



Improving workplace organization using 5S Methodology

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August 6-9, 1945

Atomic bombings of Hiroshima and Nagasaki



The United States detonated two nuclear bombs over the Japanese cities of Hiroshima and Nagasaki on August 6 and 9, 1945, respectively. The two bombings killed between 129,000 and 226,000 people, most of whom were civilians, and remain the only use of nuclear weapons in armed conflict.

ATOMIC BOMB STORY

Tell How Deadly Weapon Was Develo

**BOMB IS KILLED
AS JET PLANE
FALLS IN TEST**

**No. 1 Ace Crashes
in California**

CHICAGO, Aug. 6 (AP)—
The first test of the atomic bomb
in the United States was a
failure.

The plane, a B-29
Superfortress, was flying at
an altitude of 31,000 feet
when it crashed into the
ocean off the coast of California.
The crash was caused by a
malfunction in the engine.
The plane was carrying a
bomb, but it did not explode.
The test was a disappointment
for the military, but it was
a success for the atomic
energy commission.

**POWERS OF SUN
HARNESSED TO
MAKE NEW BOMBS**

WASHINGTON, Aug. 6 (AP)—
The atomic energy commission
has announced that it will
begin work on a new type of
bomb. The new bomb will be
powered by the sun's energy.
The commission says that the
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**TENSE TRUMAN
BARES SECRET**

**JAPS HALT TRAINS TO SMASH
TRUMAN VOWS RAIN OF D**

**Power of Universal
Tapped to Create
New Missile**

WASHINGTON, Aug. 6 (AP)—
The atomic energy commission
has announced that it will
begin work on a new type of
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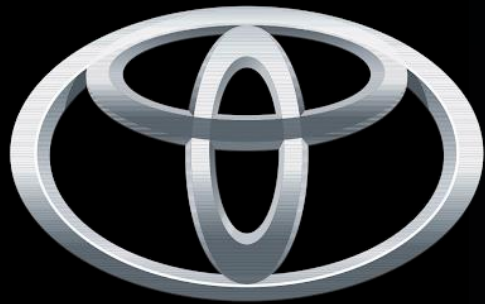
**The
Guardian**

The **Hiroshima Peace Memorial** (広島平和記念碑, *Hiroshima Heiwa Kinenhi*), originally the **Hiroshima Prefectural Industrial Promotion Hall**, and now commonly called the **Genbaku Dome**, **Atomic Bomb Dome** or **A-Bomb Dome** (原爆ドーム, *Genbaku Dōmu*),



**The
Guardian**

Nagasaki Today



TOYOTA

**Head Office
Honsha, Japan**





WORDS OF WISDOM

*"Progress cannot be
generated when we
are satisfied with
existing solutions."*

TAIICHI OHNO

Japanese industrial engineer in 1950s

Father of Toyota Production System

Foundation of Toyota Production System (TPS)



KAIZEN



7 Wastes



5S

Shifting the mindset

KAIZEN

بہتری کی
طرف تبدیلی۔۔

“Step by step walk
the thousand -
miles road” –
Miyamoto Musashi

kai

改

change

zen

善

good



KAIZEN Board

SAFETY IDEAS



OTHER IDEAS



EASY-HIGH IMPACT



HARD-HIGH IMPACT



EASY-LOW IMPACT



HARD-LOW IMPACT

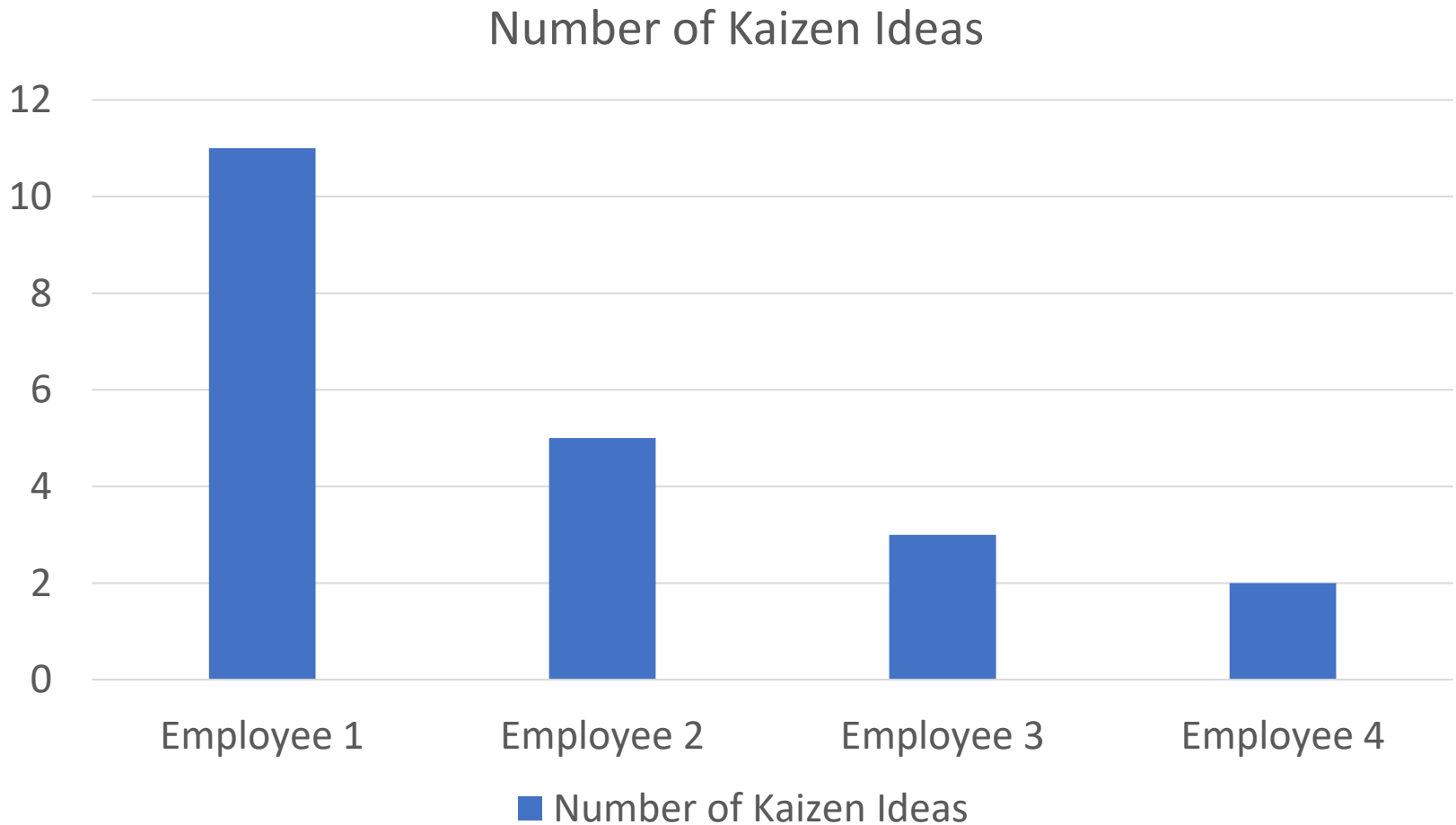


P
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ASSIGNED ACTIVITIES

	TASK	LEADER	DUE	STATUS
1	Update Exit signs	Beth.A	5/12	Half of facility updated Need more signs
2	Teach new LOTO Procedures	Jon.P	5/12	- in progress
3	Floor tape	Greta.J	7/12	ordered new floor tape

Employee Kaizen Performance Chart



Goal is to **reduce**

むり



Muri (Overburden)

- Excessive strain on people, equipment, or processes.

村



Mura (Unevenness)

- Creating a system that is flexible to handle variations.

