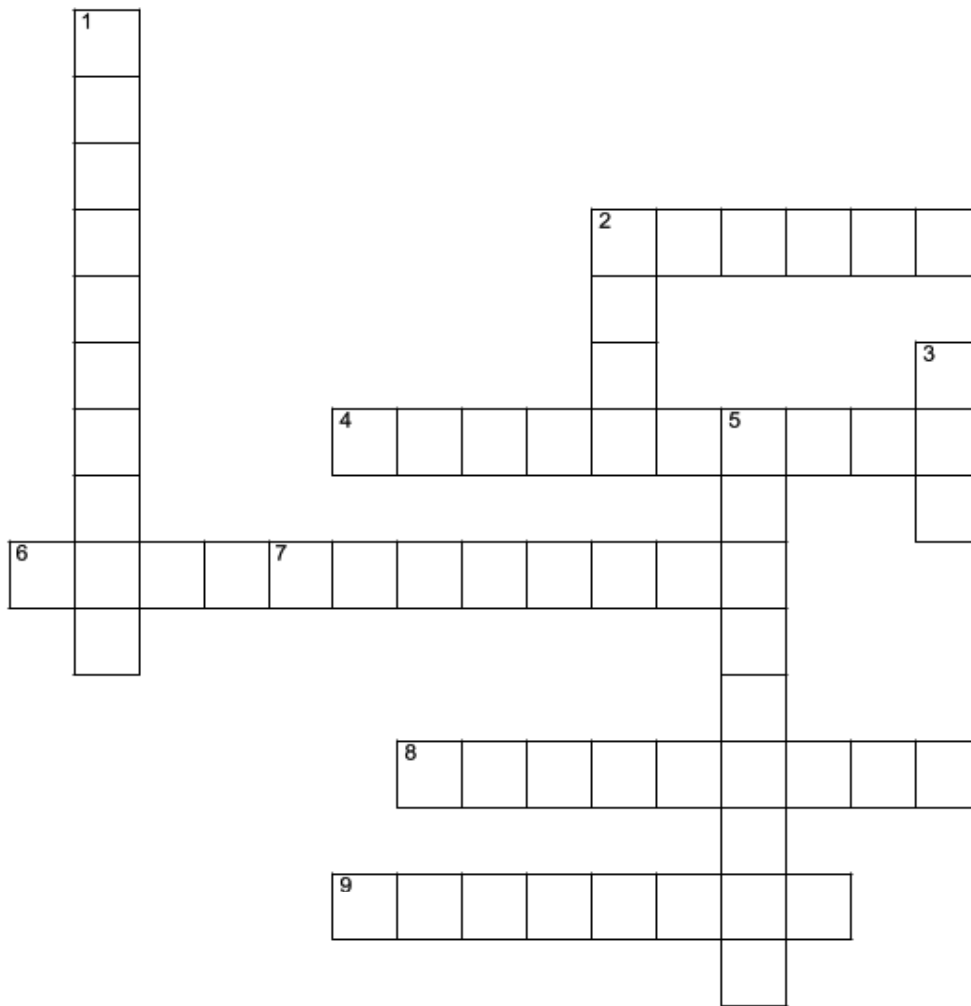# Getting Started with Six Sigma
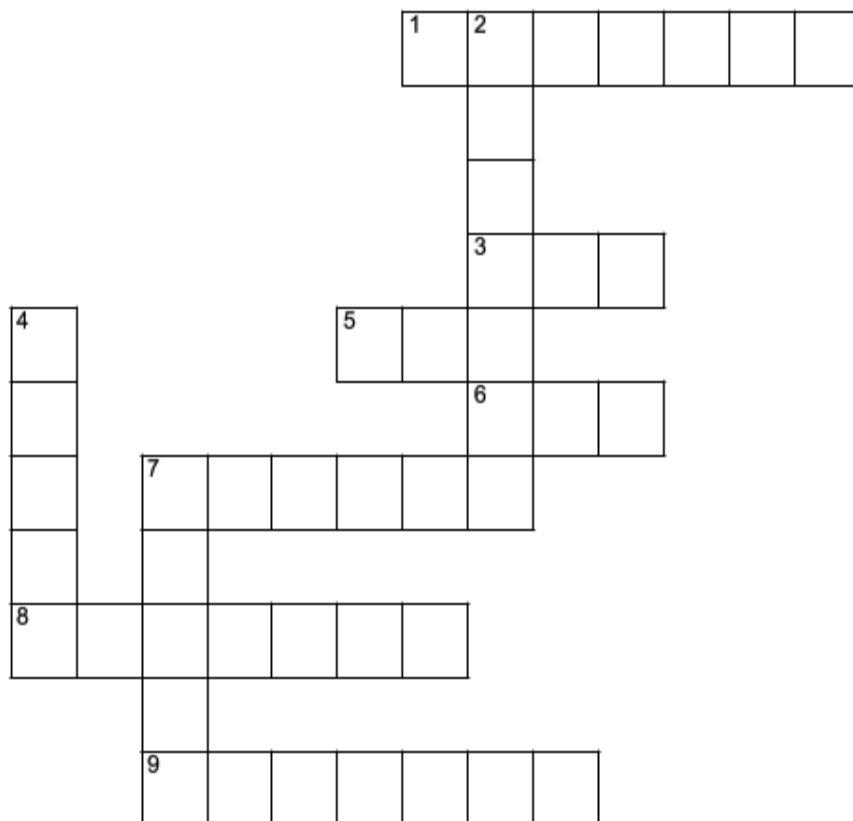
Across:

