ANIMAL HEALTH CARE SERVICE

Level -I

Learning Guide #3

Unit of Competence: - Apply 3S

Module Title: - Applying 3S

LG Code: AGR AHC1 M01 LO3-LG-03

TTLM Code: AGR AHC1 TTLM 0919V1

LO1: Sort items

Instruction Sheet	Learning Guide #

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

- The first pillar of 5S - Sort

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 –

- Prepare plan for implementing sorting activities.
- Perform cleaning activities, in parallel.
- Identify all items in the work area following procedures.
- List necessary and unnecessary items using the appropriate format.
- Use red tag strategy for unnecessary items.
- Evaluate and place unnecessary items in an appropriate place other than the workplace.
- Record and quantify necessary items using appropriate format.
- Report performance results using appropriate formats.
- Regularly check necessary items in the work area.

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 3 to 8.
3. Read the information written in the "Information Sheets 1". Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
4. Accomplish the "Self-check 1" in page 13.
5. Ask from your trainer the key to correction (key answers) or you can request your trainer 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 "Operation Sheet 1" in page 16; However, if your rating is unsatisfactory, see your trainer for further instructions or go back to Information sheet 1.
7. Read the "Operation Sheet 1" and try to understand the procedures discussed.
8. Do the "LAP test" in page 20 (if you are ready). Request your trainer to evaluate your performance and outputs. Your trainer will give you feedback and the evaluation will be either satisfactory or unsatisfactory. If unsatisfactory, your trainer shall advice you on additional work. But if satisfactory you can proceed to Learning outcome #4.

Information Sheet-1	The first pillar of 5S - Sort

1. Explanation of the first pillar - Sort

1.1 Definition of Sort

Sort, the first pillar of 5S, means classifying items in the workplace in to two categories – necessary and unnecessary - and removing all the unnecessary items that are not needed for current operations. It corresponds to the just in time (JIT) principle of "only what is needed, only in the amount needed, and only when it is needed." The workplace is full of unused machines, jigs, dies, rejects, work-in-process, raw materials, supplies, parts, shelves, containers, desks, workbenches, files, carts, racks, pallets and other items.

People tend to hang onto parts, thinking that they may be needed for the next time. They see an inappropriate machine or equipment and think that they will use it somehow. In this way, inventory and equipment tend to accumulate and get in the way of everyday activities. This leads to a massive build of waste in companywide or in the whole workshop. An easy rule is to remove anything that will not be used within the next 30 days. A ceiling on the number of necessary items should be established.

Red-tag holding area can also help to evaluate the need of an item instead of simply getting rid of it. This greatly reduces the risk of disposing of an item that is needed later that will be explained in detail in the next contents.

1.2 Benefits of sort activity

Implementing this first pillar creates a work environment in which space, time, money, energy, and other resources can be managed and used most effectively. Sorting can lead to a much safer workplace. By clearing out the items you no longer need, people will have more room to work and things like trip hazards and items falling off shelves will be greatly reduced. Sorting also improves work flow since there is less clutter to deal with and will most definitely increase productivity in both production and office environments.

Problems and annoyances in the work flow are reduced, communication between workers is improved, and product quality is increased, and productivity is enhanced. If the first pillar is not well implemented, the following types of problems occur:

1. The factory or a workshop becomes increasingly crowded and hard to work in.
2. Unnecessary lockers, shelves, cabinets and items make communication between employees difficult.
3. Time is wasted in searching for parts and tools.
4. Increase unnecessary maintenance cost of unneeded inventory and machinery.
5. Excess stock-on-hand hides other types of problems in production.
6. Unneeded items and equipments make it harder to improve the process flow.

2. Implementing sort activity

It is not always easy to identify unneeded items in a factory or workshop. Workers seldom know how to separate items needed for current production from unnecessary items. The following procedures will help in implementing sort activity.

