 3s activities..
- Preparing **tools and techniques** to standardize 3s*.*
- Following check lists and **reporting** for standardize activities to **relevant personnel**
- Keeping the work place to the specified standard
- Avoiding problems

This guide will also assist you to attain the learning outcome stated in the cover page.

Specifically, upon completion of this Learning Guide, **you will be able to –**

- Know Introduction to standardize
- Prepare and use plan for standardize 3s activities..
- Prepare **tools and techniques** to standardize 3s*.*
- Follow check lists and **report** for standardize activities to **relevant personnel**
- Keep the work place to the specified standard
- Avoid problems
  Learning Instructions:

8. Read the specific objectives of this Learning Guide.

9. Follow the instructions described in number 3 to 20.

10. Read the information written in the "Information Sheets 1". Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.

11. Accomplish the "Self-check 1" **in page -.**

12. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-check 1).

13. If you earned a satisfactory evaluation proceed to "Information Sheet 2". However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #1.

14. Submit your accomplished Self-check. This will form part of your training portfolio.

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Information Sheet-1	Introduction to standardize

Definition of the fourth pillar

Standardize is the fourth pillar of our visual workplace, differs from Sort, Set in Order, and Shine. This is because it is the method- you use to maintain the first three pillars of 5S. Building on this definition, we may define Standardize the result that exists when the first three pillars-Sort, set in order and Shine-are properly maintained.

Benefits of standardized

1. Lead to workplace standardization

- Prevent setbacks in the first three pillars
- Make implementing them a daily habit
- Ensure that all the three pillars are maintained in their fully implemented state.

2. lead to work standardization

- Muda elimination
- Quality improvements
- Cost improvements
- Delivery time improvements
- Process improvements

Here are some of the problems that result when we do not implement Standardization well:

- Conditions go back to their previous and undesirable levels even after a companywide 5S implementation campaign.

- At the end of the day, piles of unneeded items are left from the day's production and lie scattered around the production equipment.

- Tool storage sites become disorganized and must be put back in order at the end of the day.

- Cutting shavings constantly fall on the floor and must be swept up.

- Even after implementing Sort and Set in order, it does not take long for office workers to start accumulating more stationery supplies than they need.

These problems and others reveal backsliding in gains made from implementing Sort Set in Order, and Shine Activities. The basic purpose of the Standardize pillar is to prevent setbacks in the first three pillars, to make implementing them a daily habit, and to make sure that all three pillars are maintained in their fully implemented state.

Procedures for standardizing 3S activities

The three steps to making Sort, Set in Order and Shine activities (the three pillars or 3S) a habit are:

Step 1: Decide who is responsible for which activities with regard to maintaining 3S conditions.

Step 2: To prevent backsliding, integrate 3S maintenance duties in to regular work activities.

Step 3: Check on how well 3S conditions are being maintained.

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Self-Check 1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1.   Define the fourth pillar of 5S? (2 point)

2.   Describe the benefits from standardize. (5 points)

3.   What are the three steps to making the 3S a habit? (3 points)

Note: **Satisfactory rating - 8 points**   **Unsatisfactory - below 8 points**
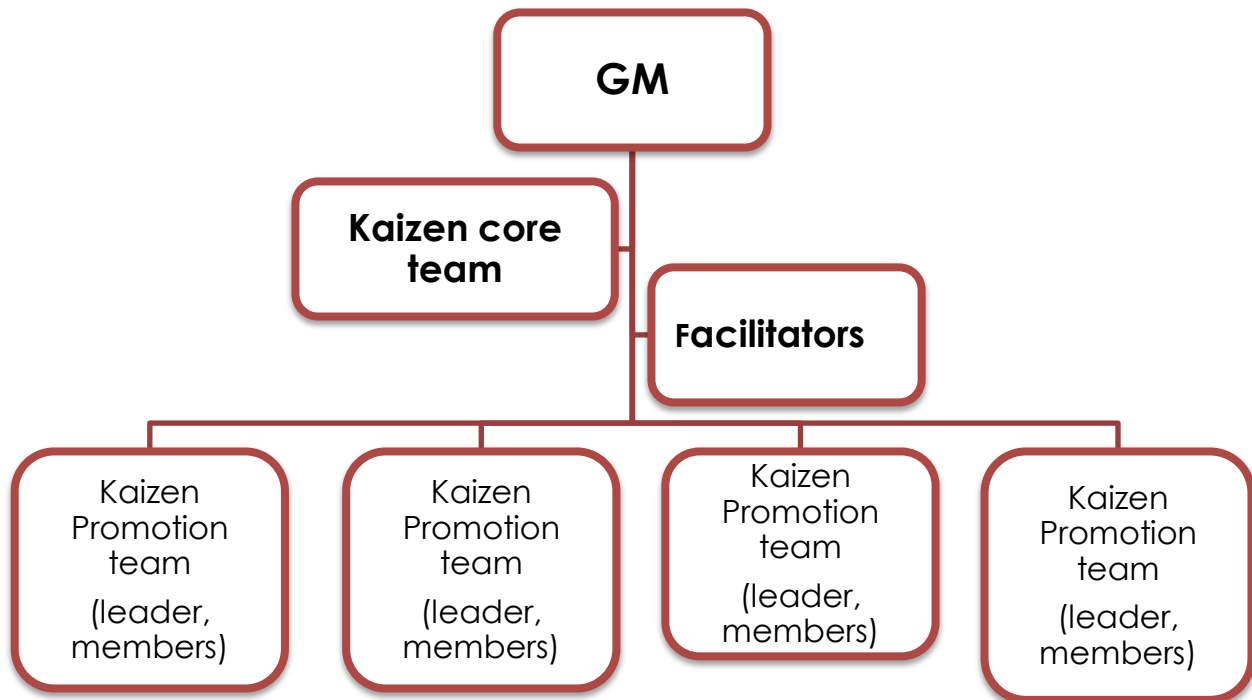
You can ask you trainer for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____   Date: _____

Information sheet 2	Preparing and using plan for standardize 3S activities

Steps for planning

1. Kaizen Team organizational structure.

2. Recognition of current condition

Before starting implementation collect data using both:-
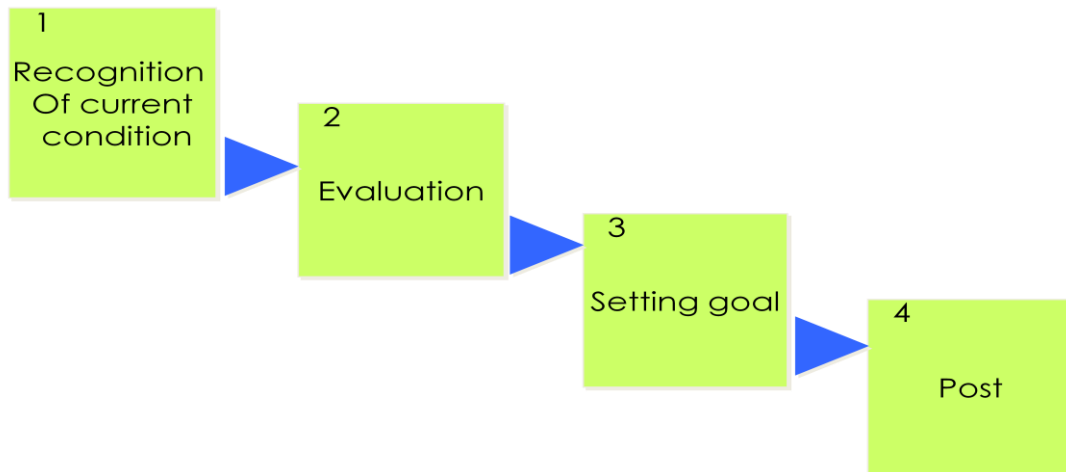
  ○ By using 5S Checklist and
  ○ Photography

> (1) Fixed-point Observation Type Fix the location of the camera and do photo shoots at the same place both before and after KAIZEN.

3. Deciding activity range

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4. Goal setting

5. Planning stage
    A. Overall promotion plan
    B. Setup of activity time
    C. Training plan
6. Budgeting
It is necessary to prepare a budget for 5S activity because it costs money.

7. Kick-off
Declaration of 5S activity

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Self-Check 2	Written Test

Direction:- Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Write steps of planning to standardize 3s activities. (14)

Note: **Satisfactory rating - 10 points**   **Unsatisfactory - below 10 points**

You can ask you trainer for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____   Date: _____

Information sheet 3	Preparing tools and techniques to standardize 3s

Common Tools and Techniques to standardize 3S are:
- 5S Job Cycle Charts
- Visual 5S
- The Five Minute 5S
- Standardization level checklist
- 5S checklist
- The five Whys and one How approach(5W1H)
- Suspension
- Incorporation
- Use Elimination

Discussing about tools and techniques to standardize 3S

- **5S job cycle charts** which list the 5S jobs to be done in each area, and set frequency cycle for each job (see the figure below). In the example shown in the figure below, 5S duties are sorted out according to the first three pillars and the scheduling cycle. In the figure, code letters are used for the various cycle periods:
  A is for 'continuously," B for "daily (mornings)," C for "daily (evenings), " D for "weekly," E for "monthly" and F for "occasionally." Each 5S job assignee can then use these charts as 5S Checklists. This particular example shows clearly who is responsible for each job, which area, what to do, and when to do it.

Figure: A 5S Job Cycle Chart

Visual 5S

The Visual 55 approach makes the level of five pillar conditions obvious at a glance. This is particularly helpful in factories that handle a great variety and number of materials.

The main point of Visual 5S is that anyone should be able to distinguish between abnormal and normal conditions at a glance.

As a factory example, consider a drill-press process where Set in order has been applied so that the position and amount of each finished work piece is clearly indicated. As an additional visual aid, the place where the last batch item goes can be marked with a thick red line to indicate that it is time to stop and send the batch to the next process.
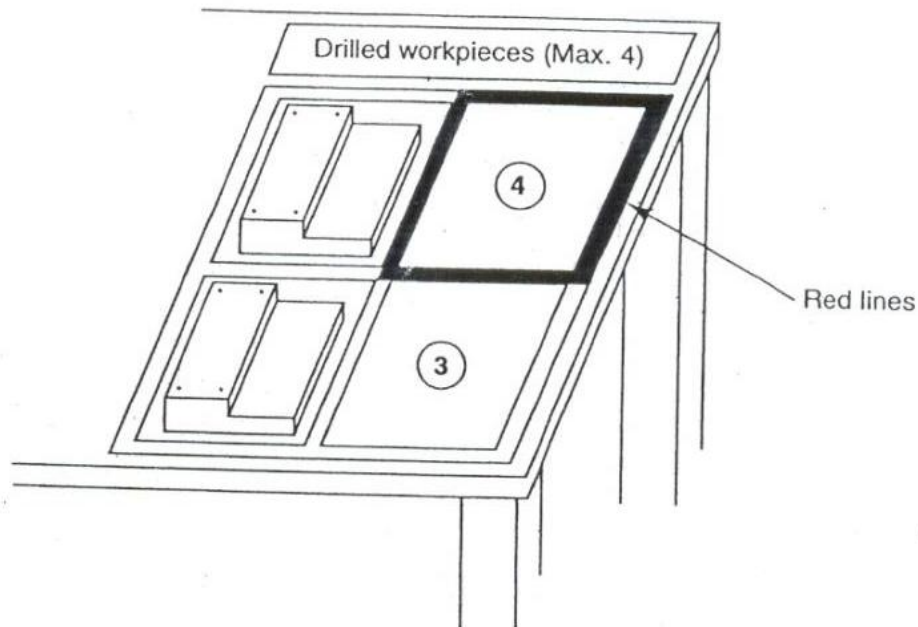

Figure: Visual 5s Method for Indicating Maximum Batch Size

Standardization level checklist

After we have assigned the three pillar jobs and have incorporated the three pillar maintenance into the everyday work routine, we need to evaluate how well the three pillars are being maintained. For this, we can use a Standardization-level Checklist as shown in the figure below.