2. A failure in a component or sub-unit of the entire defective part

4. Person receives training on the basic application of Six Sigma mgmt tools.(2 words)

6. __ is a continuous improvement methodology.(3 words)

7. __ means a failure rate of 3.4 parts per million or 99.9997% perfect.(2 words)

8. Role is normally that of a Six Sigma project leader.(2 words)

9. Company that Coined "six sigma"

Down:

1. A failure of entire unit/widget of the product or process, which is undesirable

2. Defects per million opportunities

3. A measurable KPI used for improvement in six sigma projects.(2 words)

5. __ full-time/part time project leaders who mentors Green Belts and other associates.(2 words)

Six Sigma Problem Solving Approach

Across:

1. __Phase Identifies suitable solutions to overcome the root causes.

3. Sigma scores equivalent to 3.4 defects per million opportunities

5. Defect level measure measured at unit level

6. True measure of first time right

7. CTQs are identified in this phase.

8. __Phase of Six Sigma Project that involves extensive use of statistical tools to establish relationship between cause and effect.

9. ___ Phase Implement the solutions and monitor its results.

Down:

2. __Phase of Six Sigma Project that involves collection of data relating to the problem and the causes for the problem.

4. Measure of variation in any process.

7. Improvement cycle is the core tool used to drive Six Sigma projects.

Listening to Customers
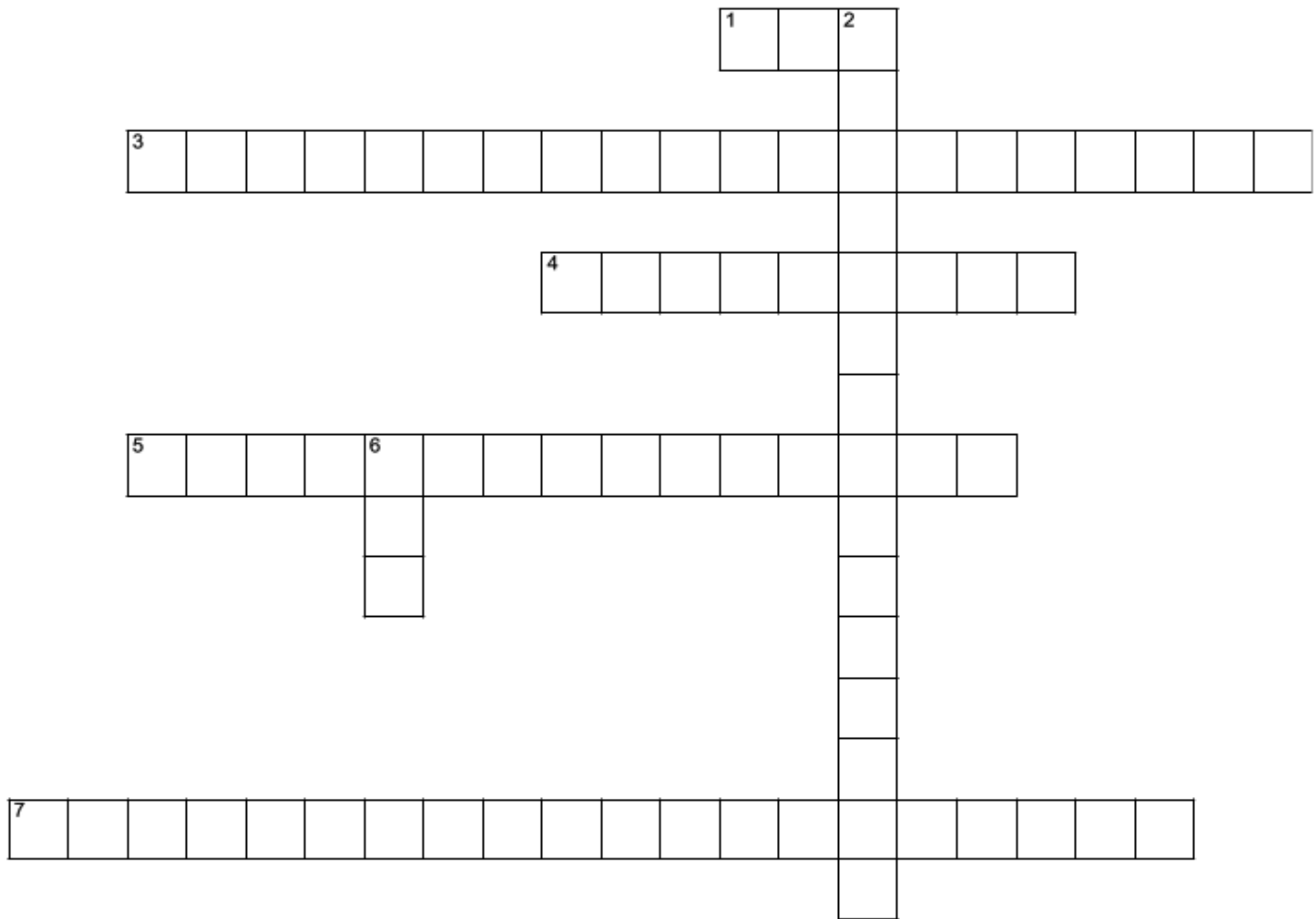
Across:

1. Statement or verbatim of customer.
3. Ability to fulfil customer perceived preference. (2 words)
4. Helps set priorities of product characteristics. (2 words)
5. A business tool used to organize ideas and data. (2 words)
7. Dividing a customer base into groups of individuals such as age, gender, interests and spending habits. (2 words)

Down:

2. NPS survey is a simple way to measure_____.(2 words)
6. It measures the willingness of customers to recommend a company's products or services to others.