2.1 Plan and procedures for sort activity

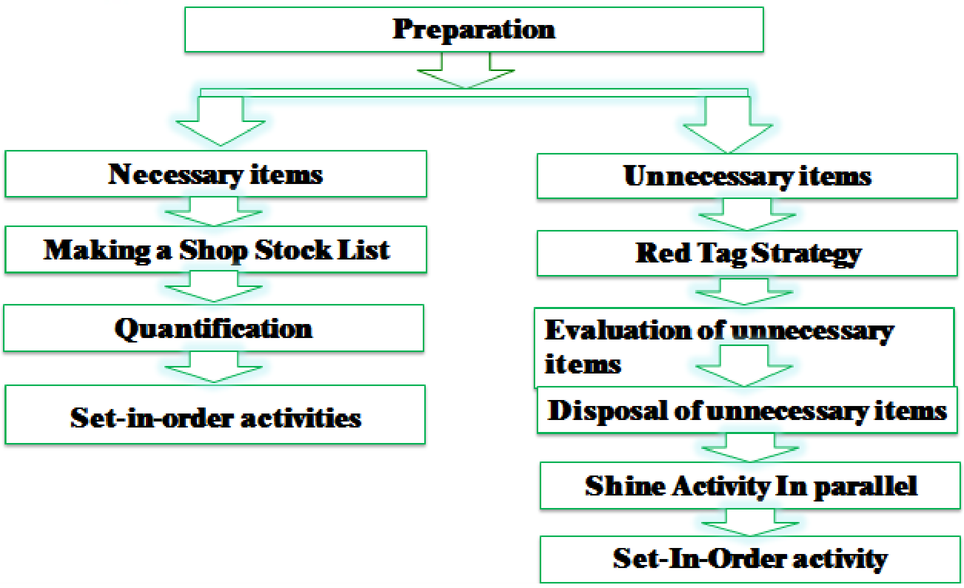
Sort activity plan sheet (sample)

Area : M-1

Preparation date: Year Month Day
Prepared by 5S Committee

Basic Plan		Sort Activity																																											
		1st month													2nd month																														
Activity		18	19	20	21	22	23	24	25	26	27	28	29	30	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
Determining activity area	Plan																																												
	Result																																												
Preparing documentations	Plan																																												
	Result																																												
Deciding where to put unnecessary things	Plan																																												
	Result																																												
Holding a briefing session	Plan																																												
	Result																																												
Red tagging	Plan																																												
	Result																																												
Filling out documentations	Plan																																												
	Result																																												
Quantification	Plan																																												
	Result																																												
General cleaning	Plan																																												
	Result																																												

Procedure for Sort activity



Step 1- Evaluate and take pictures of the work area. It's extremely important to take pictures during this evaluation step since referencing them after improvements have been made can be very enlightening. To help you get started use also a 5S evaluation form.

Step 2 - Identify and red tag the items you no longer need.

Step 3 - Decide what to do with the tagged items.

2.2 Record and quantify all items in the work area

The following sample formats can be used to record all necessary and unnecessary items.

A sample format for recording all items at the workplace.

List of All the Items at the Workplace

No.	Name	Q'ty	Category	No.	Name	Q'ty	Category

A sample format for recording necessary items at the workplace.

Preparation date: Year Month Day

List of Stock at the Workplace

Prepared by 5S Committee

Process:	Process manager:	Line manager:	Date of check	

Target object			Quantity			Frequency of use				Common use		Storage	Remarks
Category	Item name Part number	Control No.	Present	Regular	Red tag	a	b	c	d	A	B		

Category
A: Product, half-completed product, part or material
B: Facility, jig, tool or consumable material
C: Documentation(form, record, etc.)