Figure:- Standardization-level Checklist

5S checklist

A **5S checklist** is often used to evaluate the performance of 5S implementation in any workplace. This tool will help ensuring that 5S standards and workplace organization are being met. It enables the observer to better address compliance gaps and provides opportunities for continuous improvement.

5S Checklist Template

This template is a Microsoft Excel spreadsheet that you can use and modify to meet your specific needs. It can easily be modified to include additional checklist items. It comes in two different variations; one that is designed for manufacturing workplaces and another that is designed for offices.

If you have any difficulties customizing this template or you lack time to do so, we will be happy to perform the customization for you.

Checklist item		Criteria	Exist? (Y / N)	Rating (0,1,2,3 or 4)	Comments
Sort - SEIRI					
	Cabinets and shelves	No irrelevant reference materials, documents, drawings, etc.			
	Desks and tables	No irrelevant reference materials, documents, etc.			
	Drawers	No excess pieces of equipment, documents, etc.			
	Other storage area	Storage area is defined to store unneeded items and out-dated documents			
	Standards for disposal	Standards for eliminating unnecessary items exist and are being followed			
Set in order - SEITON					
	Tools and equipment	Locations of tools and equipment are clear and well organized			
	Materials and products	Locations of materials and products are clear and well organized			
	Labeling	Labels exist to indicate locations, containers, boxes, shelves & stored items			
	Inventory control	Evidence of inventory control exists (i.e. Kanban cards, FIFO, min & max)			
	Outlining / dividing lines	Dividing lines are clearly identified and clean as per standard			
	Safety	Safety equipment and supplies are clear and in good condition			
Shining - SEISO					
	Building structure	Floors, walls, ceilings & pipework are in good condition & free from dirt/dust			
	Racks and cabinets	Racks, cabinets and shelves are kept clean			
	Machines and tools	Machines, equipment and tools are kept clean			
	Stored items	Stored items, materials and products are kept clean			
	Lighting	Lighting is enough and all lighting is free from dust			
	Ventilation	Good movement of air exists through the			

		room (limits the spread of viruses)			
	Pest control	Pest control exists and effective			
	Cleaning tools	Cleaning tools and materials are easily accessible			
	Cleaning responsibilities	Cleaning assignments are defined and are being followed			
Standardize - SEIKETSU					
	Visual controls	Information displays, signs, color coding & other markings are established			
	Procedures	Procedures for maintaining the first three S's are being displayed			
	5S documentation	5S checklists, schedules and routines are defined and being used			
	Responsibilities	Everyone knows his responsibilities, when and how			
	Regular Audits	Regular audits are carried out using checklists and measures			
Sustain - SHITSUKE					
	5S System	5S seems to be the way of life rather than just a routine			
	Success stories	Success stories are being displayed (i.e. before and after pictures)			
	Rewards and recognition	Rewards and recognition is part of the 5S system			
Comments					
			0		
		Score:	0.0%		

Five-Minute 5S

When using the Visual 5S approach, instant visibility can act as a trigger for taking immediate three pillar action(Sort, Set in Order, and Shine activities) against the discovered abnormalities (i.e., overproduction, disorder, and contamination). We must also deal with the question of how skillfully and efficiently these actions are carried out. Instead of following two hours for removing all of the cutting shavings from the floor, we can set up a half-hour or a one-hour Shine procedure that accomplishes the same task. The term "Five-Minute 5S" is a loose one-the actual time can be three minutes, six minutes, or whatever is appropriate. The point is to make the five pillar work brief, efficient, and habitual. In figure below shows a signboard that was made as part of a Five-Minute 5 campaign.

Figure: Five-Minute 5s Signboard

The 5 Whys and 1How (5W1H) Approach

We begin by asking "why?" until we identify the underlying causes- for every answer we gel we must ask "why" again. Usually we ask "why" at least five times to get to the root of the problem. When we do find the underlying cause, we ask "how" we call fix it. Accordingly, this method is called the "5W1H' approach.

When we ask "why" setting in order is breakable, we find that one answer is because people make mistakes putting things back. At this point, we need to identify what types of items are not being returned correctly. Once we identify this, the question is how to achieve unbreakable setting in order by making it impossible to return them to the wrong place. If we can somehow eliminate the need to return items at all, we can achieve unbreakable setting in order.

Three techniques for doing this are:
- Suspension
- Incorporation
- Use elimination.

Suspension

In the Suspension technique, tools are literally suspended from above, just within reach of the user. Figure above shows this method in practice. Here a weighted pulley device is used to suspend tools from an overhead rack. When the operator finishes using the tool, he merely releases it and it automatically returns to its proper storage place.

While this technique does not eliminate the need to return items to a specific place, it does effectively eliminate the need for people to return them. People may make mistakes in returning things, but suspension devices do not. This technique achieves unbreakable setting in Order.
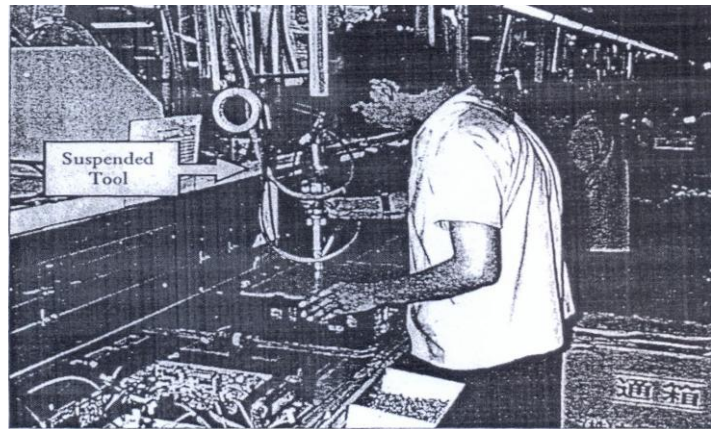
Figure: Tools Suspended from an Overhead Rack

Incorporation

Incorporation means creating a flow of goods or operations in a factory process in which (1) jigs, tools, and measuring instruments are smoothly integrated into the process and (2) such devices are stored where they are used and therefore do not have to be returned after use. The figure below shows an example where a measuring gate has been incorporated into a cutting process for an automobile part. The measuring gate catches any pieces that have not been machined to the correct height. This measuring procedure is an example of "mistake-proofing'' (or poka-yoke). The incorporation of the measuring gate into the cutting process means that its storage place is also its place of use. It is therefore used (for full-lot inspection) without having to be put back anywhere.
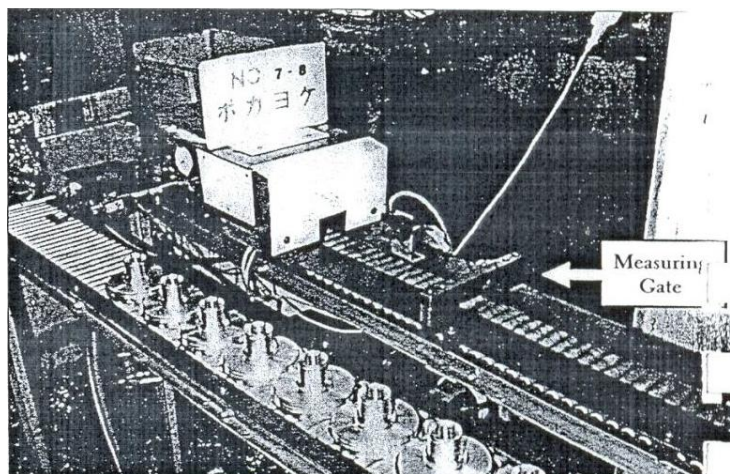
Figure: Incorporating a Measuring Gate into the Process Flow

Use Elimination

Suspending or incorporating jigs, tools, or measuring instruments effectively eliminates the need to return them after each use. However, these items are still being used. The question is whether there is some way to serve the function of the tool without using the jig, tool or measuring instrument. A set in order approach that eliminates the use of a particular jig, tool or measuring instrument is in fact unbreakable setting in order.

There are three techniques for eliminating the use of certain tools:
- Tool unification
- Tool substitution
- Method substitution

Tool unification

Tool unification means combining the functions of two or more tools into a single tool. It is an approach that usually reaches back to the design stage. For example, we can reduce the variety of die designs to unify dies or make all fasteners that require a screw-driver conform to the same kind of screw-driver, flat-tip or Phillips.

Tool substitution

Tool substitution means using something other than a tool to serve the tool's function, thereby eliminating the tool. For example, it is sometimes possible to replace wrench-turned bolt with hand-turned butterfly-grip bolts, thereby eliminating the need for a wrench.

Method substitution

If we substitute ordinary wrench-turned bolts with hand-turned butterfly-grip bolts, we have eliminated the wrench, but we have not eliminated the method (bolt fastening).

Bolt fastening is just one way to fasten things. Fastening pins, clamps and cylinders can also be used for this purpose. We may find we can improve efficiency even more by replacing one method with another. This is "method substitution."

Standards for Location Indicators

Standards for indication of fixed posation

● Standards for indication of fixed positions (examples)

	Line color	Line width	Materials	Method	Objects
Indicating square outline	White Green	5cm	Tape Paint	Indicate on partition line.	Carts, lifts, empty boxes, pallets, inspection boxes, materials, parts, products, defectives, measuring tools
Indicating corners	White Green	5cm	Tape Paint	Indicate on partition line.	Tables, platforms
Indicating leg positions	White Green	5cm	Tape Paint	Indicate on partition line.	Tables, platforms

fixed position Indications

Indications on Shelves
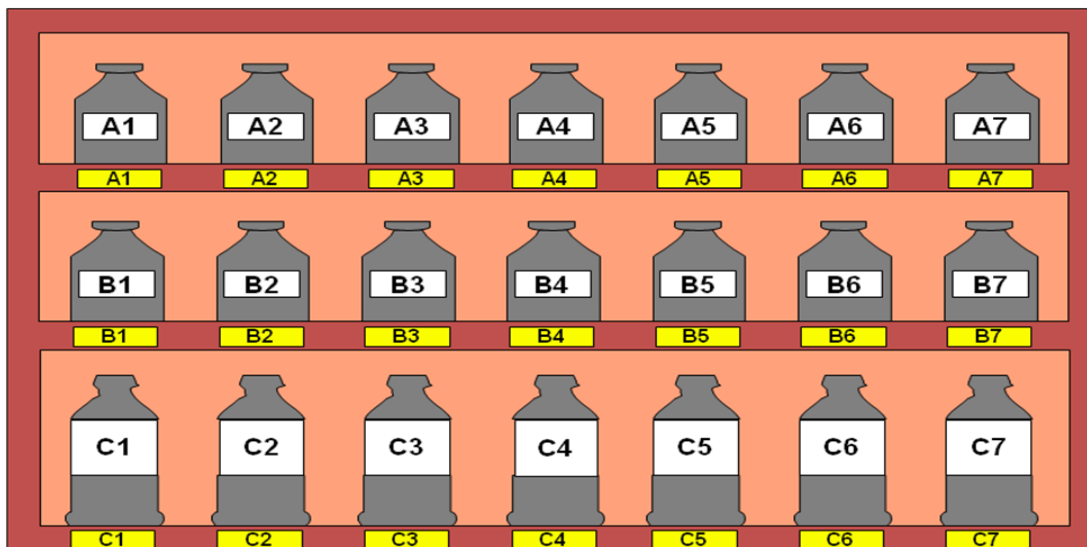
Indication of pathways

