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Co

5“S”

Simple and clear

lean



Objective of the 5 "S"

Improve the area of work and get there is only needed for the implementation of the activities, it is easily accessible and in a perfect state of use and cleaning.

lean

Common scenes in a construction



Common scenes in a construction

- Tool cabinets are usually find disordered.
- Tools for the corners of the work.
- The machines are dust, grease, etc.
- There is water, product spread on the ground.
- There are materials that are damaged or broken.
- People don't matter that the trash piles up in certain corners: They believe it is normal.
- Pallets with raw material and product taking up space.
- People who go through the same site as trucks or machinery.
- Some containers / boxes are left empty or dirty.
- Materials, are poorly located, access to catch them is bad and dangerous
- Materials without identifying.
- There are many things that have no use.
- Things are not stored in specific locations.
- ...

What is 5“S”?



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- a) It is an activity of productivity improvement involving everyone in the Organization.
- b) It is a powerful tool for improvement of the organizational climate and the abilities of people.
- c) It is an activity for the improvement of materials and their flow within the work.
- d) Effective aid to the maintenance of equipment and installations.
- e) A system that allows you to measure objectively and improve the image of the Organization in the face of customers and workers.

lean



1a “S” - SORT

What is? Objective?

- TO IDENTIFY
 - TO CLASSIFY
 - Materials needed
- TO SEPARATE
- TO REMOVE
 - Unnecessary materials



1a “S” - SORT

How to do it?

- What makes the distinction between the necessary and the unnecessary is the frequency of the use.
- The proposals, especially the throw away, can require the authorization of the Manager.

| <i>FREQUENCY OF USE</i> | <i>WHAT TO DO?</i> |
|--|--|
| Unused objects from ago 1 year or longer | Throw away |
| Objects used 1 or 2 times in the building site | Store / Separate file / ask when it is necessary |
| Objects used 1 time per month or per week | Store in the building site |
| Objects used more than 1 time per week, daily | Store in the building site / Carry over |

- Keep the idea that: The useless good for nothing.



1a "S" - SORT

How to do it? Recommendation

- Taking photographs of the lack of organisation at the beginning.
- Split the area and assign each zone to a team (maximum 4 persons).
- Also search "where does not light" (inside, under and back of each place).
- Use red cards to identify unnecessary elements.
- List the necessary and unnecessary materials.
- To take unnecessary materials to other area apart from the usual work area.
- Support for decision-making throw unnecessary items.
- Do not delay the elimination of unnecessary elements.
- Eliminate the cause of the why appearance of unnecessary elements.

2^a “S” – SET IN ORDER

What is? Objective?

- **TO LOCATE**
- **TO IDENTIFY**
 - Materials needed
- So anyone can find, use and replace easily and quickly
- To minimize the search time

Tools Store

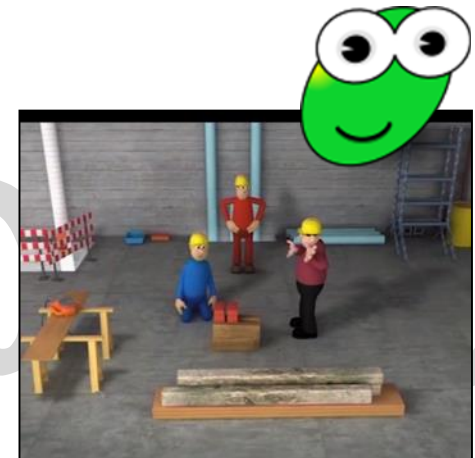


Building
site

2a “S” – SET IN ORDER

How to do it? Recommendation

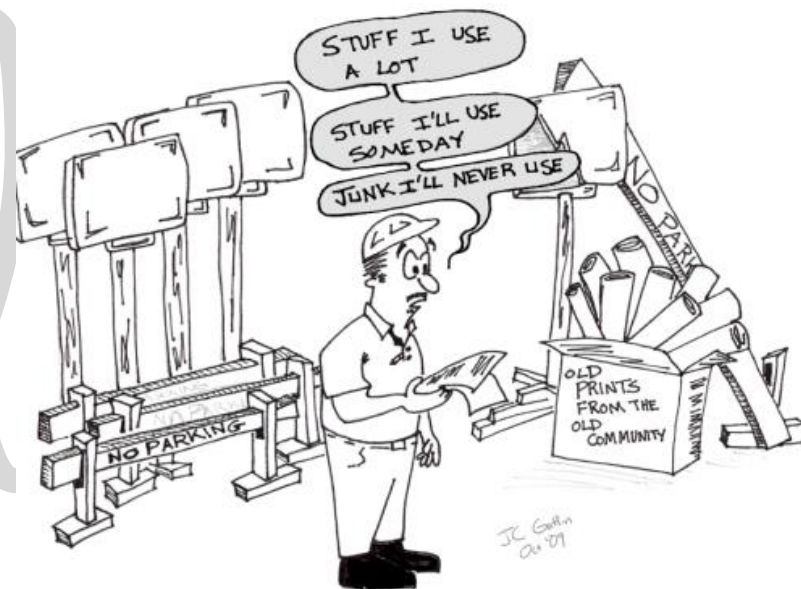
- **Place objects so they can be found whenever needed.**
- **The object access times are essential.**
 - Take over or to keep aside what is used continuously.
 - Leave outside the work area but to view what is used occasionally
 - Leave on another place or in the entrance area which is used from time to time.
- **Sort and identify each object with a purpose.**
 - Safety: Avoid shocks, falls
 - Quality: Avoid oxides, mixtures, hits, errors.
 - Efficiency: Minimize efforts and time.
 - Environment: Remove waste.