Quantity
Present: Present quantity
Regular: Necessary quantity
Red tag: Surplus

Frequency of use
a: Everyday
b: A few times a week
c: A few times a month
d: A few times a year

Common use
A: Used by every worker
B: Used only by specific workers

A sample format for recording unnecessary items in the workplace

Preparation date: Year Month Day

List of Unused Items

Prepared by 5S Committee

Red Tag No.	Item name/ Part number	Site	Qty.	Date of Disposal	Reason to dispose									Disposal method					Others	Remarks
					A				B			C								
					1	2	3	4	1	2	3	1	2	3	Discard	Sell	Return	Use in other dept.	Repair	

◇Reason to dispose

A: Product, half-completed product, part or material	1. Unlisted and unused for a long period 2. Overproduced in-process stock beyond the capacity of the inter-process storage 3. Defect(processing/assembly/machining failure, or parts defect) 4. Others
B: Facility, jig, tool or consumable material	1. Unusable 2. Surplus 3. Others
C: Documentation(form, record, etc.)	1. Obsolete and unusable 2. Duplicate 3. Others

2.3 Red tag strategy for unnecessary items

2.3.1 Overview of red tagging

The Red-Tag Strategy is a simple method for identifying potentially unneeded items in the factory or workshop, evaluating their usefulness and dealing with them appropriately. Red-tagging means putting red tags on items in the factory or workshop that need to be evaluated as being necessary or unnecessary. A Red tag is a red colored tag used to identify items no longer needed in a particular work area. The red tags catch people's attention because red is a colour that stands out. An item with a red tag is asking three questions:

- Is this item needed?
- If it is needed, is it needed in this quantity?
- If it is needed, does it need to be located here?

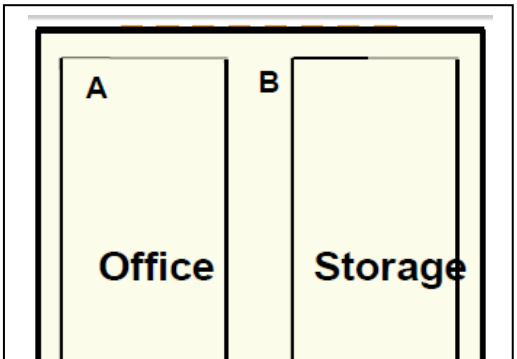
Once these items are identified, they can be held in a "Red Tag Holding Area" for a period of time to see whether they are needed, disposed of, relocated, or left exactly where they are.

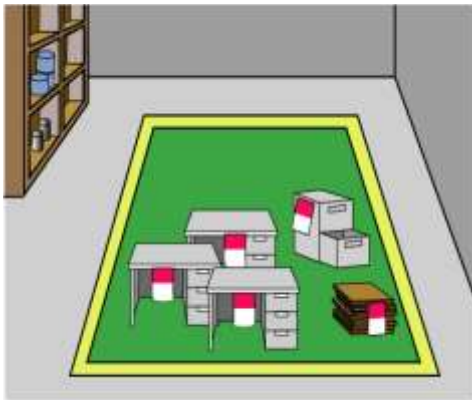
2.3.2 Red-tag Holding areas

In order to implement the red-tag strategy effectively, a red-tag holding area must be created. A red-tag holding area is an area set aside for use in storing red-tagged items that need further evaluation. Red-tagging is helpful when the need or frequency of need for that item is unknown. When an item is set aside in a red-tag holding area and watched for an agreed-upon period of time people tend to be more ready to let it go when that time is over.

There are two red-tag holding areas: local and central holding areas. Local red-tag holding area is used to manage the flow of red-tagged items with in a local department or production area. Central red-tag holding area is used to manage the flow of items that cannot or should not be disposed of by individual departments or production area. Usually central red-tag holding area is used by an organization that is launching a companywide red-tagging effort.

Red-tag Holding Area





2.3.3 Steps/procedures in Red tagging

The red-tagging process in a department or work area can be broken down into seven steps.

Step 1: Launch the red-tag project.
Step 2: Identify the red-tag targets.
Step 3: Set red-tag criteria.
Step 4: Make red tags.
Step 5: Attach red tags.
Step 6: Evaluate red-tagged items.
Step 7: Document the results of red-tagging.