Standards of pathways on premise (examples)

	Standards
Width of walkway	80 cm or more
Width of main pathway	1.2 m or more
Color of partition line	Yellow or white
Material for partition	Tape or paint

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Self-Check 2	Written Test

Direction:- Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. List eight common Tools and Techniques to standardize 3S (8 pts)

2. Define the following words or phrases.(6 pts)
   A. Tool unification
   B. Tool substitution
   C. Method substitution

Note: **Satisfactory rating - 10 points**   **Unsatisfactory - below 10 points**

You can ask you trainer for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____   Date: _____

Information sheet 4	Follow checklists and reporting system to standardize 3s activities

Reporting system

A good reporting system is the foundation for successful strategy execution. management reporting system is a structured and scheduled set of reports designed for specific stakeholders that allows the organization to track performance, identify trends, analyse data and align performance to overall goals. the reporting system provides the data to identify non-performing areas and leads to the following benefits:

1. Increase communication

When senior management and employees are sharing the same information, there is better communication between them to identify problem areas and find mutually agreeable solutions. In addition, local governments are able to share statistics and progress reports with council members and the community. This is one of the most important benefits, because having the data readily available and clearly communicating it builds trust in the organization.

2. Improves productivity, accuracy and timeliness

A good management reporting system not only promotes cross-functional cooperation across departments, but also helps decrease any duplicate efforts among team members. Automated reports also save employees countless hours of sifting through mounds of paperwork in search for data and results. Employees are more productive because they don't have to spend time gathering the data that management wants, allowing them to tackle other items on their to-do list.

3. Improves decision-making and efficiency within organization

Without an effective, functional management reporting system, managers are often relying on their experience alone and employees don't have a clear sense of direction. Better availability of information reduces uncertainty and lets managers make decisions based on reliable data.

4. Identifying potential problems early, when you still have time to act on them

A good reporting system serves as a preventative measure, designed to help management achieve maximum effectiveness before a program or project reaches crisis level. Management is also able to explore various alternatives and analyze the possible results before making decisions and commitments.

5. Cost efficiency

This is the most tangible benefit of all as it can mean decreased costs and increased revenue. Having the data at your fingertips allows managers to be better equipped to switch gears if necessary and respond to changing business environments faster. Simply put, slashing budgets is no longer effective unless there is data behind that decision.

6. Customer focus

Customers and stakeholders want to know what is being done and if their issues and concerns are being heard. With more data about the needs of customers, management is better able to improve customer service and design better service delivery systems. Automated reports also make it quick and easy to generate quarterly and annual reports for your customers.

The following points highlight the top three methods of reporting, i.e ,

(1) Written Reporting, (2) Graphic Reporting, and (3) Oral Reporting.

1. Written Reporting:

Written reporting is the most common mode of reporting. It may be in form of a letter, circular or manual. Written reporting is most popular mode, reason being, reports can be kept as legal records by using this mode and can be used as reference sources. Written reports are always carefully formulated. Written reporting, sometimes saves time and money. However it suffers from poor expression of senders.

2. Graphic Reporting:

The reports may be presented in the form of charts, diagrams and pictures. These reports have the advantage of quick grasp of trends of information presented. A look at the chart or diagram may enable the reader to have an idea about the information. In the modern times graphs and charts are becoming more popular as a mode of presenting any kind of information. Various management professionals express their views through graphs and charts. Graphical presentation being most effective medium of reporting removes dullness and confusions which we usually find in other forms of reporting.

Graphical presentation do includes following types of diagrams and charts:

a. Bar Charts
b. Pie Chart
c. Zee Chart
d. Break even Chart
e. Flowchart
f. Control Chart
g. Progress Chart

3. Oral Reporting:

Oral reporting may be done in the following forms**:**

(a) Group meetings
(b) Conversation with individuals.

Oral reporting is helpful only to a limited extent. It cannot form a part of important managerial decision making. For the purpose, the reports must be in writing so that these may be referred in future discussions too. A combination of written, graphic and oral reporting may be useful for effective and efficient reporting in an organization.

Report Writing Format

Here are the main sections of the standard report writing format:

- **Title Section** This includes the name of the author(s) and the date of report preparation.
- **Summary** There needs to be a summary of the major points, conclusions, and recommendations. It needs to be short as it is a general overview of the report. Some people will read the summary and only skim the report, so make sure you include all the relevant information. It would be best to write this last so you will include everything, even the points that might be added at the last minute.
- **Introduction** – The first page of the report needs to have an introduction. You will explain the problem and show the reader why the report is being made. You need to give a definition of terms if you did not include these in the title section, and explain how the details of the report are arranged.
- **Body** – This is the main section of the report. There needs to be several sections, with each having a subtitle. Information is usually arranged in order of importance with the most important information coming first.
- **Conclusion** – This is where everything comes together. Keep this section free of jargon as most people will read the Summary and Conclusion.
- **Recommendations** – This is what needs to be done. In plain English, explain your recommendations, putting them in order of priority.
- **Appendices** – This includes information that the experts in the field will read. It has all the technical details that support your conclusions.

Remember that the information needs to be organized logically with the most important information coming first.

Pointers to score high in Report Writing

1. Use names and pronouns (I, he, her) when you write about yourself and others at the scene. Avoid outdated expressions like "this officer" and "the abovementioned person" or "official 1.".

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2. Limit yourself to one idea per sentence. Short, straightforward sentences are easy to read, understand and save time for everyone
3. . Be as clear and specific as possible.
4. Use simple language.
5. Stick to observable facts. Conclusions, guesses, hunches, and other thought processes do not belong in a report. Stick to the facts.
6. Write in paragraphs. Organizing information in groups has two important benefits: Your report is more logical, and it's easier to read and understand later on.
7. Use active voice. A widespread mistaken notion is that passive voice guarantees objectivity and accuracy. However, it is not true. Writing a sentence like "A revolver was seen under the nightstand" does not guarantee that you are telling the truth
8. Use bullet style.

Verbal responses

Verbal reports are usually collected with the aim of understanding mental behavior. As it is not possible to observe mental behavior directly we cannot test for a correlation between report and behavior, and cannot assume one. Verbal data cannot therefore be used to test theories of mental behavior. Verbal data may be produced by a separate report generating process which may give a distorted account. The data can be useful for practical purposes if these distortions are minimal.

2.3.1.1 Data entry into enterprise database

Data entry is the process of inputting data or information into the computer using devices such as a keyboard, scanner, disk, and voice.

Data entry is a job where an employee inputs data into a computer from forms or other non electronic forms of data. Today, many online data entry jobs available require the employee to enter the data into an online database.

What do I need to know for a data entry job?

To get a data entry job and perform well in that job, you need to be proficient at typing and be able to type at least 50 to 80 words per minute. Some data entry positions may require a typing speed of over 80 words per minute. Being proficient at typing means you can type with minimal grammar and punctuation errors.

Enterprise data base

An enterprise database is used by enterprises and large organizations to manage their huge collection of data. Such a database helps companies improve their efficiency. An enterprise database is robust enough to successfully handle the queries of multiple users simultaneously, and is capable of handling a range of 100 to 10,000 users at a time.

Enterprise databases are widely used by enterprises in order to strategize, plan and standardize practices. They are primarily employed to boost efficiency in the company. By reducing costs, they help in promoting the effectiveness within an organization.

Data entry process Data entry is a systematic process that covers the following main stages:
Stage Description
1 Receiving, logging and tracking.
2 First key data entry.
3 Second key data entry.
4 Validation and error correction.
5 Backing up.
6 Storing and filing the Instruments.

2.3.1 relevant personnel
2.3.2.1 supervisors, managers and quality managers

A supervisor, or also known as foreman, overseer, facilitator, monitor, area coordinator, or sometimes gaffer, is the job title of a low level management position that is primarily based on authority over a worker or charge of a workplace. A supervisor can also be one of the most senior in the staff at the place of work,

Common supervisory tasks include:

- Helping the team understand performance targets and goals.
- Training or ensuring that workers are properly trained for their specific roles.
- Scheduling work hours and shifts.
- Coordinating job rotation and cross-training.
- Supervisor Skills & Competencies

You should have several essential qualities to succeed at becoming a supervisor in any field.

- **Leadership**: You should have the capacity to take charge while still addressing the concerns and individuality of your team members.
- **Conflict resolution:** The ability to productively handle grievances can be a real asset in this occupation.
- **Interpersonal skills:** A supervisor's role is predominantly a matter of managing people.
- **Time management skills**: You should have the ability to discern what's most important and to allot your own and your team's time accordingly.
- **Problem-solving abilities**: You should possess an ability to gauge different solutions to inevitable problems and select the one most likely to bring about the results you need.

A supervisor plays multiplinary role at one time like

1. **As a Planner -** A supervisor has to plan the daily work schedules in the factory. At the same time he has to divide the work to various workers according to their abilities.
2. **As a Manager -** It is righty said that a supervisor is a part of the management team of an enterprise. He is, in fact, an operative manager.
3. **As a Guide and Leader -** A factory supervisor leads the workers by guiding them the way of perform their daily tasks. In fact, he plays a role of an inspirer by telling them.
4. **As a Mediator -** A Supervisor is called a linking pin between management and workers. He is the spokesperson of management as well as worker.
5. **As an Inspector -** An important role of supervisor is to enforce discipline in the factory. For this, the work includes checking progress of work against the time schedule, recording the work performances at regular intervals and reporting the deviations if any from those. He can also frame rules and regulations which have to be followed by workers during their work.
6. **As a Counselor -** A supervisor plays the role of a counselor to the worker's problem. He has to perform this role in order to build good relations and co-operation from workers. This can be done not only by listening to the grievances but also handling the grievances and satisfying the workers.

Quality manager

A Quality Manager typically works in manufacturing and engineering companies where product outputs are required to meet a certain level of quality for the customer and it is the responsibility of the Quality Manager to ensure that products meet minimum standards of quality.

Quality Management is an integral role in the overall supply chain, and the implications of poor standards of quality management can be substantial for a company, hence why there is a high demand for this type of employee.

Quality Manager role.

1. Implementing a company's quality controls and policies such as Lean Sigma or ISO standardization requirements.

2. Researching and reviewing customer feedback and using this to inform quality processes and decisions.
3. Ensuring that processes meet required standards.
4. Implementing health and safety policies into the overall quality management process.
5. Monitoring the ongoing performance and outputs of the quality process.
6. Regularly researching the marketplace and competition to keep up to date with industry developments.
7. Undertaking internal quality audits.
8. Direct staff and teams across the business to ensure quality frameworks are implemented.
9. Provide updates to senior managers and directors around quality issues.
10. Ensure that all suppliers meet the quality requirements of the company.

What Skills does a Quality Manager require?