2a “S” – SET IN ORDER

How to do it? Recommendation

- Prepare the work white drawings to annotate during the process.
 - Use the materials list as a reference to not forget anything.
 - Keep in mind the utility of the different elements to promote creativity when it comes to ordering them.
 - Start with common elements and then arrive at each position, machine, table, wardrobe...
-
- Consult all doubts with employees making them participants in the analysis.
 - Understand that untidiness can result from deficiencies of the design and not lack of discipline.
 - PUT ALL WHAT YOU CAN ON WHEELS, nothing directly to the ground.



3^a “S” - SHINE

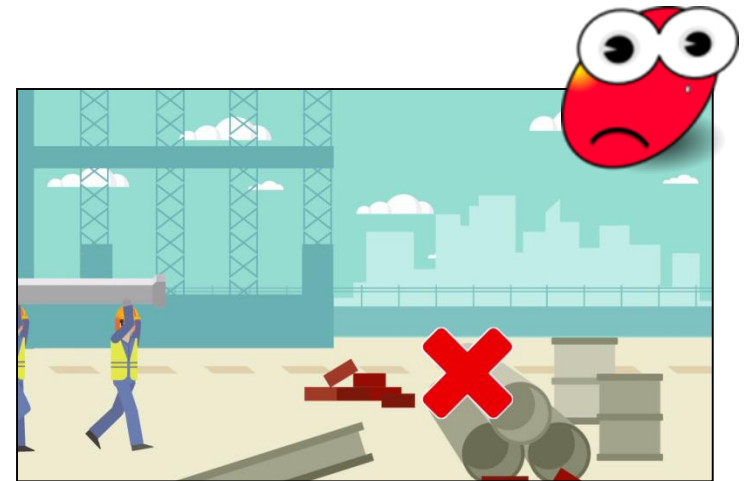
What is? Objective?

- TO IDENTIFY
- TO REMOVE

- Dirt Sources

- TO MAINTAIN

- All in perfect state of use



Pedestrian area

lean

3^a “S” - SHINE

How to do it? Recommendation

- It is not:
 - Clean and only clean for aesthetic
 - Look for a company to clean for us.
- It is basically:
 - Take care of the tools we use
 - Return it in good condition after use
- Keep the idea that clean is better not stain



3a "S" - SHINE

How to do it? Recommendation

- Analyse the dirt causes
 - Remove dirt.
 - Identification of the causes.
 - Suppression of the causes
 - To make the standard of cleaning.

- To maintain cleanliness to detect anomalies



Place work clean

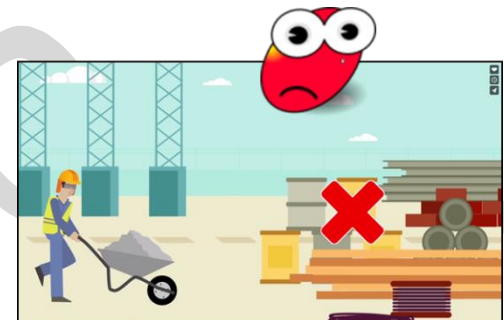


Pedestrian free

3a “S” - SHINE

How to do it? Recommendation

- Do not underestimate the time required for this phase.
- Understand the objective: clean to locate the dirt sources and anomalies in the machines.
- To teach workers about basic operating conditions of equipment and installations.
- To teach on special points to consider in the cleaning of equipment, including safety measures.
- Use the "5 why" technique to identify the causes of dirt.
- Establish the maintenance procedures with the people that are going to run them.



4a “S” - STANDARDIZE

What is? Objective?