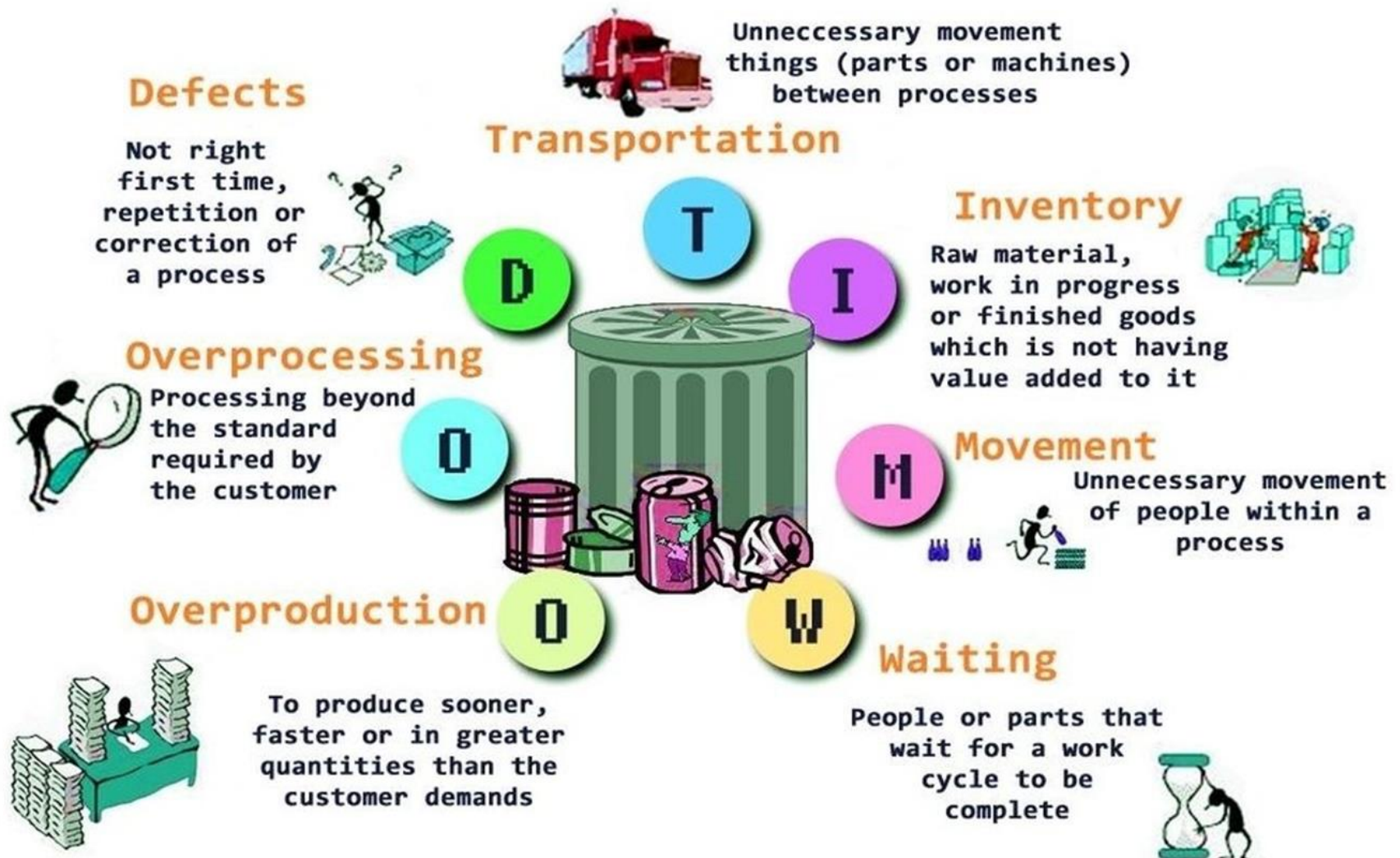
ムダ



Muda (Waste)

- Anything that doesn't add value to your product or service.

7- Kinds of **Wastes** (Muda)



To remove these **wastes**, we use!



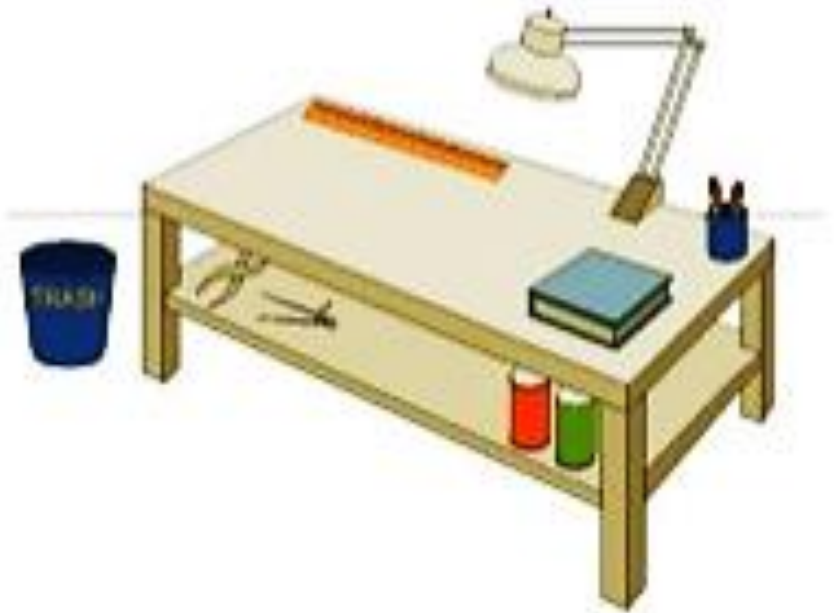
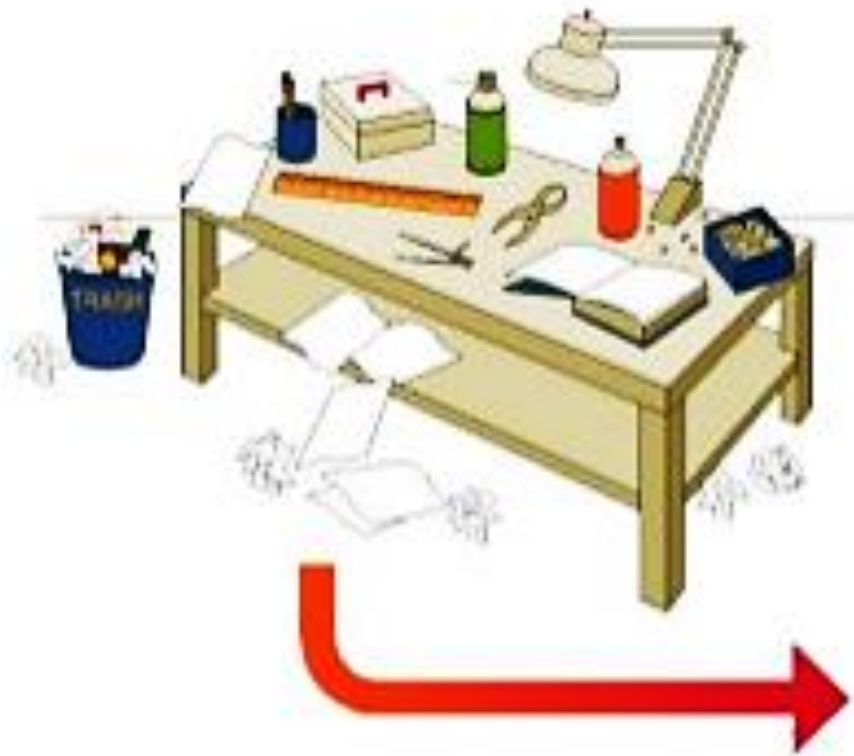
A step-by-step methodology to manage a workplace so that the productivity, efficiency and quality of work improves.