Define Phase : Completing a Project Charter
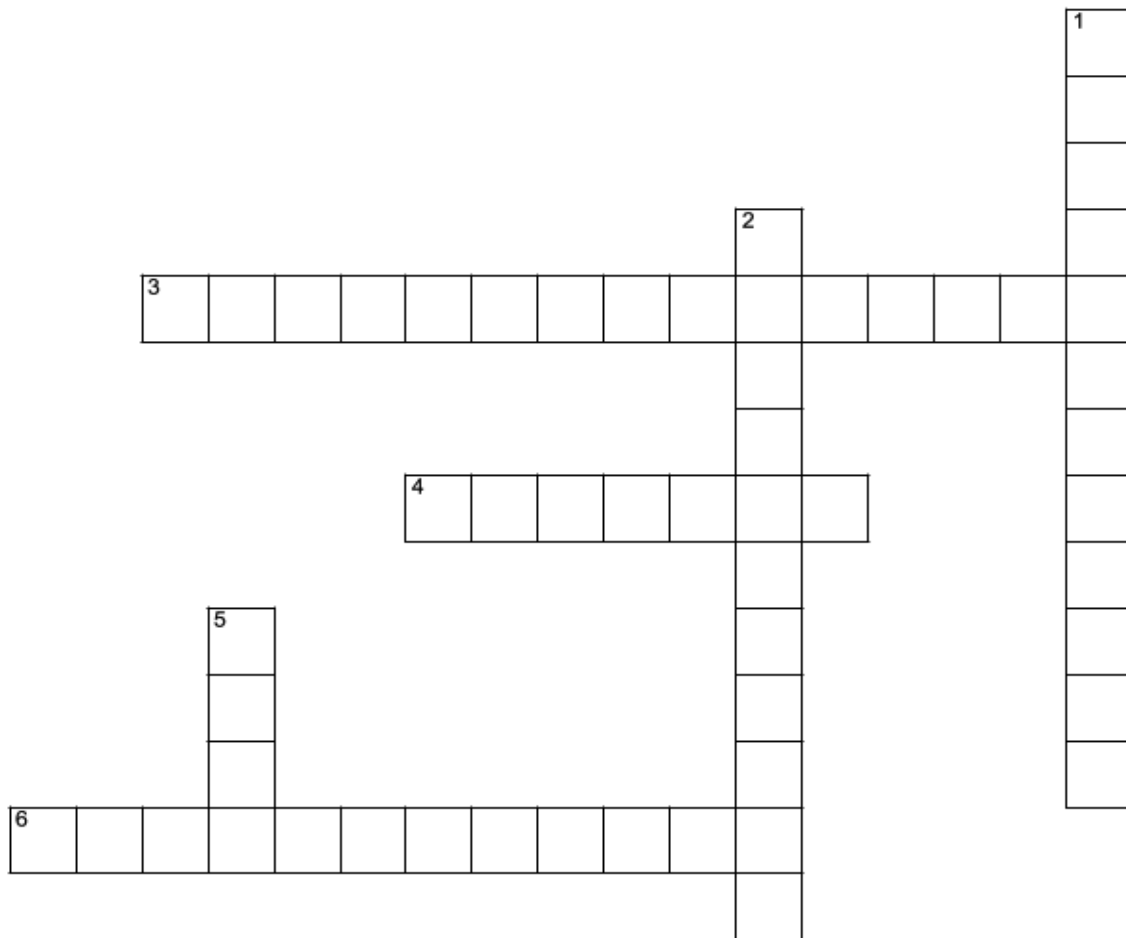
Across:

3. _____ is a tool used in the Define Phase to draw boundaries by engaging the team in terms of scope of process change, timelines, etc. (2 words)

4. A document that explains the six sigma project in clear concise wording without a lot of details.

6. A well articulated description of the underlying need for a Six Sigma project. (2 words)

Down:

1. The boundaries of the project that have to be taken into consideration before deciding the goal for any project. (2 words)