- To tell the difference easily
 - A typical scenario of an abnormal



4a “S” - STANDARDIZE

How to do it? Recommendation

- **STANDARDIZE**
 - Each object has A NAME
 - Each object has AN AREA
 - Each object is in HIS PLACE
- **VIEW THE CLEANLINESS AND ORDER:**
 - Draw shapes, profiles (on the floor, on the wall, on the boards).
 - Naming objects (all objects are identified).
 - Put labels (names, locations...)
 - To view the direction of flow (arrow on label).
 - To define signals or colour codes.
 - To make transparent (tapas, wardrobe doors,...).

4a “S” - STANDARDIZE

How to do it? Recommendation

- To put visual standards (OK, not OK)
- To promote creativity.
- Search for mechanisms of low-cost installation, maintenance and use.
- Expose the procedures in accessible places.




5a “S” - SUSTAIN

What is? Objective?

- TO MAINTAIN
- TO IMPROVE

- To Set the work instructions.
- To work permanently in accordance with established standards.
- To practice the PDCA system.

| | | | | | | | | | | |
|--|----|--|--|--|--|--|--|--|----------|-------|
|  | | Audited place: | | | | | | | | |
| | | Lider: | | | | | | | | |
| | | Auditor : | | | | | | | | |
| | | Date audit : | | | | | | | | |
| | | week | | | | | | | Tendency | Notes |
| PERSONAL EQUIPMENT | 1 | I leave my work tools clean | | | | | | | | |
| | 2 | I leave my security tools in proper use and in its place | | | | | | | | |
| COMMON EQUIPMENT | 3 | | | | | | | | | |
| | 4 | | | | | | | | | |
| INFORMATION | 5 | | | | | | | | | |
| | 6 | | | | | | | | | |
| OFFICE | 7 | | | | | | | | | |
| | 8 | | | | | | | | | |
| DOCUMENTS | 9 | | | | | | | | | |
| | 10 | | | | | | | | | |
| | 10 | <= OBJECTIVE TOTAL => | | | | | | | | |

5a “S” - SUSTAIN

How to do it? Recommendation

- For each area, office area....:
- The rules are:
 - Written and visible.
 - With responsible .
 - Appointing a Manager.
- The “5S” times are organized and planned :
 - 5 minutes per day.
 - 10 minutes per week.
 - 1 hour per month.
 - Half sheet per year.

5a “S” - SUSTAIN

How to do it? Recommendation

- Highlight the importance of following established procedures to avoid the back.
- Frequency of conducting reviews depending on the level of implementation.
- To teach the workers that to make the reviews.
- Make observations and assessments with the actors of the area.
- Avoid discuss evidence and justify situations.
- To be quick in implementing the corrective measures.

5a "S" - SUSTAIN

- 5S AUDIT:

BEFORE



==>> Result: **21%**

To check advance: 5S audit

Level objective standard **60%**

AFTER



==>> Result: **68%**

5S Implementation



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How to do it? Recommendation

Before the constructions begins:

- Carry out a preliminary audit in order to know the state of the building site in terms of cleanness and order
- Locate on the floor plan the right place for materials and machinery
- Identify people and their role in maintaining the 5S method
- Produce the standards in advance by using pictures of how the workspace must be arranged
- Getting things right the first time
- Train people on the 5S methods before starting to work
- Set control routines before the construction works begin

| | | | | | | | | | | |
|--|----------------------|--|----|----------|---|---|---|---|----|-------------------------------|
| | Audited place: | Points | | 0 | | | | | | |
| | Lider: | Target | 67 | | | | | | | |
| | Auditor : | Standard minimum | 60 | | | | | | | |
| | Date audit : | Ratio / Target | 0% | | | | | | | |
| Part of Actions to be carried out in a week: | | 1 Standardize work - Other possible improvements on various factors 2 Sort out - Sort out unnecessary items on the floor 3 Set standards - Set standards on various factors 4 Shine - Shine and clean the workspace 5 Sustain - Sustain the standards - Continuously | | | | | | | | |
| TO REMOVE | 01 Check point | Description | 0 | 1 | 2 | 3 | 4 | 5 | 67 | Notes / Points to improvement |
| | 1 Construction | All the elements of security are identified. All the safety devices are working properly. No security element is missing. | | | | | | | | |
| | 2 Common elements | Common tools are in place. The floor is clean and in good working. The drill is clean and in good working. | | | | | | | | |
| | 3 Personal elements | ... | | | | | | | | |
| TO ORDER | 02 Check point | Description | 0 | 1 | 2 | 3 | 4 | 5 | 67 | Notes / Points to improvement |
| | 4 Construction | | | | | | | | | |
| | 6 Common elements | | | | | | | | | |
| | 7 Personal elements | | | | | | | | | |
| TO CLEAN | 03 Check point | Description | 0 | 1 | 2 | 3 | 4 | 5 | 67 | Notes / Points to improvement |
| | 8 Construction | | | | | | | | | |
| | 10 Common elements | | | | | | | | | |
| | 11 Personal elements | | | | | | | | | |