Step 1: Launch the red-tag project

Red-tag campaigns are started and coordinated by the upper-level management of a company. Even when a red-tag campaign is companywide, local campaigns need to be organized in each department or production area. This involves

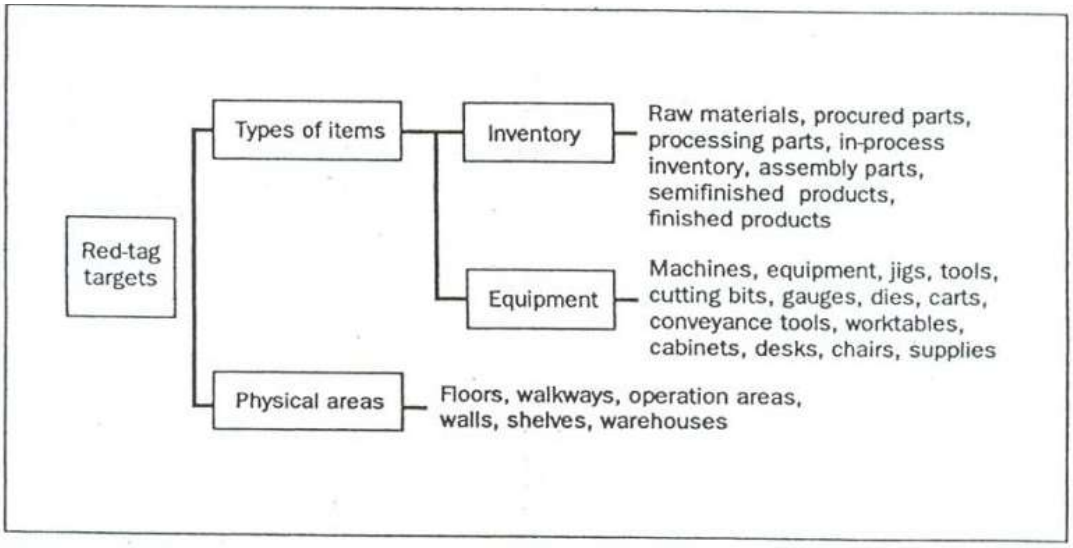
- Organizing a team
- Organizing supplies
- Organizing a time or schedule to perform red-tagging
- Deciding a local-tag holding area
- Planning for disposal of red-tagged items

People from outside a department can be valuable members on a red-tagging team since they tend to see the area with a fresh eye. Hence, it is helpful to partner with other departments or production areas in creating red-tagging teams.

Step 2: Identify red-tag targets

There are two red-tag targets:

a) Items: in the manufacturing area items like inventory (warehouse and in-process inventory), equipment, and space are targets for red tags. Warehouse inventory include material, parts, products etc.
b) Areas: It is better to define a smaller area and evaluate it well than to define a larger area and not be able to evaluate it fully in available time.



Step 3: Set red-tag criteria

As already mentioned, the most difficult thing about red-tagging is differentiating what is needed from what is not. This issue can be managed by establishing clear-cut criteria for what is needed in particular area and what is not. The most common criterion is the next month's production schedule.

- Items needed for that schedule are kept in that location.
- Items not needed for the schedule can be disposed of or stored in a separate location.

Three main factors determine whether an item is necessary or not. These factors are:

- The usefulness of the item to perform the work at hand. If the item isn't needed it should be disposed of.
- The frequency with which the item is needed. If it is needed infrequently it can be stored away from the work area.
- The quantity of the item needed to perform this work. If it is needed in limited quantity the excess can be disposed or stored away from the work area.

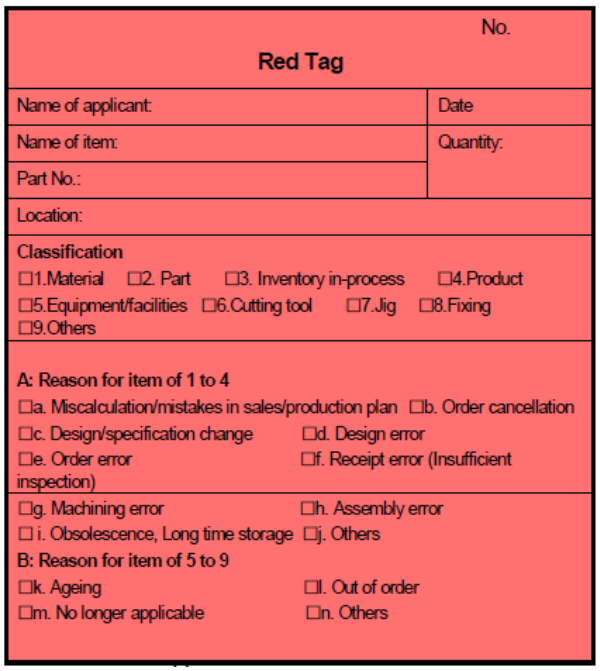
Each company must establish its own red-tagging criteria and each department may customize this standard to meet its local needs.