A quality manager would need to have:
1. Excellent communication skills
2. Ability to undertake market research
3. Planning and project management skills
4. The ability to interpret data and statistics
5. Relevant skills with technology
6. Leadership and management skills
7. Familiarity with quality standards and processes

Quality Manager Responsibilities

- Understanding customer needs and requirements to develop effective quality control processes
- Devising and reviewing specifications for products or processes
- Setting requirements for raw material or intermediate products for suppliers and monitoring their compliance

2.3.2.2 Administrative, laboratory and production personnel
Administrative Personnel

Individuals responsible for the development of policy and supervision of the execution of plans and functional operations.

Laboratory Personnel

Those health care professionals, technicians, and assistants staffing a research or health care facility where specimens are grown, tested, or evaluated and the results of such measures are recorded.

2.3.2.3 internal/external contractor, customers and suppliers

An **internal contractor**, also referred to as a consultant, is a freelancer who doesn't work as a permanent employee of the company he is doing work for. While there seems to be no difference at all in terms of working alongside employees and doing the same type of work that employees do, there are some key legal differences between an employee and an internal contractor.

It is common for companies to employ internal contractors in a number of job functions, including lawyers, doctors, writers, web content designers, secretaries, painters, electricians, and more. However, when companies choose to hire such individuals, they should be mindful of the requirements for identifying them as internal contractors and not employees of the firm. When determining if an individual is an internal contractor, the Internal Revenue Service (IRS) will look at 3 elements:

- Control over the work
- Financial control
- Relationship

Employee vs. Internal Contractor

There are many factors that one can look at to determine if someone is an employee or internal contractor. A contractor should be aware of the differences in what is being offered. Such differences can include the following:

- How taxes are paid
- How the company pays the person, i.e., hourly/salary/project pay
- What type of benefits one can receive
- The duration of the contract, i.e., permanent vs. 6-month contract

Employers are responsible for paying Social Security and Medicare tax, unemployment insurance, along with workers' compensation insurance, to all employees. Because of this, the company has to properly classify each payee as either an internal contractor or employee, providing W2s for those employees of the company. For example, anyone who provides internal services for others are generally classified as internal contractors on IRS forms. Contractors, however, pay their own Social Security and Medicare tax, with no help from the company. Furthermore, contractors cannot benefit from workers' compensation or unemployment insurance.

Keep in mind that properly classifying employees and contractors is important; businesses might want to classify an employee as a contractor to evade minimum salary requirements and overtime pay. However, this can cause significant penalties.

While the company provides the work hours and salary for employees, the internal contractor usually works on a project basis, taking as much time as he needs in order to get the job done. Such projects are generally paid for overall, meaning that the internal contractor usually won't receive an hourly fee. Rather, the project as a whole will be expensed to the company. If additional work is done, the contractor might receive additional income.

Employees will be supplied with the tools they need to do the job, i.e., computer, work desk, phone, etc. Internal contractors, however, might be required to supply their own equipment. Employees will receive benefits, including health, dental, and disability insurance, vacation and sick time, etc. Contractors will not benefit from these perks.

Generally, employees are hired on a long-term, permanent basis, whereas internal contractors might be hired for a specified period of time.

External Contractors

An independent **contractor** is a natural person, business, or corporation that provides goods or services to another entity under terms specified in a contract or within a verbal agreement. **Contractors** often work through a limited company or franchise, which they themselves own, or may work through an umbrella company.

Customers

A customer is an individual or business that purchases another company's goods or services. Customers are important because they drive revenues; without them, businesses have nothing to offer. Most public-facing businesses compete with other companies to attract customers, either by aggressively advertising their products or by lowering prices to expand their customer bases.

Customers are categorized in many ways. Most commonly, customers are classified as external or internal.

External customers are dissociated from business operations and are often the parties interested in purchasing the final goods and services produced by a company.

 Internal customers are individuals or businesses integrated into business operations, often existing as employees or other functional groups within the company.

Customer Service

Customer service, which struggle to ensure positive experiences, is key to a successful seller/customer dynamic. Loyalty in the form of favorable online reviews, referrals, and future business can be lost or won based on a good or bad customer service experience. In recent years, customer service has evolved to include real-time interactions via instant message chats, texting, and other means of communication. The market is saturated with businesses offering the same or similar products and services. What distinguishes one from another is customer service, which has become the basis of competition for most businesses.

Customers vs. Consumers

The terms *customer* and *consumer* are nearly synonymous and are often used interchangeably. However, there exists a slight difference. Consumers are defined as individuals or businesses that consume or use goods and services. Customers are the purchasers within the economy that buy goods and services, and they can exist as consumers or alone as customers.

Supplier

A supplier is a person, organization, or other entity that provides something that another person, organization, or entity needs. During transactions, there are suppliers and buyers. Suppliers provide or supply products or services, while buyers receive them.

It is a party that supplies goods or services. A supplier may be distinguished from a contractor or subcontractor, who commonly adds specialized input to deliverables.

We commonly use the term '**vendor**' with the same meaning as 'supplier.'

In business, for example, every company has at least one supplier. Suppliers supply or provide the company with materials, products, and services.

Self-Check 2	**Written Test**

Direction:- Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What is management reporting system? (2 pts)

2. List four benefits of reporting system. (4 pts)

3. Define the following words or phrases. (4 pts)
   A. Customers
   B. Customer Service
   C. Consumers
   D. Supplier

Note: **Satisfactory rating - 8 points**　　　　**Unsatisfactory - below 8 points**

You can ask you trainer for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____　　　　Date: _____

Information sheet 5	keeping the work place to the specified standard

Creating and maintaining a safe work environment should be a high priority for organizations. Indeed, under Occupational Health and Safety (OSH) law, employers have a responsibility to create and maintain a safe workplace and comply with OSHA regulations. But putting up a few safety posters and running safety training sessions once a year is not enough.

Organizations need to actively foster and promote a strong culture of safety, year round, so that safety becomes a part of the enterprise's DNA. This means not only making safety one of the organization's main values, it means taking concrete steps to make sure employees have a safe work environment and are constantly striving to improve safety in the workplace.

In order to improve safety culture in an organization there must be an ongoing commitment to communication. One popular method of promoting safety awareness is through workplace digital signage, which harnesses visual communication to promote messages.

Following are six ways to ensure a safe workplace and promote a strong safety culture.

Eliminate potential hazards.

Keep the workplace free from recognized physical and chemical hazards and make sure it is in compliance with OSHA standards, rules, and regulations.

Use your digital signage systems to remind employees about proper body mechanics, forklift safety, safe backing, what PPE is necessary, and ways they can avoid slips, trips, and falls.

Encourage workers to identify and report potential problems and safety violations and take immediate steps to have those issues resolved.

Make sure all workers are properly trained. The organization must provide all workers with safety training using language they can understand. This training should be given to all new workers, with refresher courses offered to (or required) for existing workers or when workers change jobs (within the company). Use your electronic message boards to reinforce safety training, serving it up in bite-sized messages.

Ensure workers have the proper equipment. Make sure employees have and use safe tools and equipment and properly maintain this equipment. Workplace digital signage is an effective tool for reinforcing injury prevention. Raise awareness around proper handling of hazardous materials, lock-out tag-out and machine guarding.

Provide visual safety aids and messages. Use color codes, posters, labels and/or signs to warn employees of potential hazards. Additionally, place OSHA posters in all work and recreational areas – and use digital signage to broadcast important safety information, updates, and messages. For example, employers can display their safety recordables using automated counters. This visual aide displays real time data and reminds employees to stay safe.

Digital signage can be incredibly helpful in emergency situations as, unlike static posters, you can use it to instantly warn or notify workers of a situation in areas where mobile phones and computers aren't allowed. You can also use digital signage to post daily or weekly workplace "Safety Tips", recognize employees who have demonstrated outstanding safety awareness, and keep employees up to date on new rules and regulations.

Create a safety committee and hold monthly safety meetings. Establish a workplace health and safety committee made up of workers from different departments, from senior management to shop-floor-based employees. The committee should meet at least once a month and keep employees and senior management informed about safety topics, inspections, injury and illness statistics, and other safety-related issues. Use your digital signage systems to share key safety updates to the entire workforce.

Similarly, hold departmental or company-wide safety meetings once a month or quarterly to solicit employee feedback. Getting regular feedback from employees is helpful because it opens managers' eyes to potential hazards that may have gone unnoticed, lets managers

know how employees are doing/feeling, and makes employees feel valued, which improves mental health and productivity.

Make safety fun. While safety is no game, one way to help incorporate safety into company culture is to make learning about safety fun. Use your workplace digital signage to create safety-themed trivia, quizzes, and videos of safety dos and don'ts. Friendly competition including prizes, and chances for company-wide recognition are great motivators. By adding a little fun, there's a higher chance that employees will stay engaged, retain the information and therefore help prevent accidents.

Easy Workplace Safety Tips

1. Train employees well.

Comprehensive training is a must for preventing workplace injury. Make sure that all of your employees have access to and complete all safety training for their positions.

2. Reward employees for safe behavior.

Rewards are an easy way to encourage workplace safety. Giving out small rewards to employees who follow safety policies keeps them engaged, which can make a big difference in reducing workplace injuries.

3. Partner with occupational clinicians.

As mentioned above, occupational medicine clinicians can provide valuable insight into workplace injury and prevention. These clinicians can help you prevent work injuries by visiting your worksite and identifying areas where there's a high risk for employee injury. Physical and occupational therapists can also improve workplace ergonomics and develop human performance evaluations to help you screen candidates for physically demanding roles and aid in the return-to-work process.

4. Use labels and signs.

Labels and signs are a cheap and effective way to quickly communicate important information. They're usually simple and rely on pictures to detail hazards and proper procedures. These tools are good reminders and warnings for even the most experienced worker.

5. Keep things clean.

A messy workplace can lead to unnecessary accidents. Make sure boxes are stacked safely and spills are cleaned up quickly. Conduct regular inspections to check for potential dangers such as tangled cords, messy floors, and disorganized tools. Programs like 5S often provide beneficial improvements in organization that can lead to reduced clutter.

6. Make sure employees have the right tools and have regular equipment inspections.

The right tools and equipment create a better product and a safer work environment. It's also important that all equipment is cleaned, serviced, and inspected regularly. Machine malfunctions are one of the most dangerous workplace hazards.

7. Encourage stretch breaks.

Stretch breaks are an easy way to improve workplace ergonomics and employee health. Taking even five minutes to stretch can ease muscle tension and loosen joints, reducing the potential for repetitive motion injuries. Active movements have been shown to be more effective than passive stretching alone.

8. Implement safety protocols from the start.

Workplace safety starts from day one, which means hiring qualified people who pay attention to detail. A safe workplace starts with employees who follow safety requirements and perform their jobs per the established procedures. Some employers work with physical therapists to analyze the physical demands of each job role. The findings are used to create functional job analyses and post-offer pre-placement functional testing.

9. Keep an open dialogue.

Make it easy for your employees to come to you with health and safety concerns. They can report hazards right away and identify potential areas of concern you may not have noticed. Appoint or nominate a safety captain who is empowered to communicate concerns identified by employees to leadership on a consistent basis.

10. Have regular meetings on workplace safety.

It never hurts to be over-prepared. Regular meetings to review safety rules and discuss prevention keep workplace safety top of mind so that when something does happen, everyone knows what to do right away.

Effective Workplace Inspections

Workplace inspections help prevent incidents, injuries and illnesses. Through a critical examination of the workplace, inspections help to identify and record hazards for corrective action. Health and safety committees can help plan, conduct, report and monitor inspections. Regular workplace inspections are an important part of the overall occupational health and safety program and management system, if present.