5S Implementation



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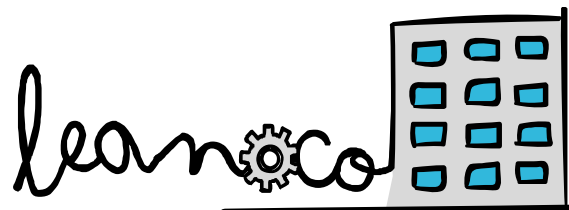
How to do it? Recommendation

In a project with building started:

- Identify a pilot zone or test area.
- Identify the actors in the pilot area
- To do the 5 "S" followed by way and in a short time interval. => **Kaizen work 2 to 5 days consecutives.**
- Communicate to all team the achievements and new standards of work.
- To take pictures of the before and after.

Benefit of 5“S” methodology

- To reduce accidents.
- Reduce the risk of errors
- To make faster work, reducing non-value operations
To provide the work.
- Have less break downs
- To have more space.
- Improve the image to customers.
- Change in the attitude of the people.
 - ✓ Pride of the place in which we work.
 - ✓ More fluid communication between the management and workers.
 - ✓ Encouraging cooperation and teamwork.
 - ✓ Higher motivation of employees.




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FUNDACIÓN
LABORAL
DE LA CONSTRUCCIÓN



| | | | | | | | | | | | | | | | | |
|--|----------------|-------------------|---|------------------|---|--|--|---|---|-----------|-------------------------------|--|--|--|--|--|
|  | Audited place: | | | Points | | 0 | | | | | | | | | | |
| | Lider: | | | Target | | 67 | | | | | | | | | | |
| | Auditor : | | | Standard minimum | | 60 | | | | | | | | | | |
| | Date audit : | | | Ratio / Target | | 0% | | | | | | | | | | |
| Plan of actions to be carried out in a month | | | | 0 | Standard unacceptable - Immediate provement action to perform | | | | | | | | | | | |
| | | | | | 1 | Standard low - Great possible improvements on various topics | | | | | | | | | | |
| | | | | | | 2 | Insufficient standard -Important improvements on a topic | | | | | | | | | |
| | | | | | | | 3 | Correct standard - Small improvements on various topics | | | | | | | | |
| | | | | | | | | 4 | Good standard -small improvements possible in a theme | | | | | | | |
| | | | | | | 5 | | Excellent standard -improves unnecessary - Overquality | | | | | | | | |
| TO REMOVE | Nº | Check point | Description | 0 | 1 | 2 | 3 | 4 | 5 | ST | Notes / Points to improvement | | | | | |
| | 1 | Construction | All the elements of security are identified. All the safety devices are working properly. No security element is missing. | | | | | | | | | | | | | |
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| | 3 | Personal elements | | | | | | | | | | | | | | |
| | 4 | Information | | | | | | | | | | | | | | |
| TO ORDER | Nº | Check point | Description | 0 | 1 | 2 | 3 | 4 | 5 | Sub Total | Notes / Points to improvement | | | | | |
| | 5 | Construction | | | | | | | | | | | | | | |
| | 6 | Common elements | | | | | | | | | | | | | | |
| | 7 | Personal elements | | | | | | | | | | | | | | |
| | 8 | Information | | | | | | | | | | | | | | |
| TO CLEAN | Nº | Check point | Description | 0 | 1 | 2 | 3 | 4 | 5 | Sub Total | Notes / Points to improvement | | | | | |
| | 9 | Construction | | | | | | | | | | | | | | |
| | 10 | Common elements | | | | | | | | | | | | | | |
| | 11 | Personal elements | | | | | | | | | | | | | | |
| | 12 | Information | | | | | | | | | | | | | | |
| TO STANDARD | Nº | Check point | Description | 0 | 1 | 2 | 3 | 4 | 5 | Sub Total | Notes / Points to improvement | | | | | |
| | 13 | Construction | | | | | | | | | | | | | | |
| | 14 | Common elements | | | | | | | | | | | | | | |
| | 15 | Personal elements | | | | | | | | | | | | | | |
| | 16 | Information | | | | | | | | | | | | | | |
| DISCIPLINE | Nº | Check point | Description | 0 | 1 | 2 | 3 | 4 | 5 | Sub Total | Notes / Points to improvement | | | | | |
| | 17 | Construction | | | | | | | | | | | | | | |
| | 18 | Common elements | | | | | | | | | | | | | | |
| | 19 | Personal elements | | | | | | | | | | | | | | |
| | 20 | Information | | | | | | | | | | | | | | |