2. a person with an interest or concern in something, especially a business

5. 4 different roles assigned to members of six sigma project team

Define Phase : Process Mapping Tools
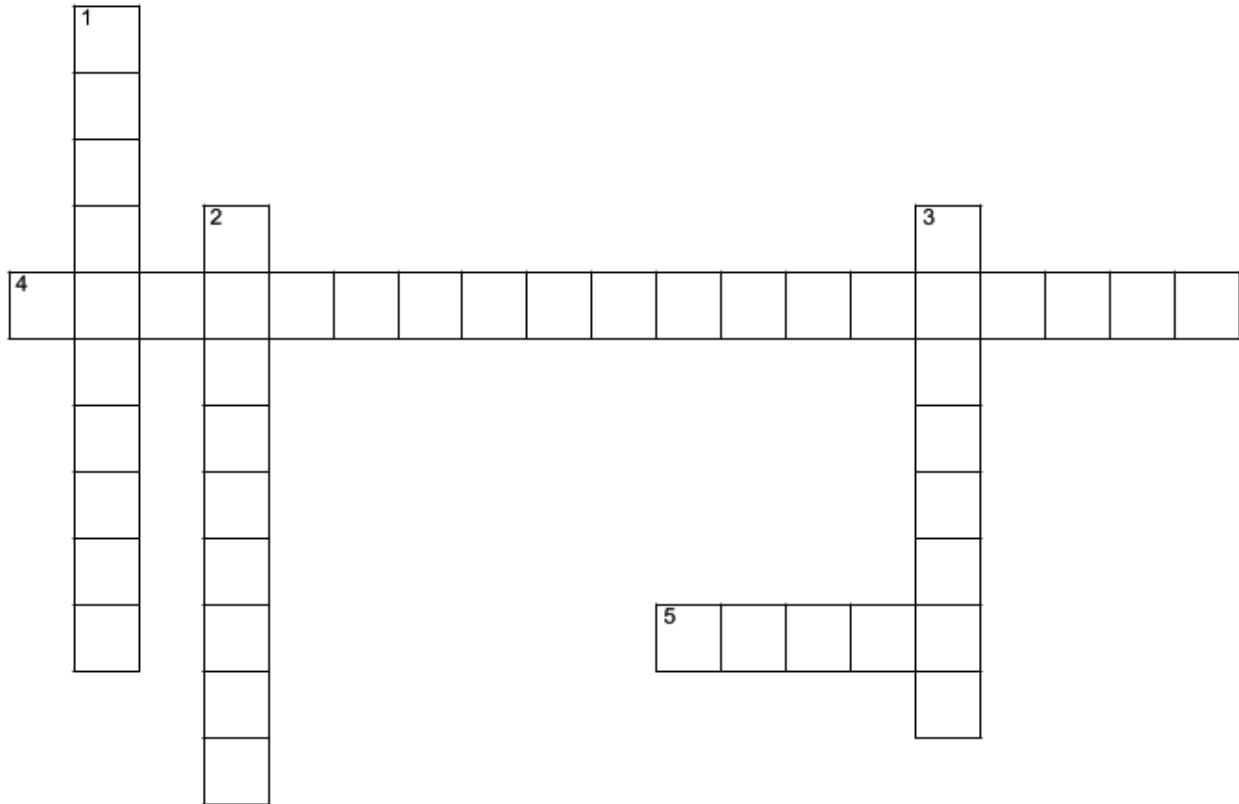
Across:

4. __also known as cross functional flowchart.(2 words)

5. A tool that summarizes the inputs and outputs of one or more business processes in table form.

Down:

1. __ also called workflow diagram, business flow diagram or process flow diagram.(2 words)

2. A graphical representation of a process in a sequential order.

3. The differences between observed average.

Measure : Cause & Effect Relationships
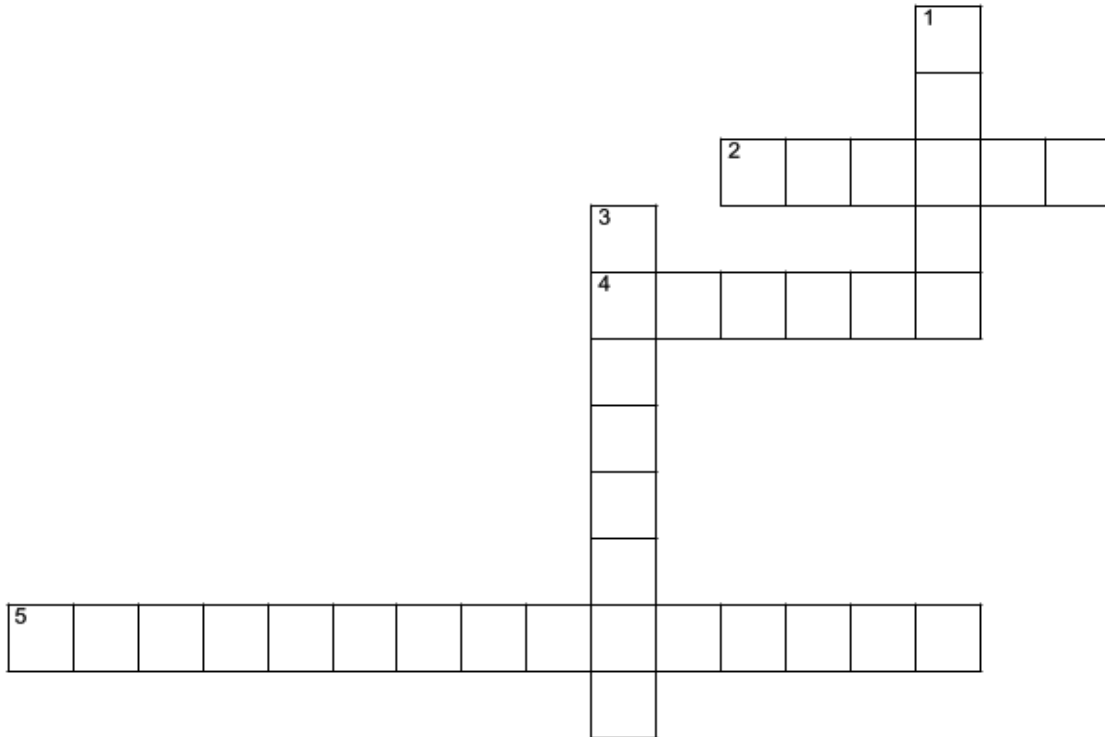
Across:

2. Y in Y = f(x)

4. ___ is that which is produced by a cause; the impact a factor (X) has on a response variable (Y).