5S in Japanese/English/Urdu

5S is abbreviation of Japanese terms with 5 initials of S.

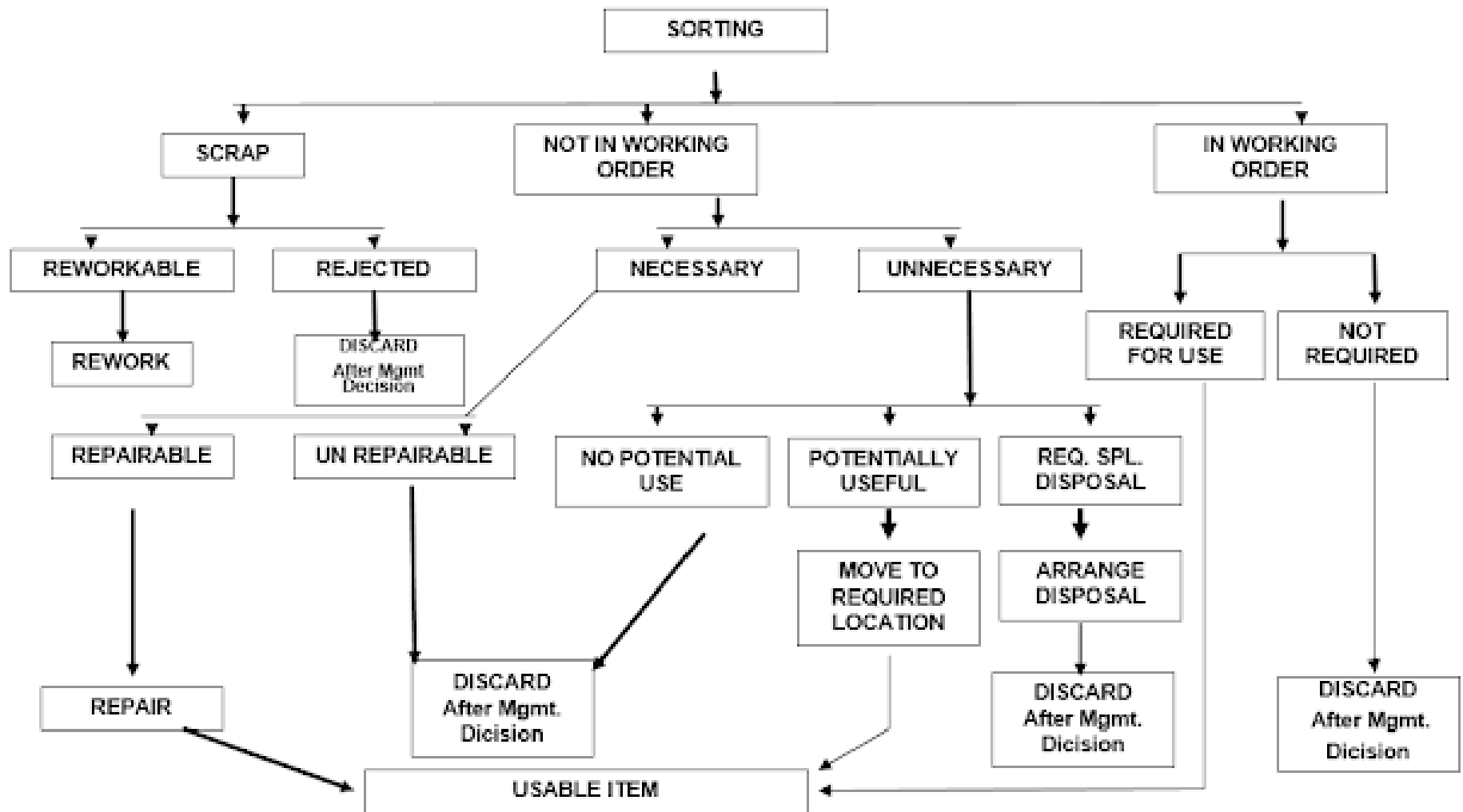
Initial	Japanese	English	Urdu
S-1	Seiri	Sort	ترتیب
S-2	Seiton	Set	تنظیم
S-3	Seiso	Shine	تطہیر
S-4	Seiketsu	Standardize	تطبيق
S-5	Sitsuke	Sustain	تسلسل

ترتیب

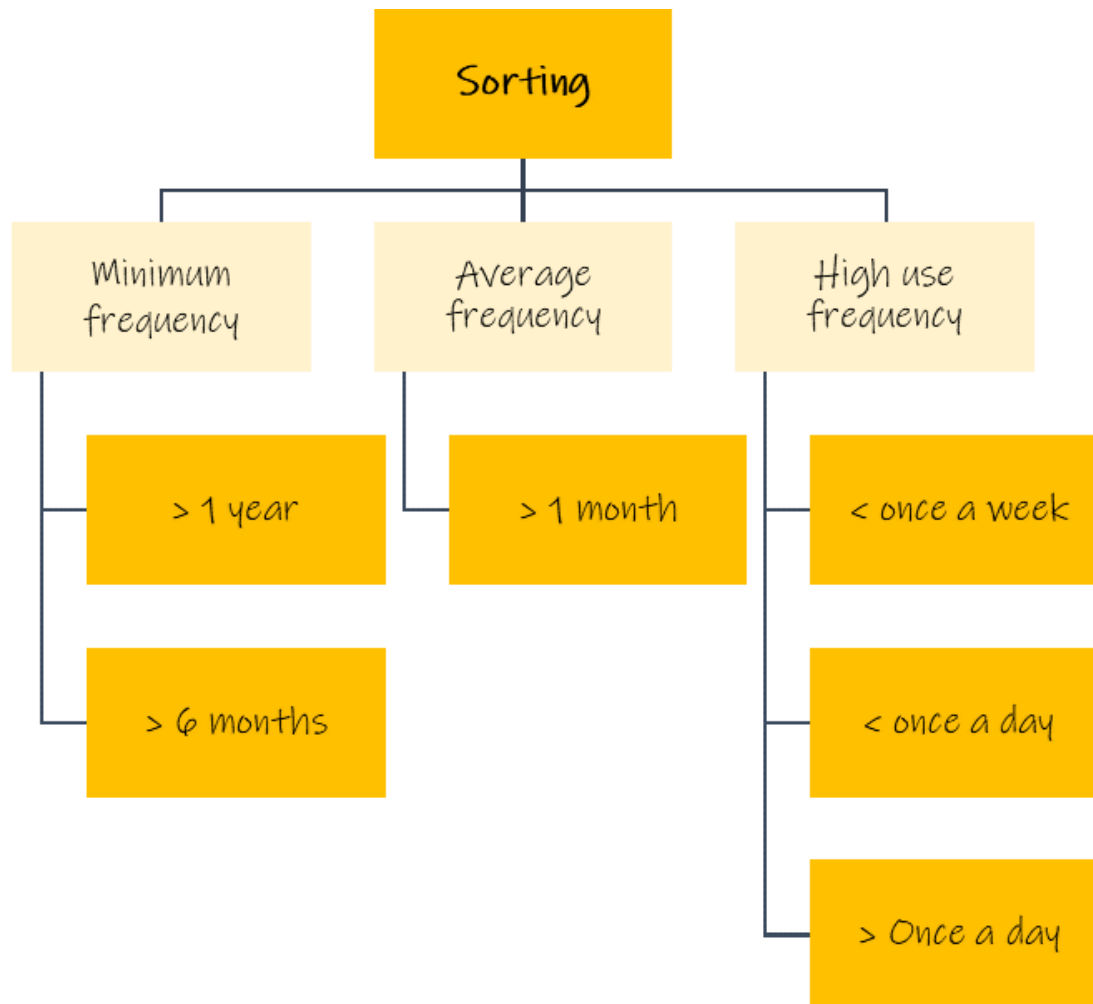


Sort

Identifying “Usable” & “Unusable”