| | | | | | | |
|----------------|--|--|--|--|--|--|
| Audited place: | | | | | | |
| Lider: | | | | | | |
| Auditor : | | | | | | |
| Date audit : | | | | | | |

| | | week | | | | | | Tendency | Notes |
|--------------------|----|---|--|--|--|--|--|----------|-------|
| PERSONAL EQUIPMENT | 1 | I leave my work tools clean | | | | | | | |
| | 2 | I leave my security tools in proper use and in it place | | | | | | | |
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| | 10 | | | | | | | | |
| 10 | | <= OBJECTIVE TOTAL => | | | | | | | |

Exercise of simulation 5 S

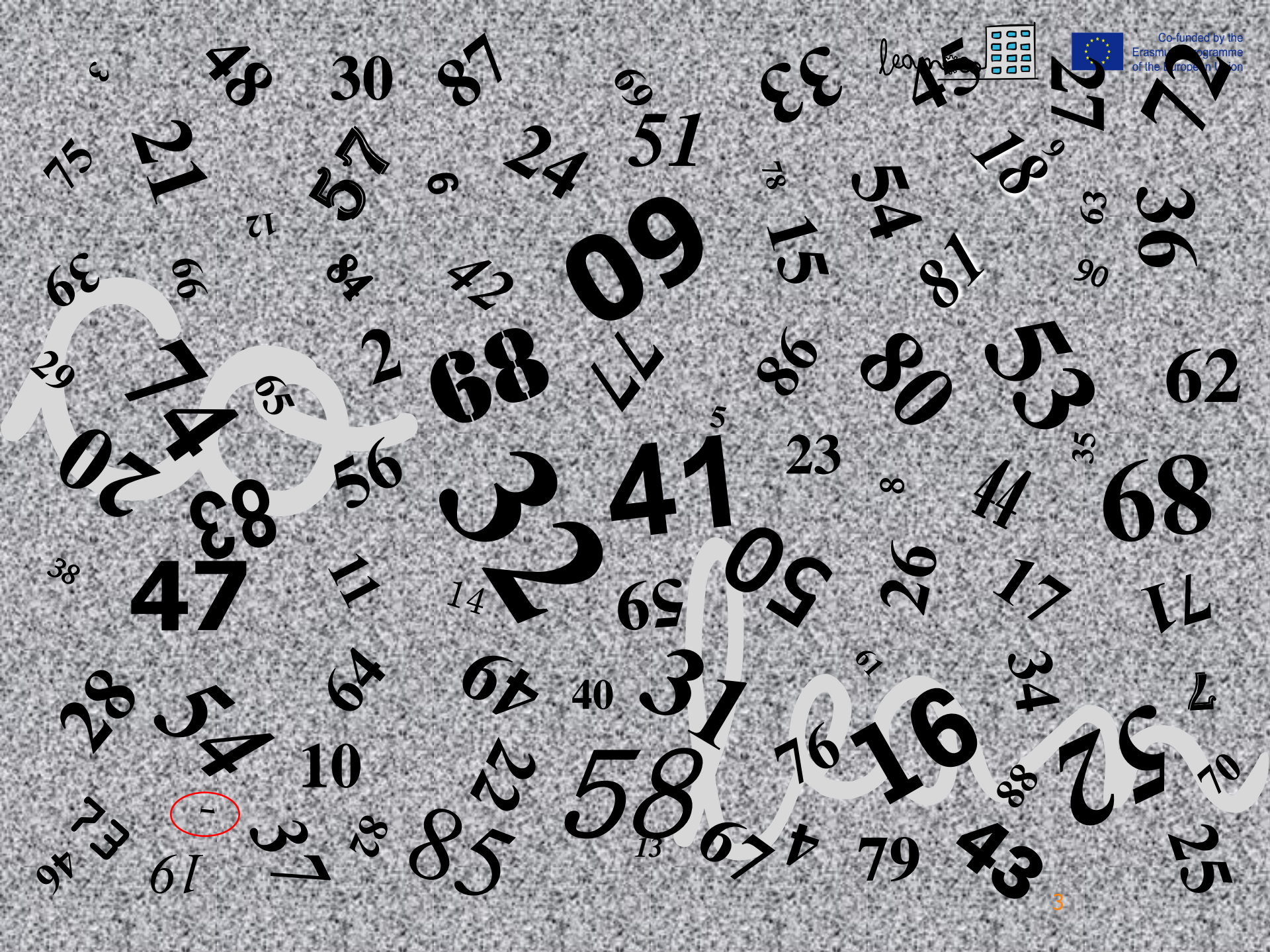
“Search comfort at work place”