Inspections are important as they allow you to:
- listen to the concerns of workers and supervisors
- gain further understanding of jobs and tasks
- identify existing and potential hazards
- determine underlying causes of hazards
- recommend corrective action
- monitor steps taken to eliminate hazards or control the risk (e.g., engineering controls, administrative controls, policies, procedures, personal protective equipment)

Types of workplace hazards include:

- Safety hazards such as those caused by inadequate machine guards, unsafe workplace conditions, unsafe work practices.
- Biological hazards caused by organisms such as viruses, bacteria, fungi and parasites.
- Chemical hazards caused by a solid, liquid, vapour, gas, dust, fume or mist.
- Ergonomic hazards caused by physiological and psychological demands on the worker, such as repetitive and forceful movements, awkward postures arising from improper work methods, and improperly designed workstations, tools, and equipment.
- Physical hazards caused by noise, vibration, energy, weather, heat, cold, electricity, radiation and pressure.
- Psychosocial hazards that can affect mental health or well-being such as overwork, stress, bullying, or violence.

Inspection Principles

When conducting inspections, follow these basic principles:
- Draw attention to the presence of any immediate danger - other items can await the final report.
- Shut down and "lock out" any hazardous items that cannot be brought to a safe operating standard until repaired.
- Do not operate equipment. Ask the operator for a demonstration. If the operator of any piece of equipment does not know what dangers may be present, this is cause for concern. Never ignore any item because you do not have knowledge to make an accurate judgment of safety.
- Look up, down, around and inside. Be methodical and thorough. Do not spoil the inspection with a "once-over-lightly" approach.

- Clearly describe each hazard and its exact location in your rough notes. Allow "on-the-spot" recording of all findings before they are forgotten. Record what you have or have not examined in case the inspection is interrupted.
- Ask questions, but do not unnecessarily disrupt work activities. This interruption may interfere with efficient assessment of the job function and may also create a potentially hazardous situation.
- Consider the static (stop position) and dynamic (in motion) conditions of the item you are inspecting. If a machine is shut down, consider postponing the inspection until it is functioning again.
- Consider factors such as how the work is organized or the pace of work and how these factors impact safety.
- Discuss as a group, "Can any problem, hazard or accident generate from this situation when looking at the equipment, the process or the environment?" Determine what corrections or controls are appropriate.
- Do not try to detect all hazards simply by relying on your senses or by looking at them during the inspection. You may have to monitor equipment to measure the levels of exposure to chemicals, noise, radiation or biological agents.
- Take a photograph if you are unable to clearly describe or sketch a particular situation.

Self-Check 5	Written Test

Direction:- Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. List six ways to ensure a safe workplace and promote a strong safety culture.

2. List four importance of work place inspection.

Note: **Satisfactory rating - 8 points**   **Unsatisfactory - below 8 points**

You can ask you trainer for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____   Date: _____

Information sheet 6	Avoiding problems

A **problem** is a situation that is unsatisfactory and causes difficulties for people.

Problem solving is the act of defining a problem; determining the cause of the problem; identifying, prioritizing, and selecting alternatives for a solution; and implementing a solution.

THE FOUR BASIC STEPS OF THE PROBLEM-SOLVING PROCESS

In order to effectively manage and run a successful organization, leadership must guide their employees and develop problem-solving techniques. Finding a suitable solution for issues can be accomplished by following the four-step problem-solving process and methodology outlined below.

Step	Characteristics
1. Define the problem	Differentiate fact from opinion Specify underlying causes Consult each faction involved for information State the problem specifically Identify what standard or expectation is violated Determine in which process the problem lies Avoid trying to solve the problem without data
2. Generate alternative solutions	Postpone evaluating alternatives initially Include all involved individuals in the generating of alternatives Specify alternatives consistent with organizational goals Specify short- and long-term alternatives Brainstorm on others' ideas Seek alternatives that may solve the problem
3. Evaluate and select an alternative	Evaluate alternatives relative to a target standard Evaluate all alternatives without bias Evaluate alternatives relative to established goals Evaluate both proven and possible outcomes State the selected alternative explicitly
4. Implement and follow up on the solution	Plan and implement a pilot test of the chosen alternative Gather feedback from all affected parties Seek acceptance or consensus by all those affected Establish ongoing measures and monitoring Evaluate long-term results based on final solution

Problem Solving Chart

1. Define the problem

Diagnose the situation so that your focus is on the problem, not just its symptoms. Helpful problem-solving techniques include using flowcharts to identify the expected steps of a process and cause-and-effect diagrams to define and analyze root causes.

The sections below help explain key problem-solving steps. These steps support the involvement of interested parties, the use of factual information, comparison of expectations to reality, and a focus on root causes of a problem. You should begin by:

- Reviewing and documenting how processes currently work (i.e., who does what, with what information, using what tools, communicating with what organizations and individuals, in what time frame, using what format).
- Evaluating the possible impact of new tools and revised policies in the development of your "what should be" model.

2. Generate alternative solutions

Postpone the selection of one solution until several problem-solving alternatives have been proposed. Considering multiple alternatives can significantly enhance the value of your ideal solution. Once you have decided on the "what should be" model, this target standard becomes the basis for developing a road map for investigating alternatives. Brainstorming and team problem-solving techniques are both useful tools in this stage of problem solving.

Many alternative solutions to the problem should be generated before final evaluation. A common mistake in problem solving is that alternatives are evaluated as they are proposed, so the first acceptable solution is chosen, even if it's not the best fit. If we focus on trying to get the results we want, we miss the potential for learning something new that will allow for real improvement in the problem-solving process.

3. Evaluate and select an alternative

Skilled problem solvers use a series of considerations when selecting the best alternative. They consider the extent to which:

- A particular alternative will solve the problem without causing other unanticipated problems.
- All the individuals involved will accept the alternative.
- Implementation of the alternative is likely.
- The alternative fits within the organizational constraints.

4. Implement and follow up on the solution

Leaders may be called upon to direct others to implement the solution, "sell" the solution, or facilitate the implementation with the help of others. Involving others in the implementation is an effective way to gain buy-in and support and minimize resistance to subsequent changes.

Regardless of how the solution is rolled out, feedback channels should be built into the implementation. This allows for continuous monitoring and testing of actual events against expectations. Problem solving, and the techniques used to gain clarity, are most effective if the solution remains in place and is updated to respond to future changes.

Self-Check 2	Written Test

Direction:- Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. what is problem?

2. What is problem solving

3. List steps of problem solving process.

Note: **Satisfactory rating - 8 points**   **Unsatisfactory - below 8 points**

You can ask you trainer for the copy of the correct answers.

Answer Sheet

| Score = _____ |
| Rating: _____ |

Name: _____   Date: _____

Operation Sheet 1	**Procedures in Implementing Standardize**

Sequence of Standardize

1. Planning for Standardization
2. Assign 3S Responsibilities for everyone in the work place by using the tools by using the tools such as 5S Maps, 5S schedules, 5S job cycle charts
3. Integrate 3S Duties into Regular Work Duties by using the two approaches: visual 5S and five- minute 5S
4. Check on 3S Maintenance Level by using Standardization-level Checklist and 5S checklist and make maintenance/correction on back sliding the 3S.
5. Prevention of back sliding of the first three pillars by using 5W1H approach, suspension, incorporation and use elimination.

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LAP Test	**Practical Demonstration**

Name: _____   Date: _____

Time started: _____   Time finished: _____

Instructions: Given necessary templates, workshop, tools and materials you are required to perform the following tasks within -------- hours.

Task 1. prepare and use Plan to standardize 3S activities.

Task 2. prepare and implement Tools and techniques to standardize 3S based on relevant procedures.

Task 3. follow Checklists for standardize activities and report to relevant personnel.

Task 4. Keep the workplace to the specified standard.

Task 5. avoid Problems by standardizing activities.

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Vehicle Body Repairing and Painting NTQF Level-II

Learning Guide -12

Unit of Competence: - Standardizing and Sustaining 3S

Module Title: - Standardizing and Sustaining 3S

LG Code: EIS VRP2 M04 LO03-LG-12

TTLM Code: EIS VRP2 TTLM 0919v1

LO 03:   Sustain 3S

Instruction Sheet	Learning Guide #-12

This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics –

- Introduction to sustain
- Preparing and using plan for sustaining 3s activities..
- Preparing **tools and techniques** to sustaining 3s**.**
- Following check lists and **reporting** for standardize activities to **relevant personnel**
- Keeping the work place to the specified standard
- Avoiding problems

This guide will also assist you to attain the learning outcome stated in the cover page.

Specifically, upon completion of this Learning Guide, **you will be able to –**

- Know Introduction to sustain
- Prepare and use plan for sustaining 3s activities..
- Prepare **tools and techniques** to sustaining 3s**.**
- Follow check lists and **report** for sustaining activities to **relevant personnel**
- Keep the work place to the specified standard
- Avoid problems
  Learning Instructions:

1. Read the specific objectives of this Learning Guide.

2. Follow the instructions described in number 3 to 20.

3. Read the information written in the "Information Sheets 1". Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.

4. Accomplish the "Self-check 1" **in page -.**

5. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-check 1).

6. If you earned a satisfactory evaluation proceed to "Information Sheet 2". However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #1.

7. Submit your accomplished Self-check. This will form part of your training portfolio.

Information Sheet-1	Introduction to sustain 3s

The fifth pillar is Sustain. which means making a habit of properly maintaining correct procedures. In the context of the five pillars, to sustain means to make a habit of properly maintaining correct procedures. In your life in general, what do you mean when you talk about sustaining something? Usually, you think of it as drawing on something from inside yourself in order to maintain a course of action-even when forces in your life challenge in this effort.