5. also called a cause and effect diagram or Ishikawa diagram (2 words)

Down:

1. x in Y = f(x)

3. It provides a way of mapping out how value is transmitted from the input factors of your system (the Xs) to the process or product outputs (the Ys).(2 words)

Measure Phase : Measurement System Analysis (MSA) or Gage R&R
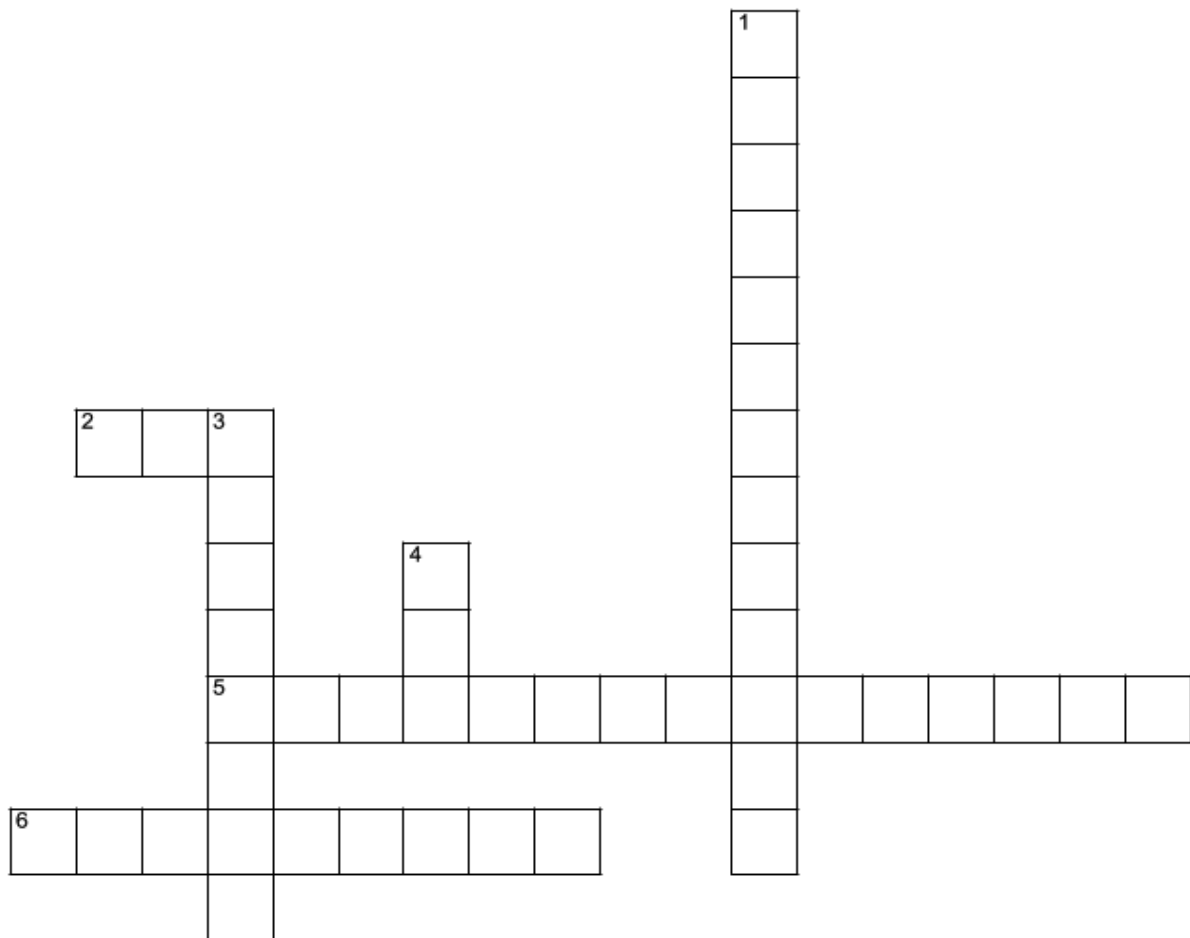
Across:

2. Measurement of System Analysis

5. Variation when two or more people measure the same unit with the same gage

6. ____refers to how close measurements are to each other.

Down:

1. Same person measuring the same part multiple times

3. ____ refers to how close a gage's measurements are to the true value.