SIMULATION EXERCICE



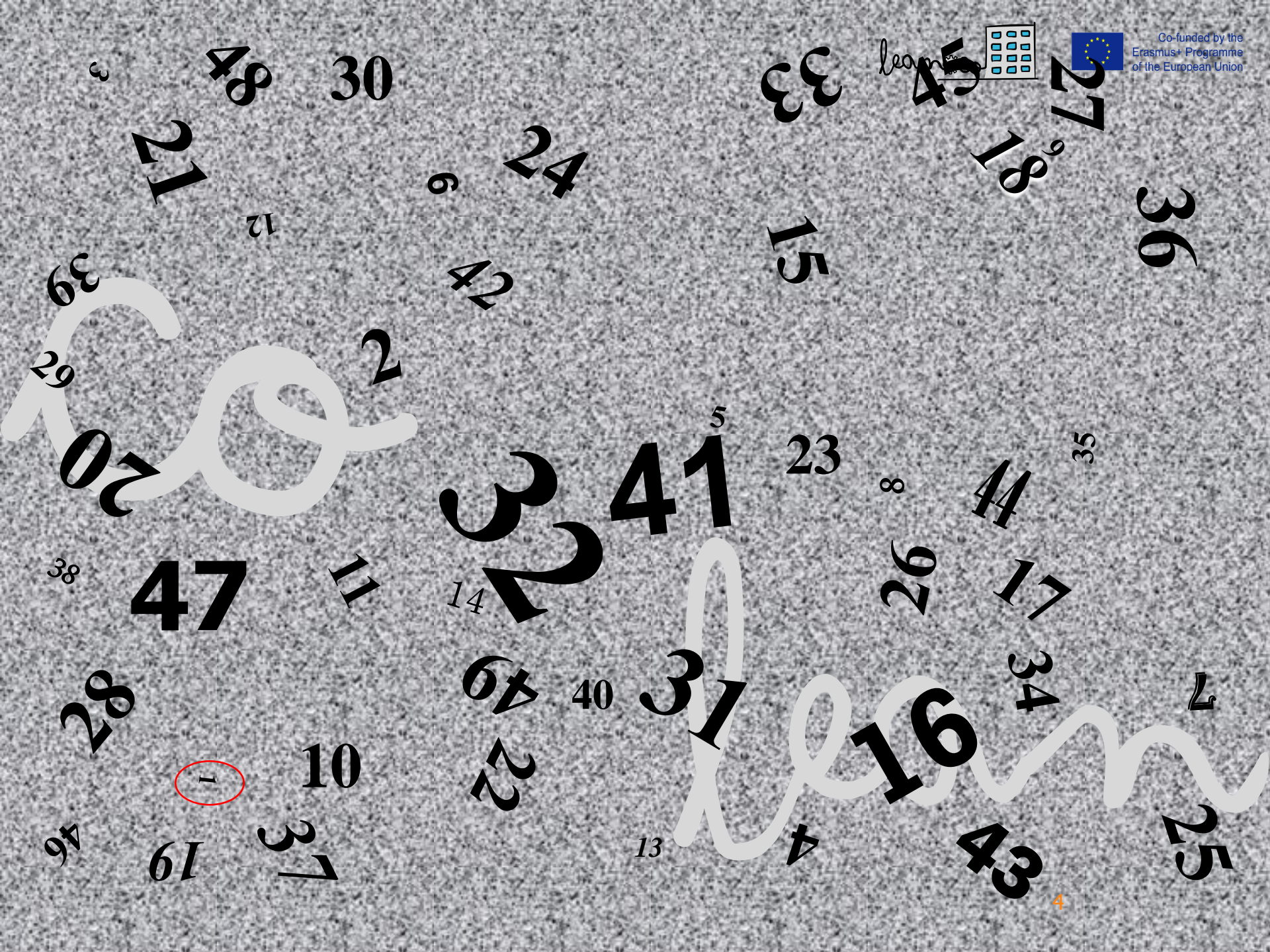
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learning