Why Sustain Is Important

Usually you commit yourself to sustain a particular course of action because the rewards for keeping to the course of action are greater than the rewards for departing from it (see figure above). Viewed another way, the consequences of not keeping to the course of action may be greater than the consequences of keeping to it. For example, suppose you want to start an exercise program say you decide you want to work out at a gym three times a week. You probably have difficulty sustaining this course of action. This is because forces in your life, such as limits on your time and energy as well as the power of inertia, challenge this plan. However, if the rewards of sticking to your exercise program (for example, feeling and looking better) are greater than the rewards of not sticking to it (for example, having more time for other things that you need to do), your commitment will increase and you will probably sustain this program over lime.
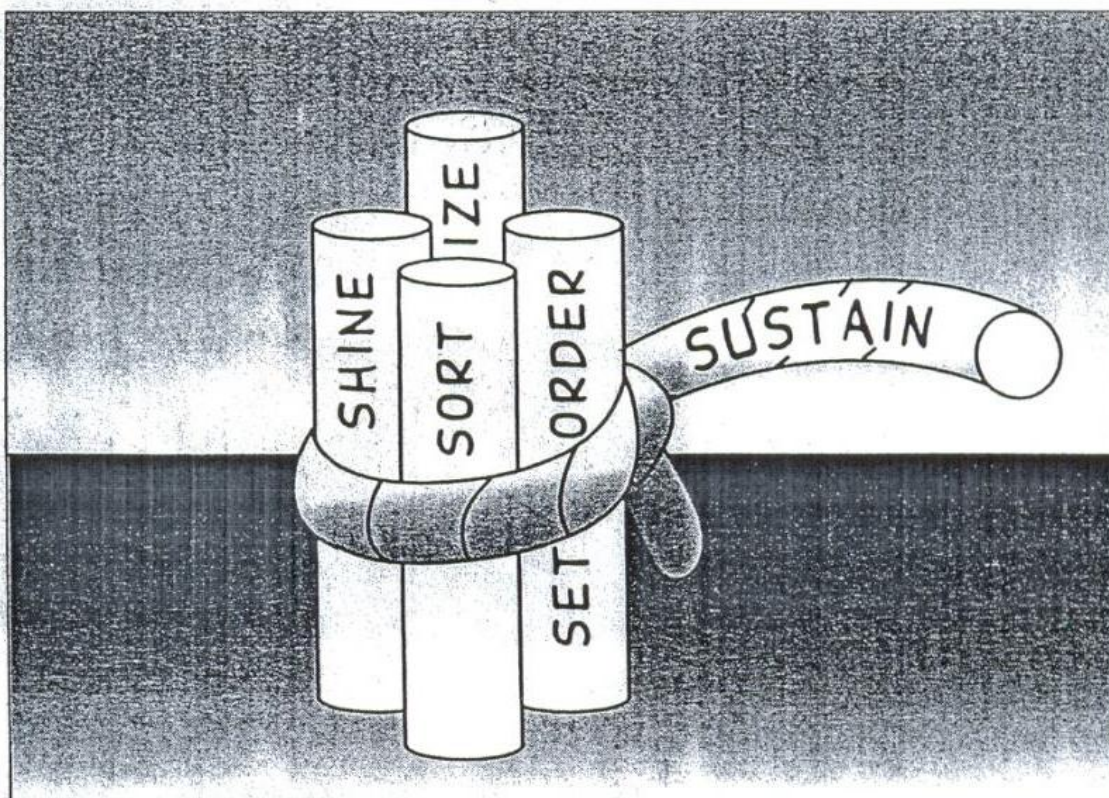

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Figure: The sustain pillar holds the first four pillars together.

The same principle applies in your 55 implementation. Without your commitment to sustain the benefits of the 5S activities, implementation of the first four pillars quickly falls apart (see Figure above). However, if the rewards of implementing the first four pillars are greater for you than the rewards of not implementing them, sustaining them through the fifth pillar should be some- thing you take to naturally.

So, what are the rewards for you of implementing the first four pillars? You've probably discovered them for yourself at this point. Implementation of the first four pillars should make your workplace mare pleasant to work in, your job more satisfying and communication with your coworkers easier. it should also make your work more efficient and of better quality, which will hopefully lead to reward of your efforts by your company. It' true that that the five pillars take time to implement, but this investment of time will bring a great return, for both you and your company.

Figure: creating the conditions to sustain your fitness plan

How to Implement Sustain

Creating Conditions to Sustain Your Plans

The implementation of the sustain pillar is different from that of the sort, set in order, shine, or standardize pillars in that the results are not visible and cannot be measured. Commitment to

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it exists in people's hearts and minds and only that have shows its presence. Because of this it cannot exactly be "implemented" like a technique, However, we can create conditions that encourage the implementation of the sustain pillar.

For instance, going back to our exercise program example, how could you create conditions in your own life that would encourage sustaining your plan to work out at a gym three time a week? You might:

- Join a gym with a friend so you can work out together and encourage each other (see Figure above).
- Create a workout schedule with your friend.
- Make a plan with your spouse to eat dinner later three nights a we so you can go to the gym after work.
- Get extra sleep on the nights before you work out, so that you will not be too tired by the end of the day to follow through with your exercise plan.

These conditions would make it easier for you to sustain your schedule for exercising at the gym three times a week.

Similarly, you and your company can create conditions or structure that will help sustain to the five pillars. The types of conditions that are most useful for this are:

- **Awareness.** You and your coworkers need to understand what the five pillars are and how important it is to sustain them.
- **Time.** You need to have or make enough time in your work schedule to perform 5S implementation.
- **Structure.** You need to have a structure for how and when 5S activities will be implemented.
- **Support.** You need to ha e support for your efforts from management in terms of acknowledgement, leadership, and resource
- **Rewards and Recognition.** Your efforts need to be rewarded.
- **Satisfaction and Excitement.** The implementation of the five pillars needs to be fun and satisfying for you and the company. This excitement and satisfaction gets communicated from person to person, allowing 5S implementation to build as it involves more people.

Roles in Implementation

In order to sustain 5S implementation in your company, both you and the company management have important roles to play. Part of this role involves creating the conditions

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that sustain 5S activities. The other part involves demonstrating a commitment to 5S yourself.

The Role of Management

The supervisors and managers in your company have a major role to play in ensuring the success of the five pillars by creating conditions that help sustain 5S activities. This role includes:

- educating you and your coworkers about 5S concepts, tools, and techniques;
- creating team for implementation
- allowing time for implementation and creating schedules for this work
- Providing resources for 5S implementation. such as supplies-s
- acknowledging and supporting 5S efforts
- Encouraging creative involvement by all workers, listening to their ideas, and acting on them.
- creating both tangible and intangible rewards for 5S efforts
- promoting ongoing 5S efforts

Your supervisors and managers also have an important role to play in implementing the fifth pillar in their own work. When they sustain the first four pillars, they perform three very important functions.

- improving the quality and efficiency of their own work
- teaching by example
- demonstrating the company's commitment to 5 implementation

Yours Role

Similarly, you have an important role to play in creating the conditions that Sustain 5S activities. This role includes:

- continuing to learn more about 5S implementation
- helping to educate your coworkers about the 5S
- being enthusiastic about 5S implementation
- helping to promote 5S implementation efforts

You also have an important role to play in order to sustain 5S activities in your own work. This role includes:

- taking the initiative to figure out ways to implement the five pillars in your work on a daily basis

- asking your supervisor or manager for the support or resources you need to implement the five pillars

- participating fully in company 5S implementation efforts

- bringing to your supervisor or manager your creative ideas for promoting or implementing the five pillars

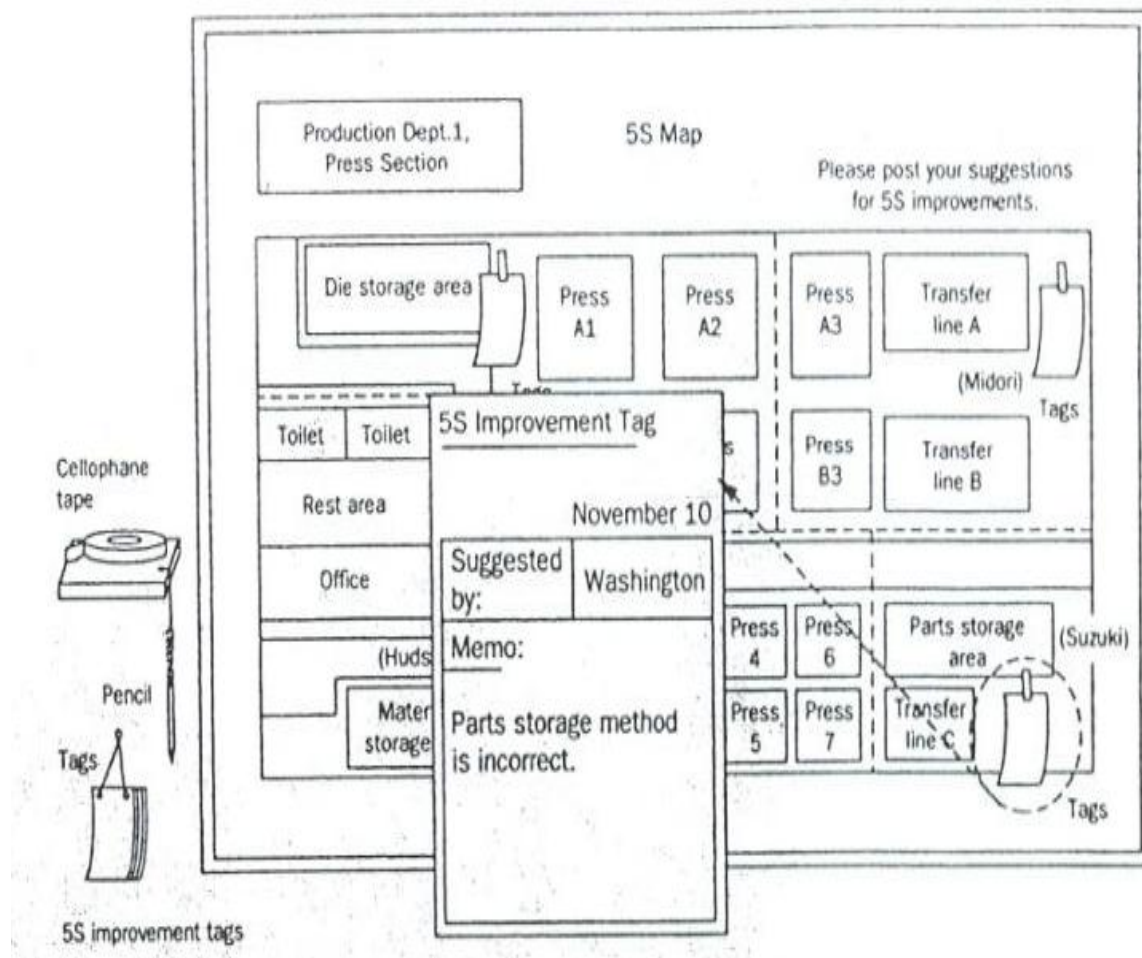- participating fully in company 5S promotion efforts

Figure: 5S map used to gather improvement suggestions

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Define the fifth pillar of 5S? (2 point)

2. Why sustain is important? (4 points)

3. Explain how to implement sustain? (7points)

4. What are the roles of you and your management in implementation of sustain ? (9 points)

Note: Satisfactory rating - 15 points   Unsatisfactory - below 15 points

You can ask you trainer for the copy of the correct answers.