Step 4: Make red-tags

Each company has specific needs for documenting and reporting the movement, use, and value of materials, equipment, tools, inventory and products. The company's red tags should be designed to support this documentation process.

Various types of information on a red tag may include:

- Category: provides a general idea of the type of item (e.g., a warehouse item or machine). Categories include raw materials, in-process inventory, products, equipment, jigs, tools and dies.
- Item name and manufacturing number.
- Quantity: indicates the number of items included under this red tag.
- Reason: describes why a red tag has been attached to this item.
- Division: includes the name of the division responsible for managing the red-tagged item.
- Value: includes the value of the red-tagged item.
- Date: includes the red-tagging date.



The material used for red tags can be red paper, thick red tape, or others. Red tags can be laminated with plastic or another material to protect them during repeated use.

Step 5: Attach the red tags

The best way to carry out red-tagging is to do the whole target area quickly, if possible, in one or two days. In fact, many companies choose to red-tag their entire factory during a one or two day period. Red-tagging should be a short and powerful event. You should red-tag all items you question, without evaluating what to do with them.

Step 6: Evaluate the red-tagged items

In this step, the red-tag criteria established in step 3 are used to evaluate what to do with red-tagged items. Options include:

- Keep the item where it is.
- Move the item to a new location in the work area.
- Store the item away from the work area.
- Hold the item in the local red-tag holding area for evaluation.

- Dispose of the item.

Disposal methods include:

- Throw it away.
- Sell it.
- Return it to the vendor.
- Lend it out.
- Distribute it to a different part of the company.
- Send it to the central red-tag holding area.

The next table shows disposal methods.

Treatment	Description
Throw it away	Dispose of as scrap or incinerate items that are useless or unneeded for any purpose.
Sell	Sell off to other companies items that are useless or unneeded for any purpose.
Return	Return items to the supply company.
Lend out	Lend items to other sections of the company that can use them on a temporary basis.
Distribute	Distribute items to another part of the company on a permanent basis.
Central red-tag area	Send items to the central red-tag holding area for redistribution, storage, or disposal.

Evaluation format for red-tag items (sample)

Evaluation Form of Red Tag Items — Date of issue: Issued by: 5S promotion office

Stage: Seiri		Unused Period (month)	Red tag strategy						Remarks
			Red tag		Sorter		Unnecessary item list		
Object	Type		Required	Not required	First	Second	Required	Not required	
Material	Main	12	O		Leader	Manager	O		
	Supplement	6	O		Leader	Manager	O		
	Broken	1		O				Dispose	
Parts	Common Use	6	O		Leader	Manager	O		
	Exclusive use	3	O		Leader	Manager	O		
Inventory in-process		2	O		Leader	Manager	O		
Product		3	O		Manager	General manager	O		
Facility		6	O		Manager	General manager	O		
Die		6	O		Manager	General manager	O		
Jig		6	O		Leader	General manager	O		
Cutting tool		6	O		Leader	Manage	O		
Tool		3	O		Leader	Head of Section	O		
Measuring instrument		6	O		Leader	Head of Section	O		
Carrying equipment		2	O		Leader	Head of Section	O		

How to evaluate:

Evaluate items based on unused period of them.

How to prepare the form

- 5S committee set the standard by main unneeded item
- Explain contents of this form to each promotion block.
- Compile the form to help Seiri activity such as requirement of red tag and record on unnecessary item list.