learn





learn

36

27⁹

18⁶

45

33

15

24⁹

42

30

48

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31

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64

22

13

4

10

37

1

19

46

28

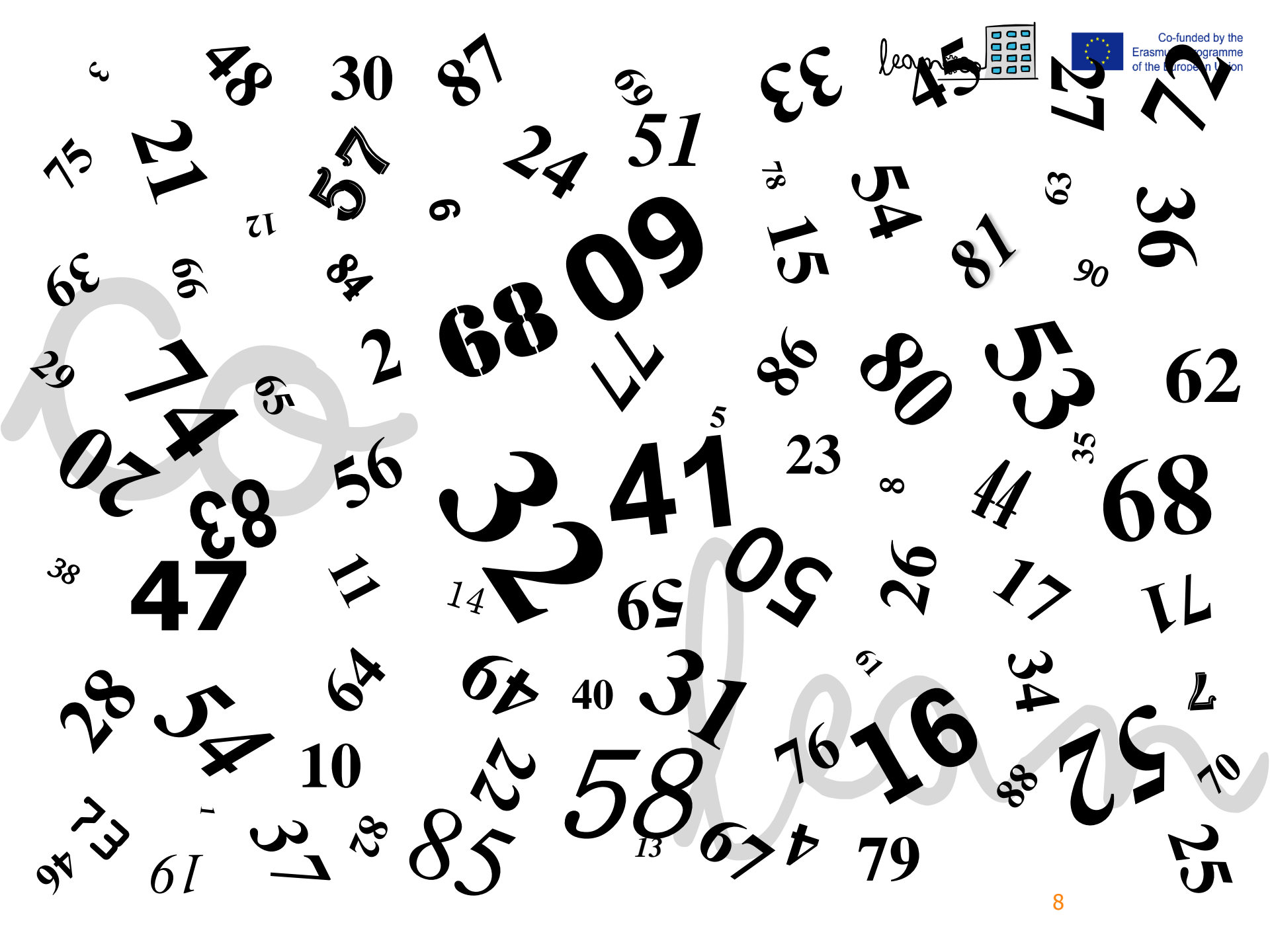
NUMBER from 10 to 0, 4911



| | | | | | | | | | |
|-----------|-----------|-----------|----|----|-----------|-----------|-----------|----|----|
| 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 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | |



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Which are missing?

Keep looking they tell us that
they are missing 2, What are
they?

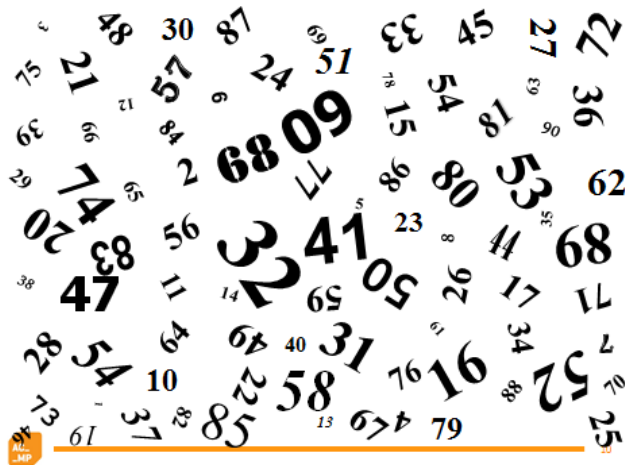
NUMBER from 15 to 49



....14

| | | | | | | | | | |
|-----------|-----------|-----------|----|----|-----------|-----------|-----------|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 41 | | 43 | 44 | 45 | 46 | 47 | 48 | 49 | |