“Frequency” based Sorting



Needs and Wants Analysis

No.	Needed Regularly			Needed but not regularly		
	Needed Daily	Needed weekly	Needed monthly	Needed quaterly	Needed semiannually	Needed yearly
1	Stationery	Solder	Calibration tools			
2	Basic tools	Adhesives	Refills			
3	Screw drivers	Paints				
4	Components	Medical supplies				
5	Wiring and cables					
6						
7						
8						
9						
10						

Orphaned notebook
since many days
waiting for its rightful
author

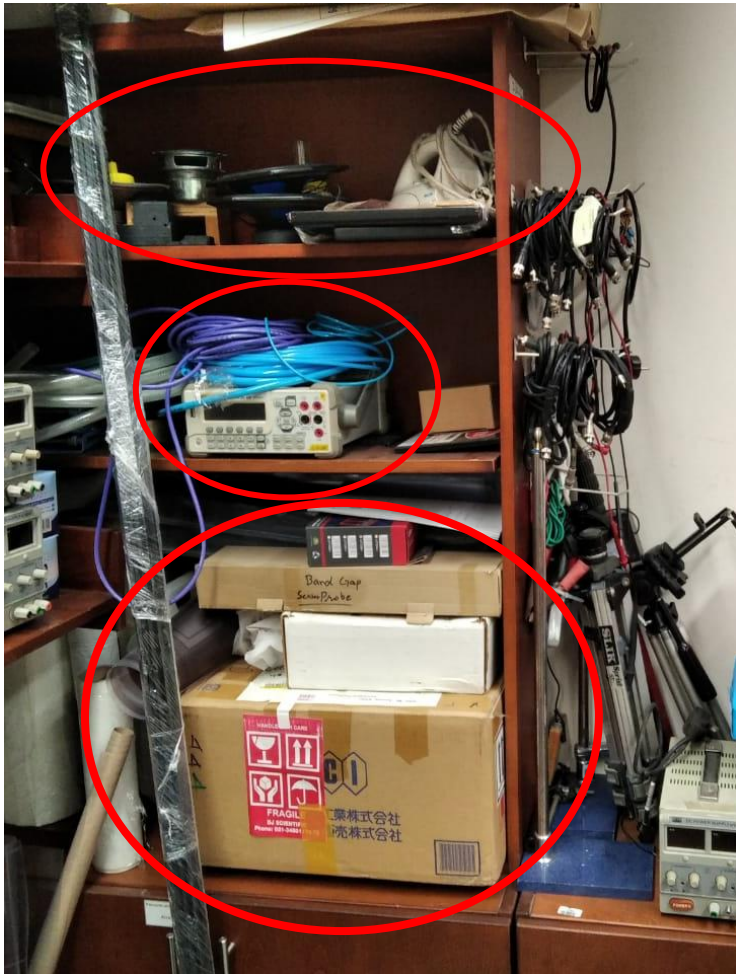
If these are not to be used either
recycle the components to be used
in other projects or dismantle and discard
(Save storage space and material costs)

Ideal shelf to keep electronic components and small tools readily available for workmen

New labels needed here and strict adherence to it needed

Take pictures and start highlighting areas with potential for
sorting operation

Begin and compare “Before” and “After” Status



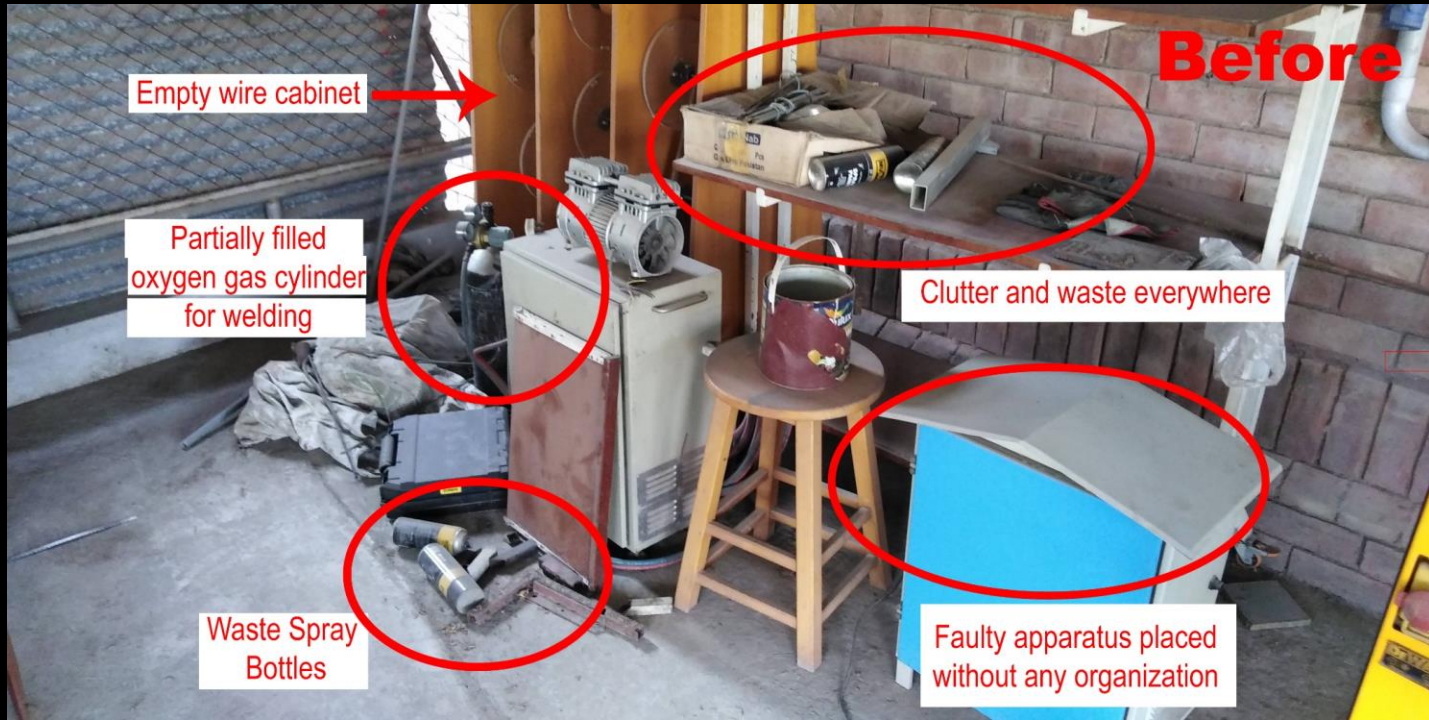
Begin and compare “Before” and “After” Status



BEFORE



AFTER



Red Tag Area

- Establish a holding area for items (Red tag area)
- Identify items not required at the current location, if at all
- Team members evaluate items in Red Tag area
- Dispose of items with team approval



تنظیم



Set



2. SET IN ORDER

- “Set in Order” is the process of organizing the remaining items after the “sort” process is completed.

There should be a place for everything and everything should always be in its place.

Permanent Locations for every item

Visual Identification of their Locations

2. SET IN ORDER

Permanent Locations for every item



2-Bin System



Min Max System

2. SET IN ORDER

Visual Identification of their Locations










FLOOR MARKINGS





OSHA Standard Color Coding

1910.144 - Safety color code for marking physical hazards.