Answer Sheet

Score = _____
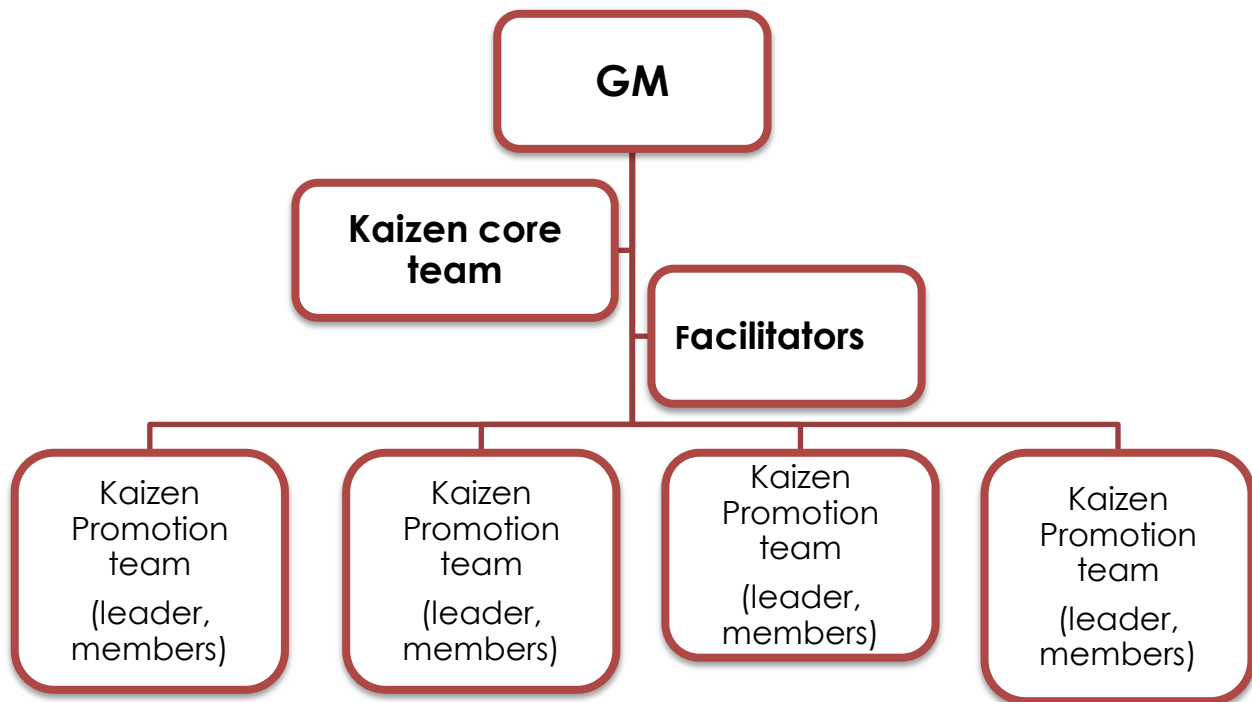
Rating: _____

Name: _____   Date: _____

Information Sheet-2	Preparing and following plan for sustaining 3s activities

Steps for planning

1. Kaizen Team organizational structure.

2. Recognition of current condition
Before starting implementation collect data using both:-
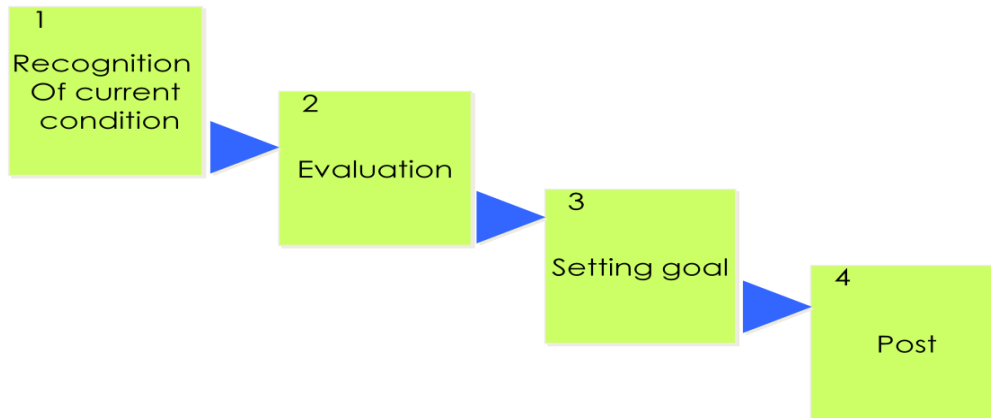   ○ By using 5S Checklist and
   ○ Photography
      (1) Fixed-point Observation Type Fix the location of the camera and do photo shoots at the same place both before and after KAIZEN.
3. Deciding activity range

4. Goal setting

5. Planning stage

A. Overall promotion plan

B. Setup of activity time

In case of 5S activity on Sustaining Stage (e.g. Cleaning)

Type of cleaning	Time	Frequency (timing)
Daily cleaning	5 – 10 min.	Minor operation before/after working hour at each shop
Weekly cleaning	15 – 30 min.	Weekend
Monthly cleaning	30 – 60 min.	End of month
Big cleaning days	2 – 4 hrs.	Before national holidays
Location which is not easy to clean	1 – 2 days	In case of necessity for assistance request to other division

C. Training plan

6. Budgeting

It is necessary to prepare a budget for 5S activity because it costs money.

7. Kick-off

Declaration of 5S activity

Inform all employees of kick-off

Assemble all employees

Explain the activity

Declare the policy

Steps to implement SUSTAIN

1. Determine the 5S level of achievement - the overall grade.
2. Perform worker-led routine 5S checks using the 5S check list.
3. Flag & address abnormalities and new opportunities found during routine checks.
4. Conduct scheduled (daily, frequency can be decided), routine checks by team leads or supervisors or by people from outside of the workgroup.
5. Perform higher-level audits to evaluate how well the 5S system is working overall.

Self-Check 2	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. List steps to implement sustain (10 pts)

Note: **Satisfactory rating - 8 points**   **Unsatisfactory - below 8 points**

You can ask you trainer for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____   Date: _____

Information Sheet-3	Tools and techniques to sustain 5s

Common Tools and techniques to sustain 5s are:

There are many tools and techniques your company can use to help sustain commitment to 5S implementation. We offer these below so you will be aware of them. At some point in your 5S implementation work, you may be called upon to use or even coordinate the use of these techniques. These are:

- 5S slogans   5S posters   5S photo exhibits & storyboards
- 5S newsletter   5S maps   5S pocket manuals
- 5S months   5S audit   5S department/benchmarking tours
- Awarding system   Big cleaning day
- Patrolling system
    - ➢ Top management Patrol
    - ➢ 5S Committee members and Promotion office Patrol
    - ➢ Mutual patrol
    - ➢ Self patrol
    - ➢ Checklist patrol
    - ➢ Camera patrol

5S Slogans

5S Slogans communicate the themes of the five pillar campaign in your company. They are most effective when they are suggested by you and your coworkers. They can be displayed on buttons, stickers, flags, or posters. It encourages all the participants.

Samples of slogan

"Refresh yourself and workplaces by 5S activity."

"Let's maintain current 5S activity and KAIZEN for tomorrow"

"We polish "Our Minds" as well us our factories"

5S Posters

Posters displaying 5S Slogans or descriptions of 5S activities can be posted throughout the workplace. They can serve to remind everyone of the importance of the five pillars, or to communicate the results or status of 5S activities.

Samples of poster
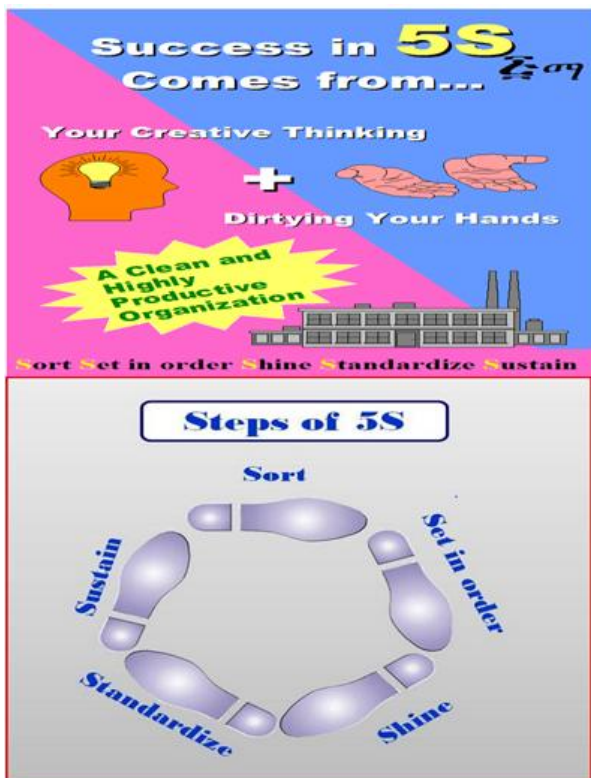
5S Photo Exhibits and Storyboards

When it comes to communication about 5S implementation, the old saying that a "picture is worth a thousand words" is definitely true. Photo Exhibits and Story boards showing the before and after of 5S implementation activities are powerful tools for promoting the five pillars. Photos and Storyboards can also communicate the status of five pillar activities.

5S Newsletters

55 Newsletters are in-house news bulletins centered on five pillar topics. They carry factory reports on 5S conditions and activities. 5S Newsletters are most effective when issued on a regular basis, perhaps once or twice a month and at staff meetings.

5s Maps 5S Maps can also be used to get employees involved in five pillar improvement on an ongoing basis. 5S improvement Maps should be hung in a central location with suggestion cards attached so anyone can suggest improvements.

5s Pocket Manuals

A 5S Pocket Manual can be created that contains five pillar definitions and descriptions, and is small enough to fit into the pocket of work clothes. Shop floor workers, supervisors, and managers can all use SS Pocket Manuals for easy reference to the 5S essentials.
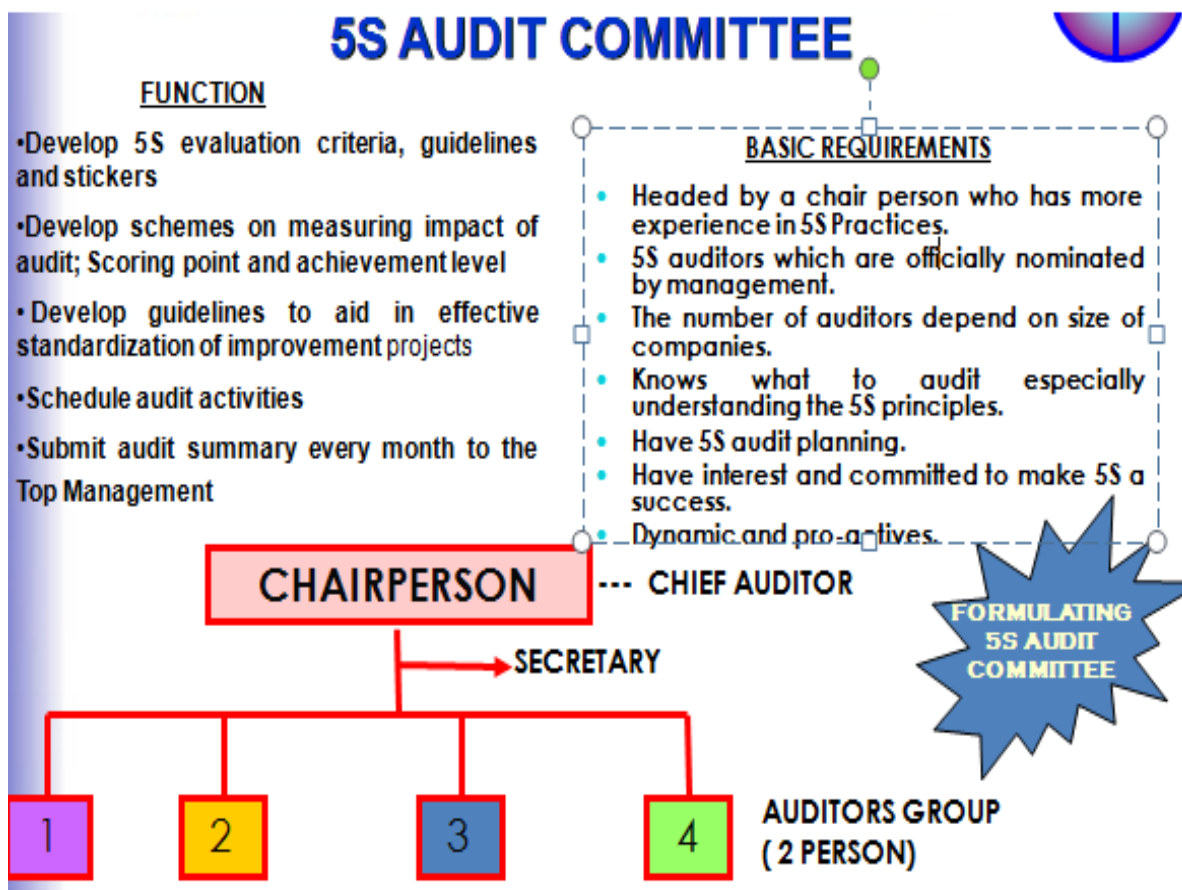
5s Department Tours

When one department in a company has implemented the five pillars successfully, it can serve as a model area for other departments to come visit. Since "seeing is believing," this technique is extremely effective for promoting 5S implementation throughout a company.