5 "S" => SUSTAIN

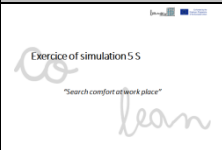

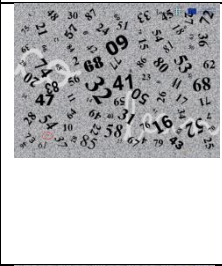
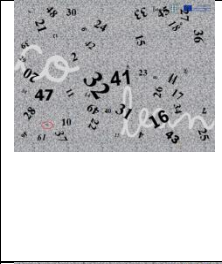

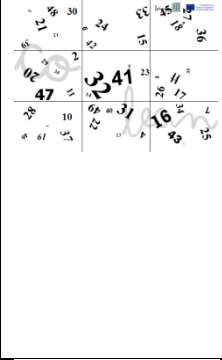



$\Leftarrow =$? $= \Rightarrow$

Números del 1 al 49

| | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 41 | | 43 | 44 | 45 | 46 | 47 | 48 | 49 | |

What work environment do you prefer in your workstation?

| 3.4.1 exercise 5S | |
|---|--|
|  <p>Exercise of simulation 5S</p> <p>"Search comfort of work place"</p> | |
|  <p>SIMULATION EXERCISE</p> | <p>Remember the 5 steps of the 5S methodology.</p> <p>The objective of the exercise is to show that we can achieve by applying the 5S in a working site where it can be measured specifically achieved profit.</p> |
|  | <p>Let's consider the following work site where each number represents a tool. For my job, I need to take 49 tools in increasing order from N° 1 to N° 49, go to cross out the numbers one by one until no. 49 and point the time spent.</p> <p>The first tool (No. 1) is indicated in the red circle. Don't panic is the most small, the other are bigger</p> <p>By the way I could say if missing some tool? And which is?</p> <p>Solution: no tool is missing but we spend much time looking for tools to do our job.</p> <p>Not think that it is time to apply the methodology 5S?</p> |
|  | <p>We are going to implement the first stage of the 5S: 1stS => separate, classify.</p> <p>As you can see we have removed all numbers greater than 49 for staying with the strictly necessary tools to do our job.</p> <p>Will perform the same task which is to cross out numbers from No. 1 to no. 49 in the increasing order.</p> <p>By the way I could say if missing some tools? And what is?</p> <p>Solution: do not need any tools but I'm still using long time looking for tools to accomplish my task.</p> <p>Will continue with the second S = order</p> |
|  | <p>In this case we have found a few shelves where on each shelf or hollow have put the tools in the following way:</p> <p>bottom left will be the No. 1 => A left in the middle will be the n° 2 => and up to the left will be the n 3 => and following this same order on the bookshelf in the middle find the No. 4 , no. 5, and no. 6.</p> <p>Well now us responsible for performing the following task: we will have to take all the tools from No. 49 to no. 1 in descending order.</p> <p>By the way I could say if missing some tools? And what is?</p> <p>Solution: do not need any tools but I'm still using long time looking for tools to accomplish my task.</p> <p>Will continue with the third S = clean, or better to identify the sources of dirt to eliminate them or to channel them to avoid contaminating the working site.</p> |
|  | <p>Once applied the 3rd "S" obtain a work site more clear and clean where will be more easy to identify the status of the tools and be able to quickly detect a degradation of the job.</p> <p>Us now responsible for performing the following task: we will have to take all the tools from the No. 20 until no. 19 through 49 is 20 - 21-22 -... 49 1-2-3-...-19.</p> <p>By the way I could say if we continue with all the tools? And which are missing?</p> <p>Solution: do not need any tools but I'm still using too much time looking for tools to accomplish my task. And also no we can anticipate in time know if we will be missing a tool or not.</p> <p>For that 4th "S" = visual Control is going to help to achieve this. Objective to be able to perform the task requested in less than 20 seconds (i.e. take the 49 tools in a ranked series.)</p> <p>How would you do it?</p> |
|  <p>NUMBER from 10 to 0, 4911</p> | <p>Visual control is now able to tell in advance if it is missing or not some tools before, and in addition, it costs us much less time to perform the task. Check it out: you could take the tools from 10 to 11 in the descending order of 10, 9, 8... 1, 49, 48,... 12.11.</p> |