Color		Area
Yellow		Aisle ways, traffic lanes and work cells
White		Equipment and fixtures not otherwise color coded (workstations, carts, floor stand displays, racks, etc.)
Blue, Green and/or Black		Materials and components, including raw materials, work-in-progress and finished goods
Orange		Materials or products held for inspection
Red		Defects, scrap, rework and red tag areas
Photoluminescent		Steps and perimeter demarcation to identify egress routes in a lights-out emergency
Red and White		Areas to be kept clear for safety/compliance reasons (areas in front of electrical panels, firefighting equipment and safety equipment, such as eyewash stations, safety showers and first aid stations)
Black and White		Areas to be kept clear for operational purposes (not related to safety and compliance)
Black and Yellow		Areas that may expose employees to special physical or health hazards

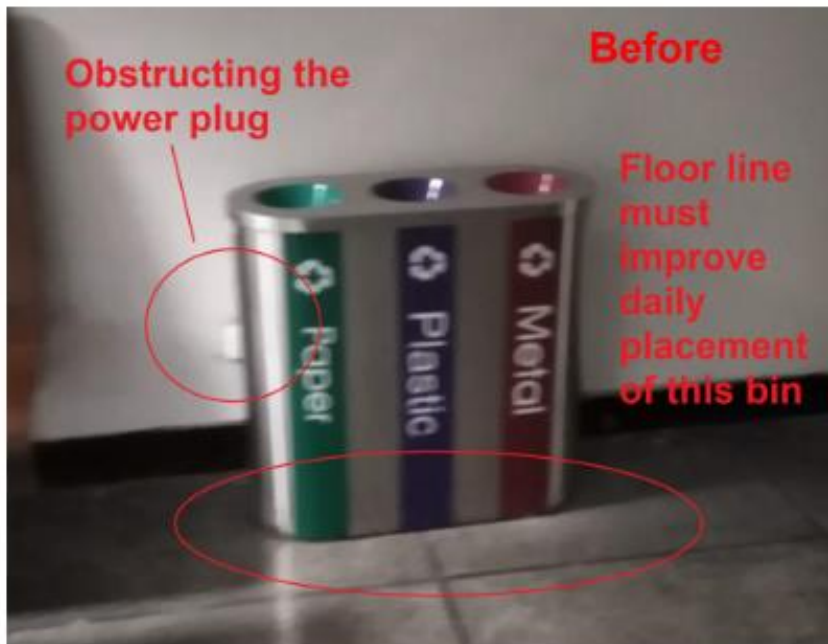
Floor lines
for Safety
Equipment



Floor lines for Electrical Hazards and Fire safety equipment



Even Janitorial Staff can follow ...



Example of “Setting” activities

- Labeling , numbering, zoning for clear identification of storage areas to keep necessary items
- Set necessary items matching with workflow to minimize unnecessary movement and transportation time

**BASELINE
PHOTOGRAPHS
AUGUST
2008**

ADMINISTRATION

PROCESS

**SEPTEMBER
2008**



2. SET IN ORDER

BEFORE



AFTER



2. SET IN ORDER

BEFORE



AFTER



2. SET IN ORDER

BEFORE



AFTER



تطهير



Shine

3. SHINE



“Shine” is the process of cleaning the work area and any machinery or equipment in it.



The ideal “Shine” implementation is to keep the equipment in the same or better shape than when it was delivered. Prior to 5S philosophy many companies allow their machinery to deteriorate over time.



3. SHINE

3. SHINE Benefits



Improve machine and equipment performance



Increase machine reliability



Reduce Quality Control issues



Creating a healthy environment by lessening the spread of germs and allergens.



Improves safety



Indirectly leads to basic Inspection

تطبيق



Standardize

4. STANDARDIZE

- “Standardize” is the process of making the first three S’s a habit.
- It is one of the most important of the 5S system. For example, if a machine is to be wiped clean at the end of a shift, it should be done every single day without fail.
- In this step, we have defined clearly the roles and responsibility of all the Supervisor and workers according to their work or roles in the industry.
- We also prepare key points to maintain the first three “S” and use them in the periodic audits.

Example of “Standardize” activities

- Work instructions, Standard Operating Procedures (SOPs)
- Checklist development and regular usage for SOPs
- Mechanism and format development for ordering supplies, reporting etc
- Color coding for waste segregation
- Standardized common symbols

Standardized Physlab Stockroom drawers

Drawer No.	Drawer Label	Sub-Category	Category
1	Accessories for femtosecond laser	Accessories	Equipment
2	Accessories for spectrum analyzer	Accessories	Equipment
3	Accessories for Stanford Research Systems - 1	Accessories	Equipment
4	Accessories for Stanford Research Systems - 2	Accessories	Equipment
5	Homemade VSM parts	Accessories	Equipment
6	Keithley Accessories	Accessories	Equipment
7	Lakeshore Accessories	Accessories	Equipment
8	NMR Permanent Magnet	Accessories	Equipment
9	Rigol precision digital multimeter accessories - 1	Accessories	Equipment
10	Rigol precision digital multimeter accessories - 2	Accessories	Equipment
11	Banana to banana	Cables and Wires	Consumables
12	Banana to crocodile, spade	Cables and Wires	Consumables
13	BNC to banana	Cables and Wires	Consumables
14	BNC to crocodile	Cables and Wires	Consumables
15	BNC to BNC	Cables and Wires	Consumables
16	Crocodile to crocodile	Cables and Wires	Consumables
17	DB 9 cables	Cables and Wires	Consumables

Standardized Physlab Stockroom drawers



تسلسل



Sustain

5. SUSTAIN

Sustaining should create a situation where each and every operational principle and applied method becomes a natural part of daily actions and development.

1. Conduct internal 5S audit
2. Use collected data to standardize goals for individuals and teams
3. Use data to create progress graphs and place them on 5S board
4. Display the comparison to the earlier months
5. Expand use of 5S
6. Communicate success immediately
7. Track progress of each 5S step individually



Score Sheet

Sr. No.	Grade No.	Improvement in 5'S (Percentage)
1)	0	00 - 10%
2)	1	10 - 30%
3)	2	30 - 50%
4)	3	50% - 70%
5)	4	70% - 85%
6)	5	85% - 100%

5'S Housekeeping Score Sheet									
	NA	0	1	2	3	4	5	Description of Area	
Sort									
1					✓			No old or unnecessary materials and equipment in defined area or assembly line.	
2							✓	All machines and equipment's are operated and placed in a proper place.	
3						✓		There are clear standards to dispose unnecessary things in the defined area.	
Set In Order									
4							✓	Bearings, Flat -Belts, batteries etc. are properly identified and stored in designated area.	
5						✓		The material is places in the racks order wise.	
6						✓		Movable machines are in proper location.	
7						✓		Inventory, organized by implementation of FIFO and Two Bins System.	
Shine									
8					✓			Machines and racksare clean and painted as per requirement and designated their names.	
9						✓		Floors are clean and shining around the work area.	
10						✓		There is a rotation of workers for cleaning and the place.	
11					✓			Same importance given on both cleaning and control.	
Standard									
12					✓			Damaged or non-functional tools / equipment is removed from the area or marked for replacement.	
13						✓		There is adequate Lightning and Ventilation for proper working.	
14						✓		There is a proper system for protecting and managing the first 3'S.	
Sustain									
15						✓		Organization follows all rules and implemented properly.	
16						✓		Work Safety equipment is compulsory.	
17						✓		All rules and regulations have been adapted and well used.	
Sub Total						✓			

Physlab 5S Audit Template

PhysLAB

Department Mechanical Workshop	Evaluated Date 23/1/2019
---------------------------------------	---------------------------------