Ideally, unnecessary equipment should be removed from areas where daily production activities take place. However, large equipment and equipment or machine attached to the floor may be expensive to move. It is sometimes better to leave this equipment where it is unless it interferes with daily production activities or prevents workshop improvements. Label this unneeded and difficult to move equipment with a “freeze” red tag, which indicates that its use has been “frozen,” but that it will remain in place for the time being.

Step 7: Document the results of red-tagging

Each company or organization needs to create its own system for logging and tracking necessary information as red-tagging takes place. The documentation system may involve a written logbook in each department and in the central red tag holding area. Or it may involve entering data from the red-tags into a computer system. Whatever the system, documenting results is an important part of the red-tagging process. It allows the company to measure the improvement and savings produced as a result of the red-tagging effort. As it is indicated in step 4, the red-tags should be designed to support the documentation process.

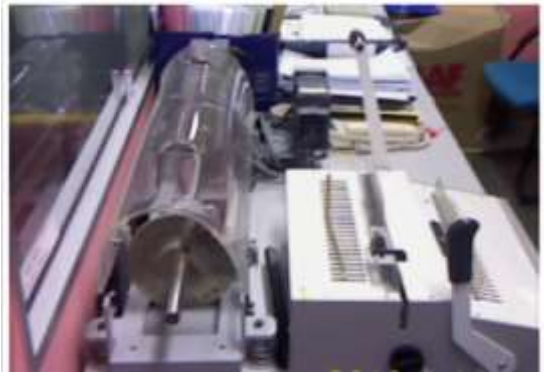
Determine in advance approximately how many red-tags each workplace should use. An average of four red-tags per employee should be used. This means a workshop with 30 employees should need about 120 red tags. In addition when you find a shelf full of items which are difficult to decide, we don't have to be tempted to attach one red-tag for the whole shelf. Because this can lead to confusion when we want to dispose of these items in the shelve. Therefore, avoid this temptation and attach individual tags to individual items.

When red-tagging is completed the factory or workshop is usually dotted with empty spaces – a sign of real progress. Then the layout of equipments and worktables can be changed to occupy the free space. Companies or organizations who think they need to build a new factory for a production of new products/ services should first apply the sort activity or the red-tag strategy so that they could get plenty of free space.

2.3.4 Types of unnecessary items

Some of types of unnecessary items are:

- defective or excess quantities of small parts and inventory
- outdated or broken jigs and dies
- worn-out bits
- outdated or broken tools and inspection gear
- old rags and other cleaning supplies
- electrical equipment with broken cords
- outdated posters, signs, notices, and memos



Unused machinery or equipment

Obsolete equipment

2.3.5 Places where unnecessary items accumulate

Some locations where unneeded items tend to accumulate are:

- in rooms or areas not designated for any particular purpose
- in corners next to entrances or exists
- along interior and exterior walls, next to partitions, and behind pillars.
- under the eaves of warehouses.
- under desks and shelves and in desk and cabinet drawers
- near the bottom of tall stacks of items
- on unused management and production schedule boards
- in tools boxes that are not clearly sorted

Self-Check 1	Written Test

***Instructions**:* Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers. Write your answers in the sheet provided in the next page.

1. What are the benefits of implementing sort activity? (4 points)
2. What is 5S Map? (3 points)
3. What are the strategies for implementing set in order? (3 points)