55 Months

Companies should designate two, three, or four months every year as "5S Months." During these months, various activities such as 5S seminars, field trips, and contests can be carried out of further promote 5S implementation in the company.

5s Audit

- The purpose of this audit is to outline an approach making 5S a success in industrial as well as our working areas.
- Enable 5S teams to design and establish a simple, effective and visual workplace organization, which creates a professional workplace and culture that is effective, organized and disciplined.
- Continual Improvement internal audit program enhance excellent service delivery
- Audit findings can be used to identify trends and the key issues.

5S AUDIT COMMITTEE

FUNCTION
- Develop 5S evaluation criteria, guidelines and stickers
- Develop schemes on measuring impact of audit; Scoring point and achievement level
- Develop guidelines to aid in effective standardization of improvement projects
- Schedule audit activities
- Submit audit summary every month to the Top Management

BASIC REQUIREMENTS
- Headed by a chair person who has more experience in 5S Practices.
- 5S auditors which are officially nominated by management.
- The number of auditors depend on size of companies.
- Knows what to audit especially understanding the 5S principles.
- Have 5S audit planning.
- Have interest and committed to make 5S a success.
- Dynamic and pro-actives.

CHAIRPERSON --- CHIEF AUDITOR

SECRETARY

1   2   3   4   AUDITORS GROUP (2 PERSON)

FORMULATING 5S AUDIT COMMITTEE

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Performing Audit

Preparation

1. All 5S auditors gather at the meeting room ½ hour before audit
2. Briefing by 5S audit chairman :-

    - Activities of the day
    - Highlight any new criteria to be checked
    - Action date on sticker (2 weeks from audit date)
    - Time to report back

3. Wearing 5S auditor tag
4. Every auditor is only allowed to use up to 3 stickers at each audit to each 5S zone. It is purposely not put burden to 5S team to make improvement in very drastic manner.
5. Previous audit summary report will be distributed to the auditors' team as a reference in order to avoid in consistency auditing.

During Audit

1. Bring all audit materials e.g. checklist, stickers, file holder & audit summary report
2. Get the KPT leader or facilitator to accompany auditor
3. Good public Relation
4. Check outstanding matter from the previous audit summary report
5. Proper issue of stickers & justified
6. Propose idea for improvement and justified.
7. Close matter when action has been taken. Remove sticker
8. Issue new sticker when action is not fully satisfied (old sticker still remain) and also for new matter noted
9. Take photo as an example in case of the 5S team has shown very creative idea to make the 5S initiative significantly effective, safe work place, cost saving
10. Only use maximum 3 stickers of each type for each working area / zone
11. Listen to the feedback given by workers
12. Provide positive suggestion for improvement if stickers is not appropriate
13. Prepare audit report of each working area on the Audit summary
14. Document must be signed by auditor & team leader
15. Audit to the next area
16. You may take 10 – 15 minutes for one zone.

Twelve Focal Points 5S Auditors Should Examine

- Do the Top and Middle managers support 5S program?
- Are people proud of their workplaces?
- Are workplaces clean and organized?
- Are workplaces safe for people to work in?
- Are machines and equipment clean and well maintained?
- Are items easy to retrieve?
- Are machines and tools conveniently located?
- Are inventories stored for FIFO retrieval?
- Are products free from dust?
- Do people clean daily without prompting?
- Are the uniforms worn by people clean and tidy?
- Is a good image of the enterprise reflected in its people?

DEVELOP 5S EVALUATION STICKERS
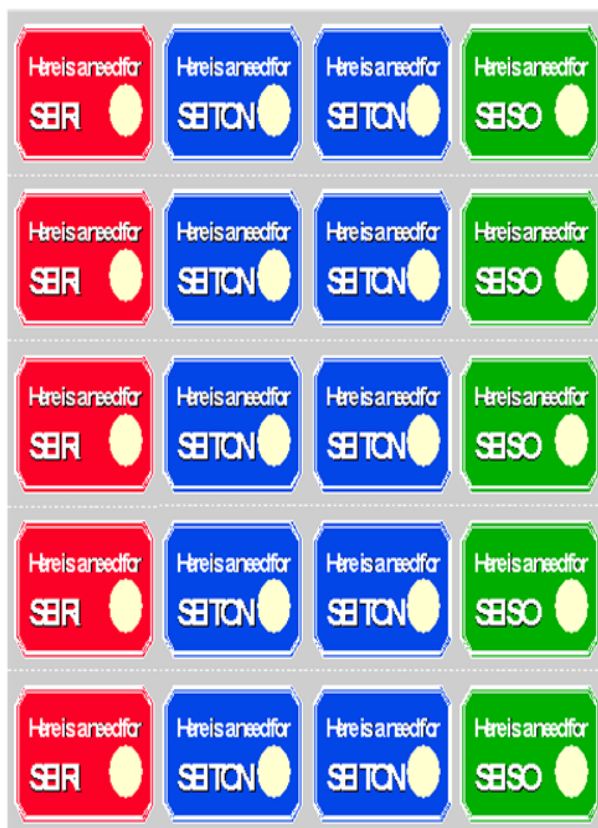
Develop 5S Evaluation Criteria & Guidelines

1. Set up audit checklist criteria according to area of 5S team

ASPECTS	NO	AUDITED ASPECT	SCORE					REMARKS
			5	4	3	2	1	
FLOOR	1	NO DUST ON THE FLOOR						
	2							
	3							
EQUIPMENTS ARRANGEMENT	4	TIDY AND WELL ARRANGED						
	5							
	6							
EQUIPMENTS AND TOOLS	7	IN GOOD CONDITION AND BEING USED						
	8							
	9							

2. Set-up "Audit Summary Report"

Audit Area : Group 5S
Date: ....

No.	Areas of Audit	Improvement Needed			Contoh Cemerlang	Situation During Audit	Proposed Enhancement
		Sort	Set In Order	Shine			

Auditor: a)................................   Signature: ....

b) ....   Signature: ....

CRITERIA FOR 5S AUDIT RATING

RATING ACCORDING TO SCALE 1 TO 5

Evaluation Scale	5S Practice	5S Theory	Data/Fact
1 (0 - 30 %)	• Nothing at all and no sense of commitment. • Not doing 5S at all.	• No knowledge and cannot explain.	• No data. • No improvement effort.
2 (31 – 50 %)	• Doing some but not sufficient. • Doing before auditors arrival.	• There is a knowledge but people do not know how to practice.	• There is data but superficial.
3 (51 – 70 %)	• Doing what is supposed to do but need to put more effort.	• Understand and have overall knowledge.	• Sufficient data but not in order.
4 (71 – 90 %)	• Almost ok, but not fully completed yet or insufficient.	• Almost ok, but in some are need further improve.	• Sufficient data and in order. • Able to explain.
5 (91 – 100 %)	• There is a proper evidence of 5S. • 5S culture can be seen.	• Completely YES	• Orderly stratified data. • Can show and answer immediately • Visual Control is functional.

Awarding System

- Awarding for 5S promotion results according to evaluation is recommended.

    Awards may be:

    ➢ For Good performance

    ➢ Award for efforts

    ➢ Award for good Ideas

    ➢ Prize winner

    ✓ Group

    ✓ Individual

Big Cleaning Day

It is a cleaning that carried out from two to four hours by the organization.

Example: Before national holidays

Patrolling System

- Top management Patrol

    ➢ Check Up the activities Comprehensively

    ➢ Give emphasis on sustaining of the activity

    ➢ consider committees feedback

- 5S Committee members and Promotion office Patrol
  - ➢ Evaluate "5S Check List"
  - ➢ Record problems on"5S check findings"
  - ➢ Tack picture of 5S problems
- Mutual patrol
  - ➢ Check mutually among KPT
- Self patrol
  - ➢ 5S leader and members check the results of activity by themselves.
- Checklist patrol
  - ➢ Point out the problems by themselves at site as well as evaluate the   results and encourage members to urge KAIZEN.
- Camera patrol
  - ➢ Visibly highlight the problems and progress of the activity using photographs.

Self-Check 3	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What are the common tools and techniques to sustain 3S? (5 points)
2. How 5S slogans are used to sustain 3S? (2 points)
3. Why 5S photo exhibits and storyboards are used to implement sustain activities (3 points)
4. Describe 5S newsletters? (2 points)
5. What are the 5S pocket manuals? (3 points)
6. How 5S months are scheduled? (3 points)
7. Describe 5S audit. (4 points)
8. What are the activities performed during preparation of audit and during audit (4 points)
9. Why awarding is necessary in sustain implementation? (2 points)
10. List types of patrolling system. (6 points)

Note: **Satisfactory rating - 25 points   Unsatisfactory - below 25 points**

You can ask you trainer for the copy of the correct answers.

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Answer Sheet

Score = _____

Rating: _____

Name: _____   Date: _____

Problems Avoided by Implementing Sustain

Here are some of the things that happen in a company when Commitment to the five pillars is not sustained.

1. Unneeded items begin piling up as soon as sorting is completed
2. No matter how well Set in Order is planned and implemented, tools and jigs do not get returned to their designated place after use.
3. No matter how dirty equipment becomes, little or nothing is done to clean it.
4. Terms are left protruding into walkways, causing people to trip and get injured.
5. Dirty machines start to malfunction and produce defective goods.
6. Dark, dirty, disorganized workplaces lower workers' morale.

These 5S related problems and others are likely to occur in any factory or office that lacks a commitment to sustain the five pillar gains over time.

Figure showing contemplating the rewards of sustain behavior

Self-Check 4	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page

1. List problems avoided by implementing sustain. (6 points)

Note: **Satisfactory rating - 4 points**   **Unsatisfactory - below 8 points**

You can ask you trainer for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____   Date: _____

:

Operation Sheet 1	Procedures in Implementing Sustain

Sequence of Sustain

1. Planning

   ➢ Set schedules for sustaining techniques

2. Prepare sustaining Tools and Techniques

3. Implement sustaining activities

4. Feedback comments on the sustain results

LAP Test	Practical Demonstration

Name: _____   Date: _____

Time started: _____   Time finished: _____

Instructions: Given necessary templates, workshop, tools and materials you are required to perform the following tasks within ------ hours.

Task 1. Prepare and implement tools and techniques to sustain 3S

Task 2. Prepare and follow plan for sustaining 3s activities

Task 3. Identify situations compliance to standards

Task 4. Avoid Problems by sustaining activities

Task 5. Clean up Workplace completion of job and before commencing next job

Task 6. Inspect Workplace regularly

Task 7. Prepare audit summary report by using the given template.

- Identify the:
    - ➢ Person -in-charge
    - ➢ Technology workshop
    - ➢ Work station

- Consider the:
    - ➢ OHS procedures
    - ➢ Workplace procedures and standards (work area)
    - ➢ Frequency of maintenance activities

List of Reference Materials

- 5S for operators (1995)
- Journals/publications/magazines
- Job specifications
- Safety Manual and Guide