5S Audit Sheet											
Points / Score		0 = Unacceptable		1 = Average		2 = Good		3 = Excellent			
						Activity					
5S Activity	Score	Activity Description				No.	Total Score	Avg Score	Result %		
Sort	0	Workshop tools are separately visible and identifiable				5	2	0.4	13%		
	1	The lathe tools are separately available									
	0	The workshop desks look organized and properly arranged									
	1	The under process projects are properly arranged									
	0	Any tool or equipment is easily available for immediate access and use									
Set In Order	1	The workshop tools are in their designated places and set in order				3	3	1.0	33%		
	1	The equipment are in their specified location									
	1	The lathe and milling tools are in their specific locations and set in order									
Shine	0	The lathe machine scrap is properly disposed				4	1	0.3	8%		
	0	The milling machine scrap is properly disposed									
	0	The wood waste is properly disposed									
	1	The tools and equipment are clean and are visually appealing for work									
Report Score	6			Un Acceptable				12	6	0.5	17%

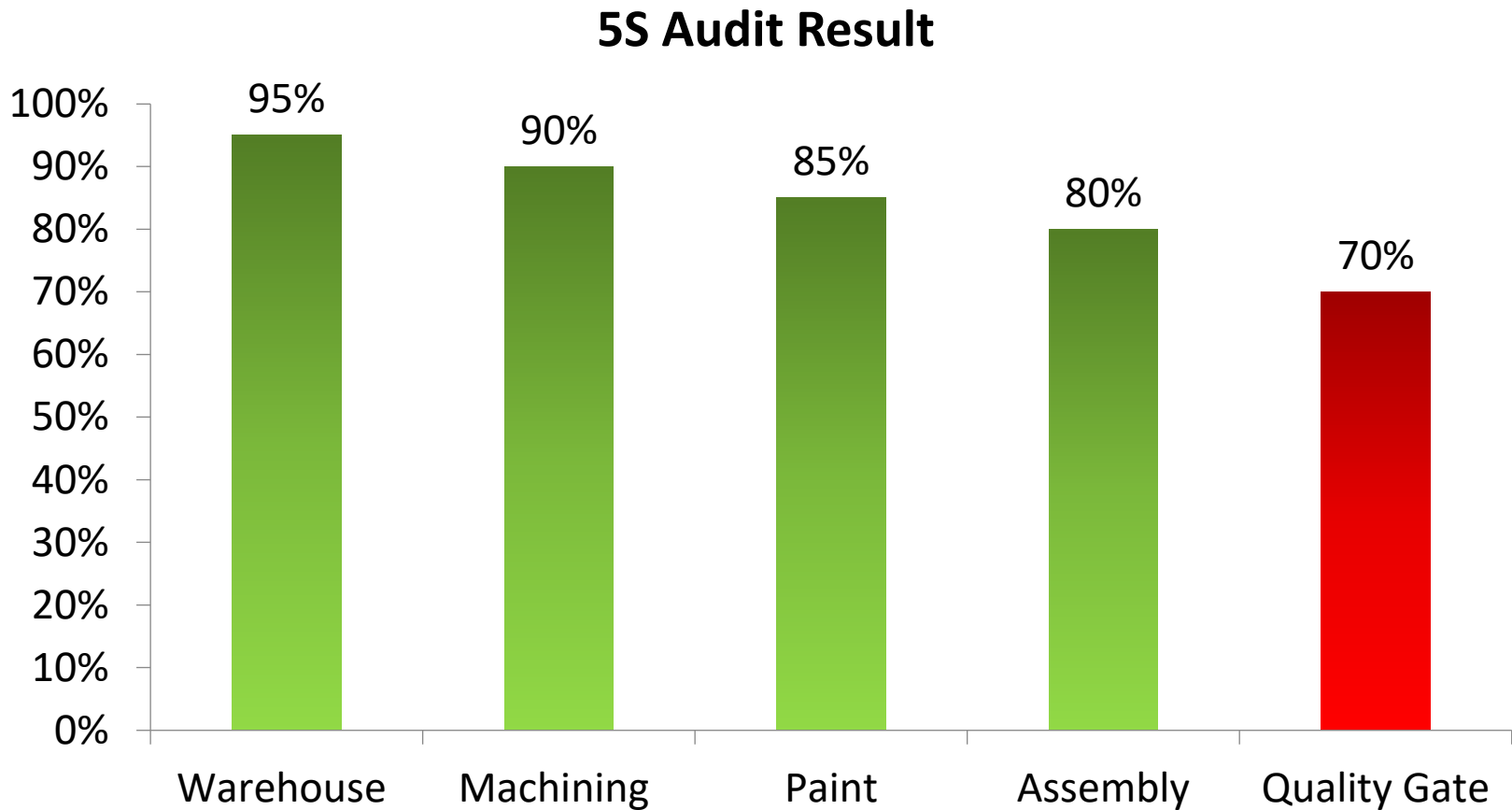
Responsible Party

Evaluated By

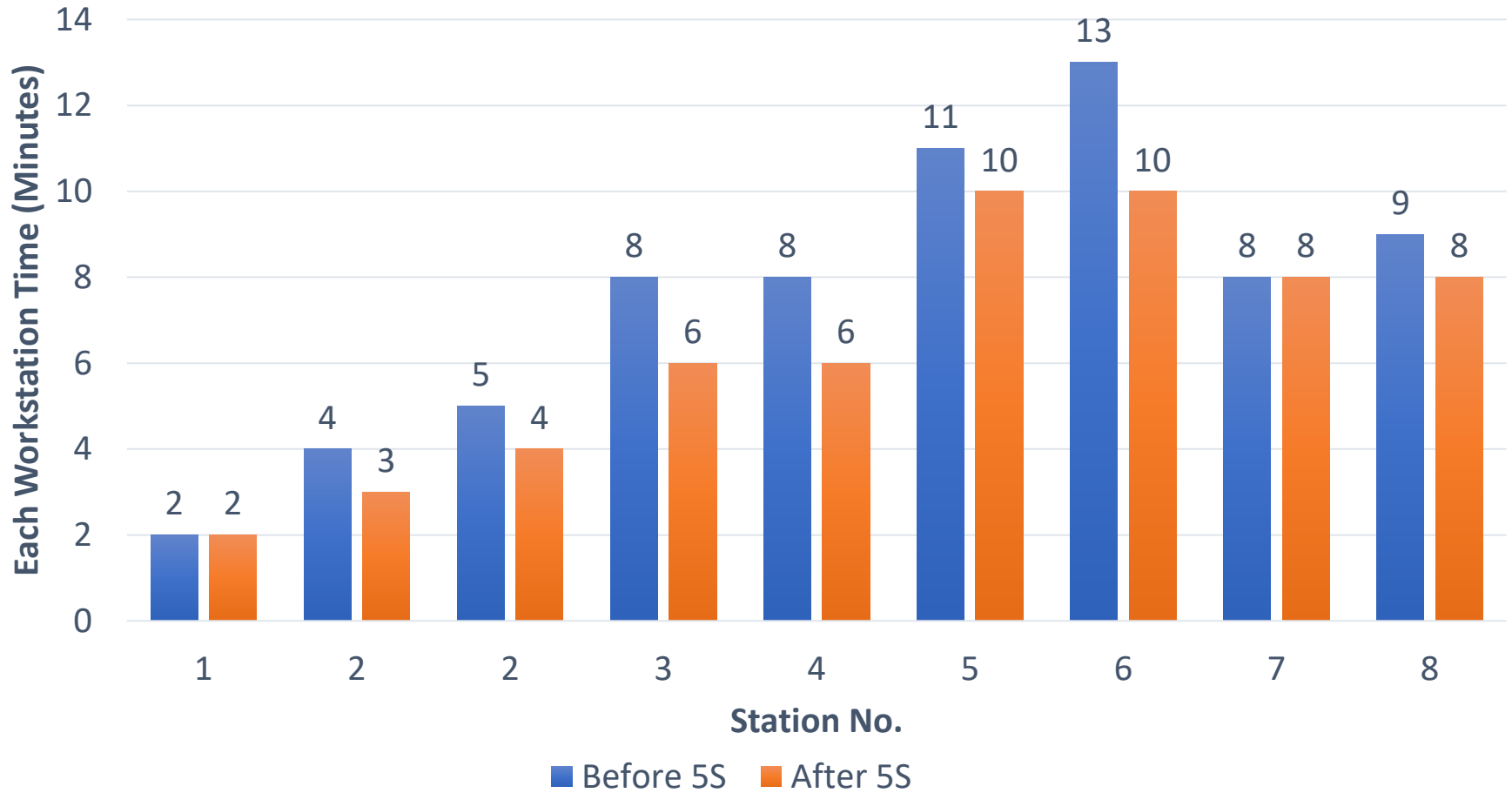
Department Head

5. SUSTAIN

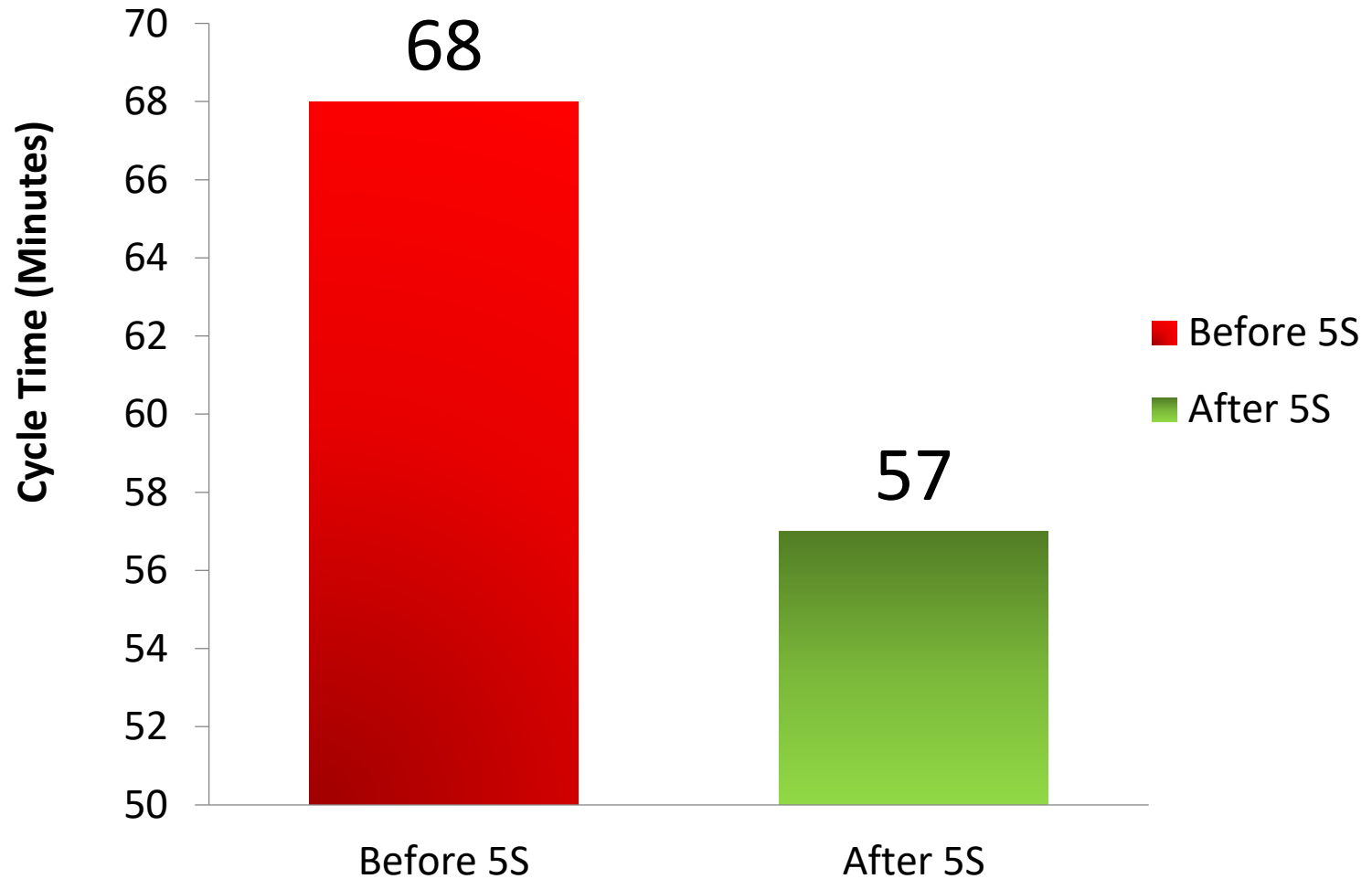
Bulletin Board



5. SUSTAIN



5. SUSTAIN



How to begin?