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

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

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

1. _____

_____

_____

_____

2. _____

_____

_____

_____

3. _____

_____

_____

_____

4. _____

_____

_____

_____

5. _____

_____

_____

_____

_____

6. _____

_____

_____

_____

_____

7. _____

_____

_____

_____

8. _____

_____

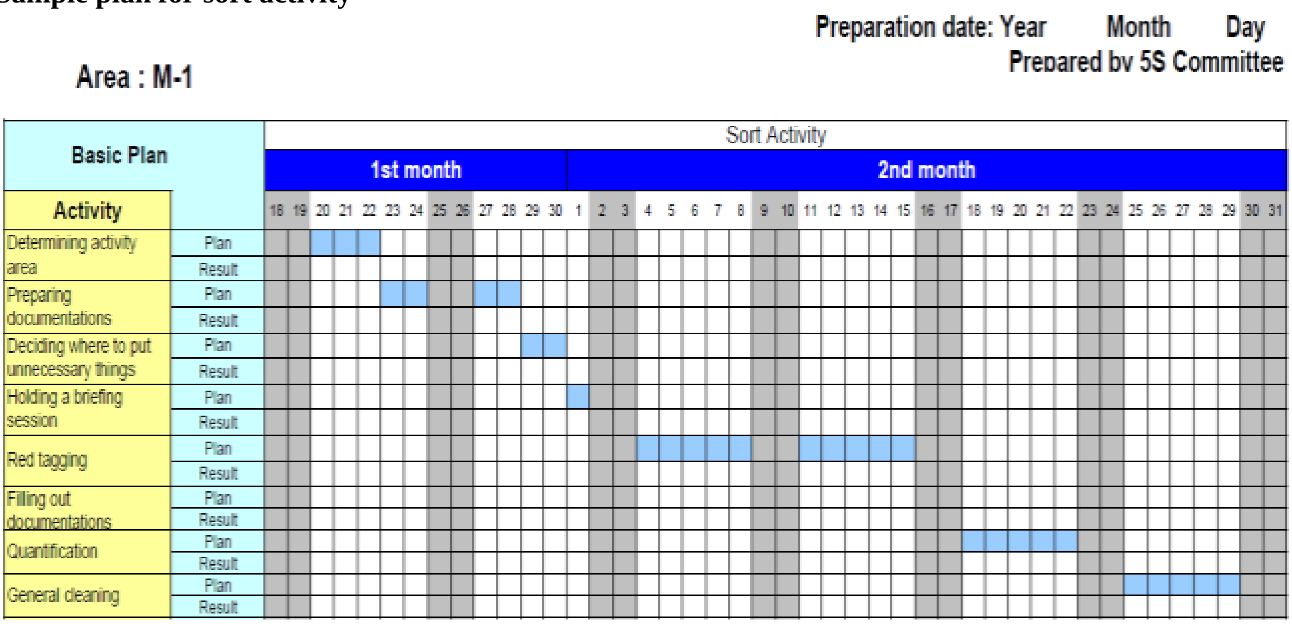
9.

10.

Operation Sheet 1	Implementing sort activity

1. **Preparing plan for Sort activity**

Sample plan for sort activity



2) Procedure for sort activity

List all items at the work place using the following sample format.

List of All the Items at the Workplace

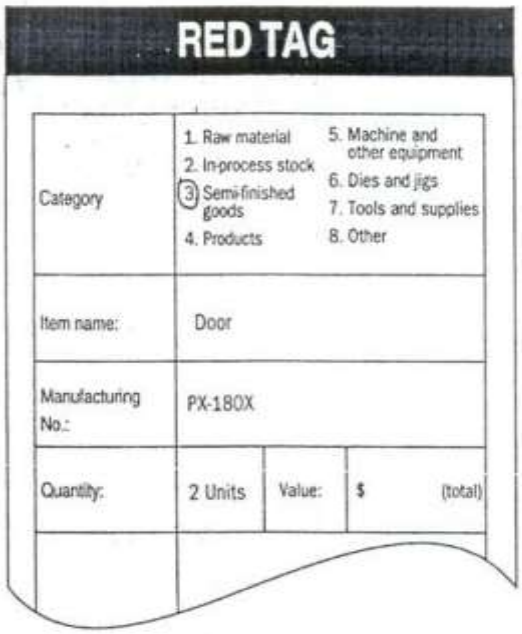
No.	Name	Q'ty	Category	No.	Name	Q'ty	Category

3) Red tagging

Steps/procedures in Red tagging

Step 1: Launch the red-tag project
Step 2: Identify red-tag targets
Step 3: Set red-tag criteria
Step 4: Make red-tags
Step 5: Attach the red tags
Step 6: Evaluate the red-tagged items
Step 7: Document the results of red-tagging

Sample red-tags



No.