Assemble a 5S Lead team



Define the work area 5S boundaries



Assign work group members to their 5S areas



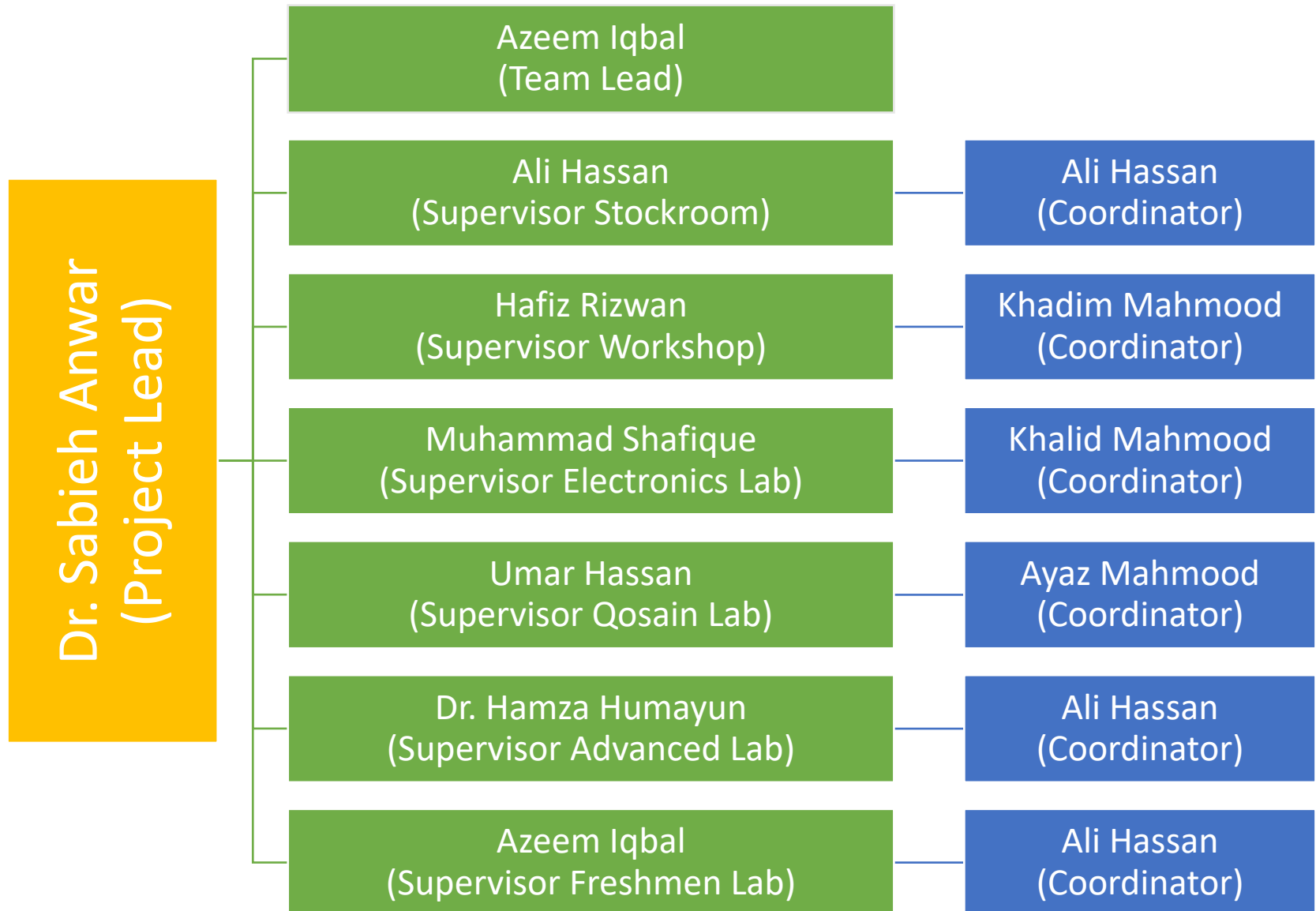
Install a 5S communication board



Determine 5S targets, activities, and schedule



Review/finalize plans with work group and site leadership



First Task!

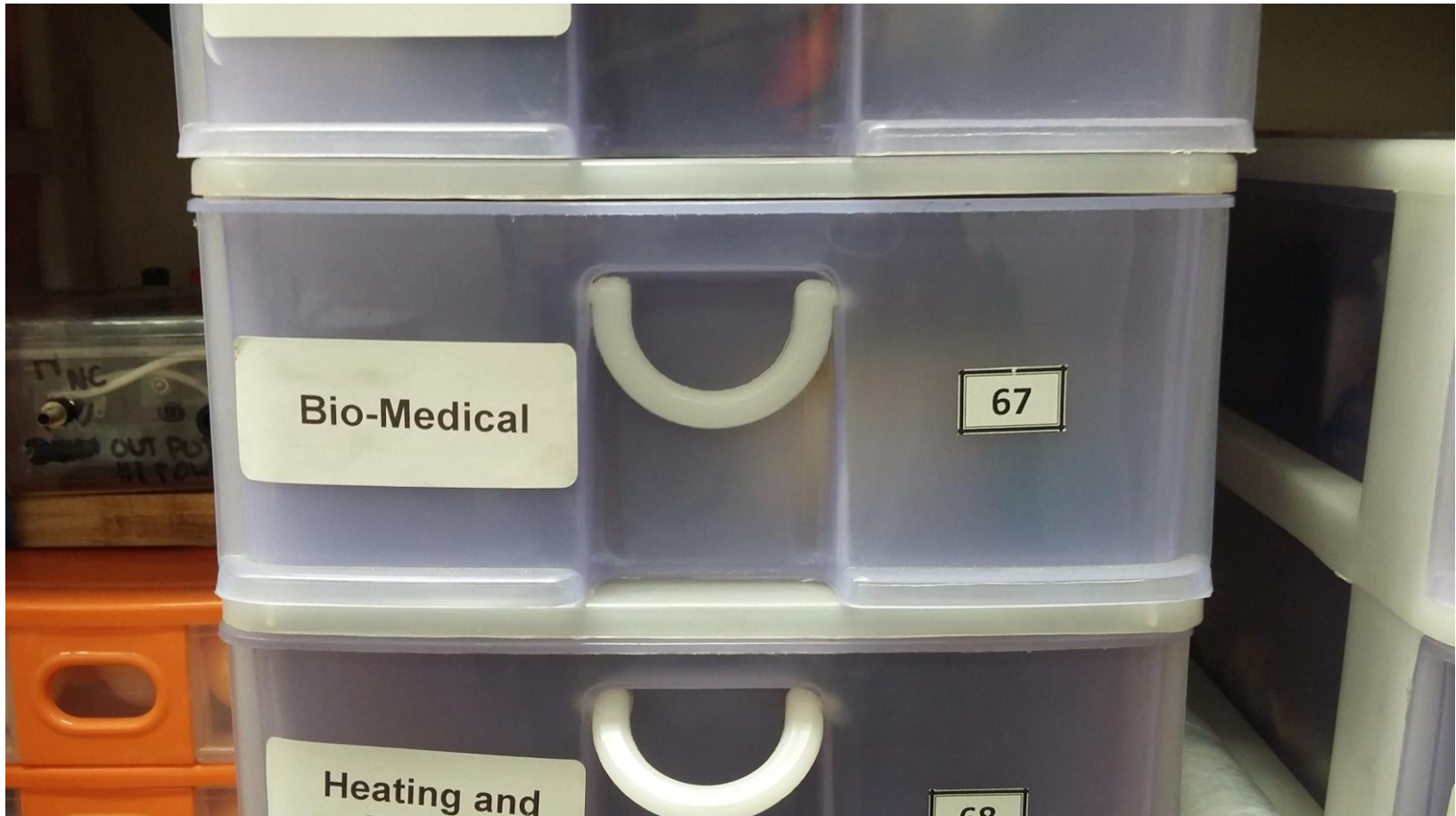
Evaluating Your **Current Situation**

Prepare	Prepare to take work area photos
Take	Take work area photos
Evaluate	Evaluate current 5S Level of Achievement

Old Stockroom



Poor Visual Management



Cluttered boxes with no identification



Unsorted Boxes

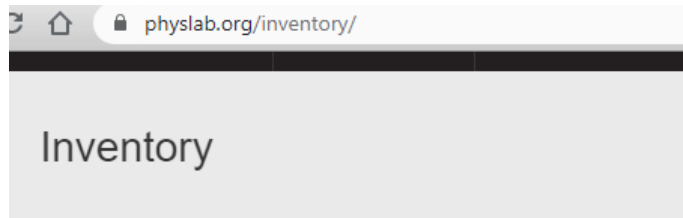




Also created an Online Database for easy access



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- [Physics Department Computers Record](#)
- [Lab gas cylinders \(online status\)](#)
- [Stockroom](#)
- [Local Purchase](#)
- [Imports](#)
- [Chemicals & Materials](#)
- [Optics](#)
- [Scanning Electron Microscope](#)
- [Shared Equipment](#)

Physlab Stockroom			
HOME PROTECTED: INVENTORY			
Column visibility Copy CSV Excel PDF Print			
Show 10 entries		Search:	
Drawer No.	Drawer Label	Sub-Category	Category
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[illegible]

Islamic Touch

- "Indeed, Allah will not change the condition of a people until they change what is in themselves." (Quran, Surah Ar-Ra'd, 13:11) – **KAIZEN**
- "And [We] made the night as clothing." (Quran, Surah An-Naba, 78:10) – **Sort & Set**
- "Indeed, Allah loves those who are constantly repentant and loves those who purify themselves." (Quran, Surah Al-Baqarah, 2:222) - **Shine & Sustain**
- "And do not kill the soul which Allah has forbidden, except by right." (Quran, Surah Al-Isra, 17:33) - **Safety**



کارخانہ داری کے پانچ اصول:

۱۔ ترتیب: اہم اور غیر اہم آلات کو علیحدہ علیحدہ کریں۔

۲۔ تنظیم: آلات کو اپنے مخصوص مقامات پر سلتے سے رکھیں۔

۳۔ تظہیر: کام کی جگہ کو مکمل طور پر صاف رکھیں۔

۴۔ تطبیق: اپنے کام کو بین الاقوامی معیاری اصولوں کے مطابق ڈھالیں۔

۵۔ تسلسل: نظم و ضبط کے ساتھ کام کے معیار کو برقرار رکھنے کی مسلسل ترغیب دیتے رہیں۔



تجربہ گاہ طبیعیات
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THANK YOU 😊