Red Tag

Name of applicant:	Date
Name of item:	Quantity:
Part No.:	
Location:	

Classification

☐1.Material ☐2. Part ☐3. Inventory in-process ☐4.Product
☐5.Equipment/facilities ☐6.Cutting tool ☐7.Jig ☐8.Fixing
☐9.Others

A: Reason for item of 1 to 4

☐a. Miscalculation/mistakes in sales/production plan ☐b. Order cancellation
☐c. Design/specification change ☐d. Design error
☐e. Order error ☐f. Receipt error (Insufficient inspection)
☐g. Machining error ☐h. Assembly error
☐ i. Obsolescence, Long time storage ☐j. Others

B: Reason for item of 5 to 9

☐k. Ageing ☐l. Out of order
☐m. No longer applicable ☐n. Others

4) Record and quantify all items in the work area using the following formats.

Preparation date: Year Month Day

List of Stock at the Workplace

Prepared by 5S Committee

Process:	Process manager:	Line manager:	Date of check	

Target object			Quantity			Frequency of use				Common use		Storage	Remarks
Category	Item name/Part number	Control No.	Present	Regular	Red tag	a	b	c	d	A	B		

Category
A: Product, half-completed product, part or material
B: Facility, jig, tool or consumable material
C: Documentation(form, record, etc.)

Quantity
Present: Present quantity
Regular: Necessary quantity
Red tag: Surplus

Frequency of use
a: Everyday
b: A few times a week
c: A few times a month
d: A few times a year

Common use
A: Used by every worker
B: Used only by specific workers

Preparation date: Year Month Day

List of Unused Items

Prepared by 5S Committee

Red Tag No.	Item name/ Part number	Site	Qty.	Date of Disposal	Reason to dispose									Disposal method						Others	Remarks
					A				B			C									
					1	2	3	4	1	2	3	1	2	3	Discard	Sell	Return	Use in other dept.	Repair		

◇Reason to dispose

A: Product, half-completed product, part or material	1. Unlisted and unused for a long period 2. Overproduced in-process stock beyond the capacity of the inter-process storage 3. Defect(processing/assembly/machining failure, or parts defect) 4. Others
B: Facility, jig, tool or consumable material	1. Unusable 2. Surplus 3. Others
C: Documentation(form, record, etc.)	1. Obsolete and unusable 2. Duplicate 3. Others

5) Reporting quantitative and qualitative results gained by implementing the 1st S – Sort using the following formats. All or some of the improvement indicators can be used.

Quantitative Results

Record tangible/quantitative results and changes that are achieved by applying Sort activity using the following indicators.

No	Improvement Indicators	Before Kaizen	Target	After Kaizen	Improvement (%)	Remark
1	Free floor space					
2	Searching time for tools, materials, etc					
3	Transaction made/income generated					
4	Labor saving					
5	Parts saving					
6	Tools& Equipment found					
7	Raw Material saving					
8	Transportation/travel					
9	Inventory					
10	Lead time					
11	Machine down time					
12	Frequency of Machine failure					
13	Production volume per day					
14	Labour productivity					
15	Delivery Time					
16	Defect rate					
17	Number of Customer complaints					
18	Minimized Cost of Production					

Qualitative Results

Record intangible/qualitative results and changes that are achieved by applying Sort activity using the following indicators.

No	Improvement Indicators	Description of the Result
1	Knowledge of the 1st S - Sort	
2	Team work	
3	Morale of workers	
4	Communications between workers by removing unnecessary materials	
5	Corporate culture of kaizen	
6	Fatigue or stress	

7	Relationship with customers	
8	Awareness of safety	
9	Orderliness of work place	
10	Other	

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.

Task 1: Using the given template, prepare a plan for sort activity in your workshop.

Task 2: Using the given templates, list necessary and unnecessary items.

Task 3: Make red-tags appropriate for your workshop.

Task 4: Following the procedures of sort activity, perform sort activity in the assigned workshop.

List of Reference Materials

1) 5S for operators (1995)
2) Ethiopia Kaizen Manual (2011)
3) Journals/publications/magazine