4. One of the tools in MSA to assess precision errors.

Measure Phase : Data Collection – Planning & Execution

Across:

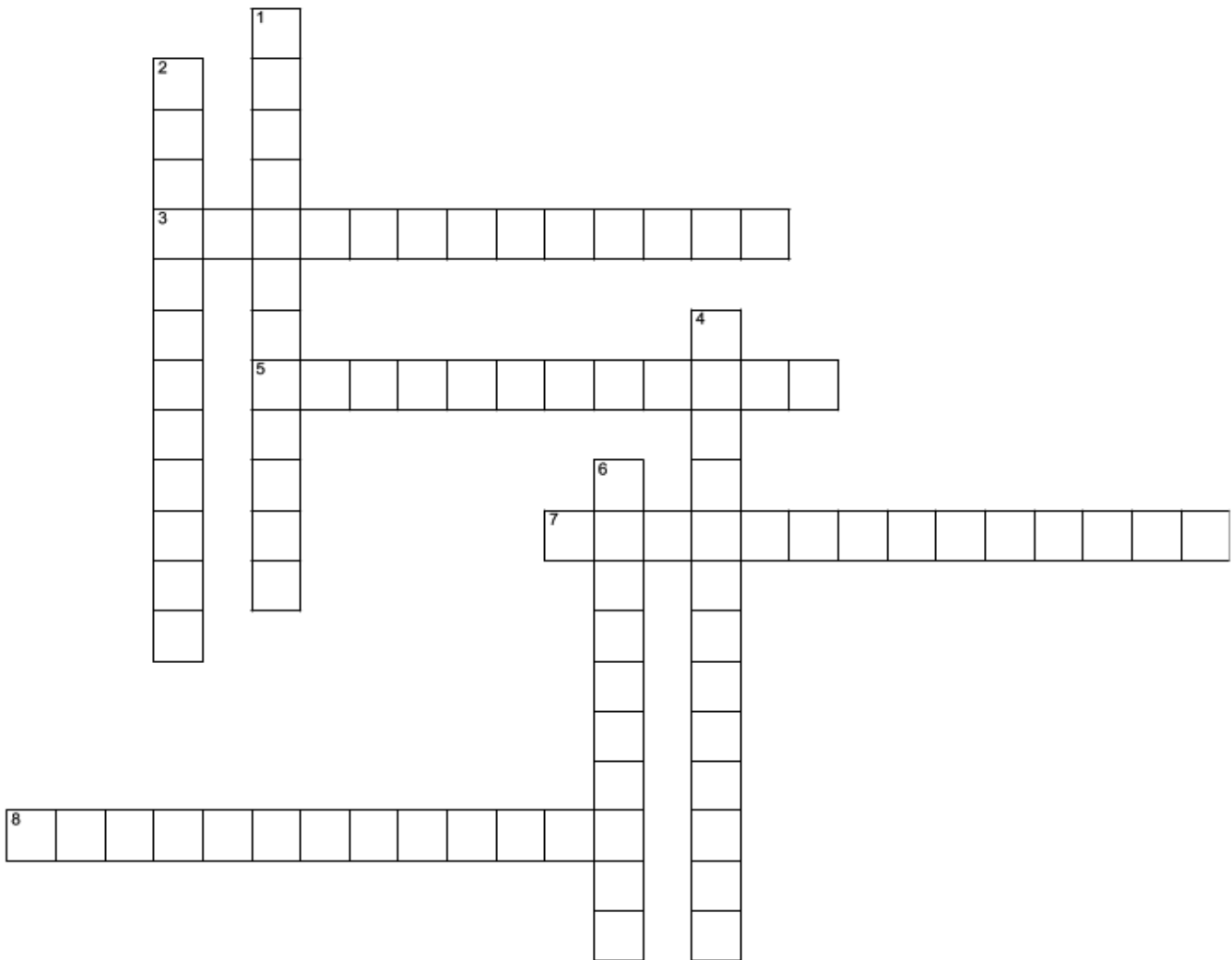3. A quantitative measurement scale where the difference between the two variables is meaningful

5. A measurement scale, in which numbers serve as "tags" or "labels" only, to identify or classify an object.

7. The process of gathering quantitative and qualitative information for six sigma project

8. A qualitative data that can be counted for recording and analysis

Down:

1. An information about the geographic positions of devices or structures.

2. A rank order scale in which the numbers are assigned to the objects to determine the relative extent to which certain characteristic is possessed.

4. A data that is acquired through measurements, such as length, time, diameter, strength, weight, temperature, density, thickness, pressure, and height.

6. A type of variable measurement scale which is quantitative in nature.

Measure Phase: Data Sampling

Across:

1. the process of taking a subset of subjects that is representative of the entire population. (2 words)

3. sample members from a larger population are selected according to a random starting point but with a fixed, periodic interval. (2 words)

4. The data you collect may not be accurate or represent the group (2 words)

Down:

2. The researcher divides the population into separate groups, called strata. (2 words)

Measure Phase: Introduction to Business Statistics

(Crossword grid with partial letters: T, S shown in filled cells)
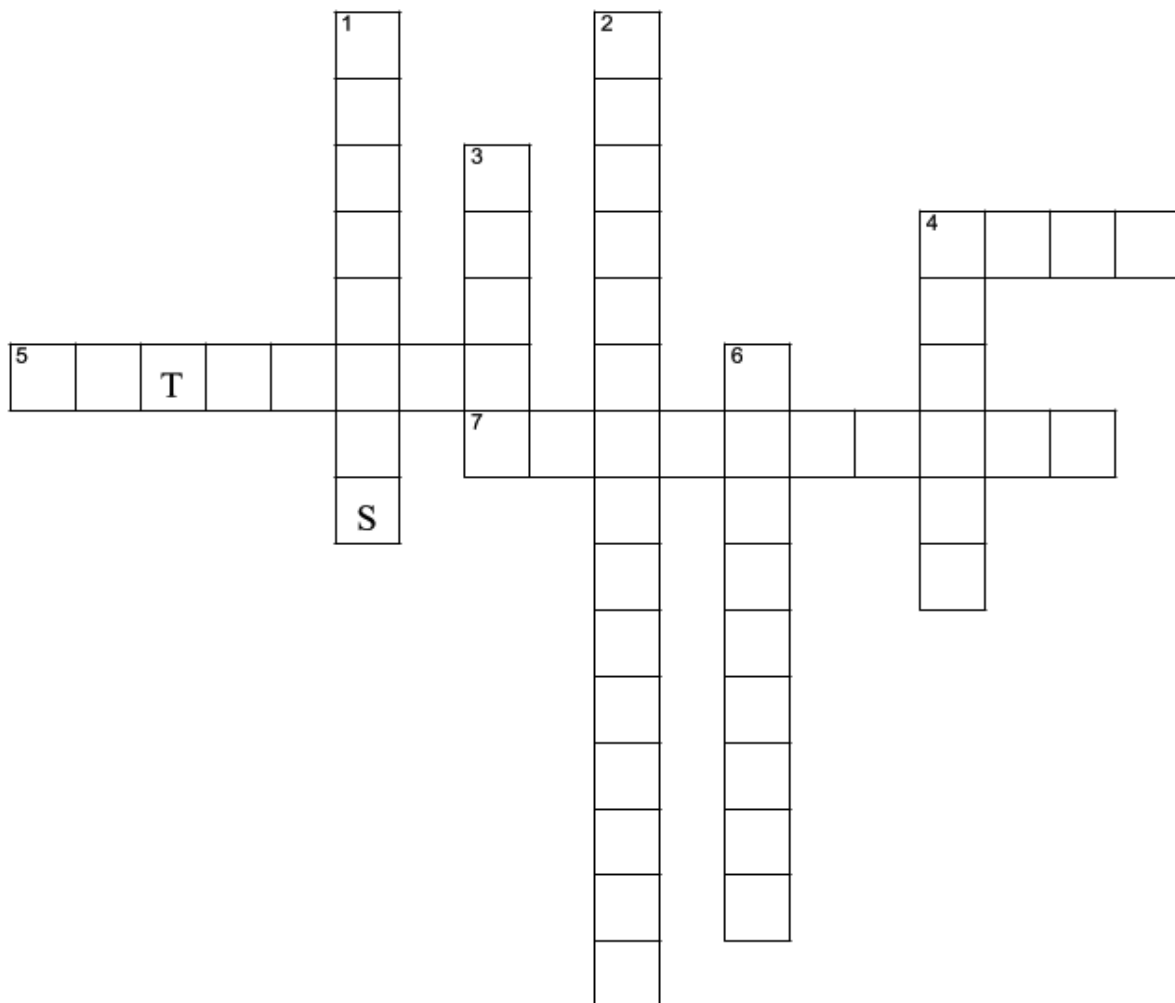
Across:

4. A Measure of central tendency ____

5. An extreme value is considered to be __

7. The study of collecting, organizing, analyzing, and interpreting information.

Down:

1. A measure of the asymmetry of the probability distribution of a random variable about its mean

2. Normal distribution is also called (3 words)

3. Mathematician who developed bell shaped curve

4. The middle value in distribution

6. it's a Specialized type of Bar Chart that represents data distribution

Measure Phase: Graphical Analysis Methods
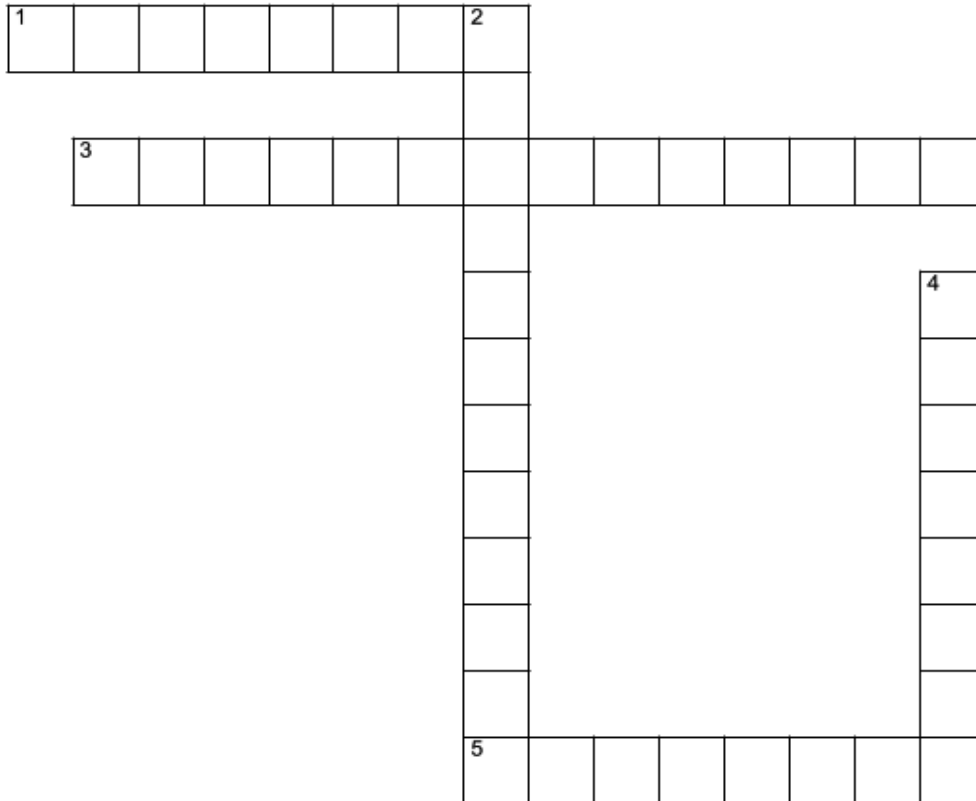
Across:

1. A graphical rendition of statistical data based on the minimum, first quartile, median, third quartile, and maximum. (2 words)

3. A very useful tool for analyzing all three types of variation. (2 words)

5. A type of chart that shows how individual values are distributed within a set of data. (2 words)

Down:

2. A graph used to analyze the correlation between two variables.(2 words)

4. A line graph of data plotted over time. (2 words)

Measure Phase: Assessing Process Capability

Across:

2. The actual Process Capabiltiy of a process over a period of time. (3 words)
3. An analysis that helps in establishing the capability of the process to meet customer requirements and specifications. (3 words)

Down:

1. Capability of any process. (2 words)

Analyze Phase : Theory of Hypothesis Testing

Across:

1. a type of hypothesis used in statistics that proposes that no statistical significance exists in a set of given observations. (2 words)

3. one that states there is a statistically significant relationship between two variables (2 words)

5. a random variable that is calculated from sample data and used in a hypothesis test. (2 words)

Down:

2. the probability of obtaining the observed results of a test, assuming that the null hypothesis is correct. (2 words)

4. a collective term that describes a wide range of approaches, tools, and techniques used to uncover causes of problems.

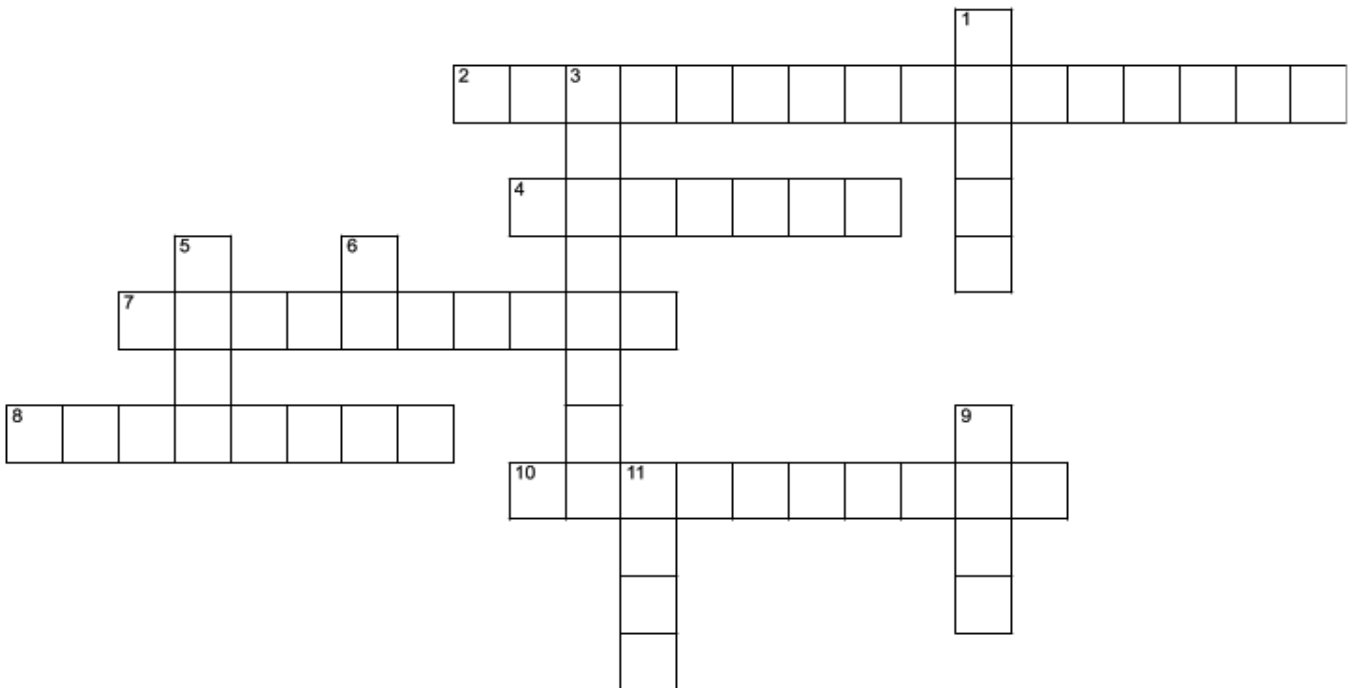# Analyze Phase: Performing Hypothesis Testing
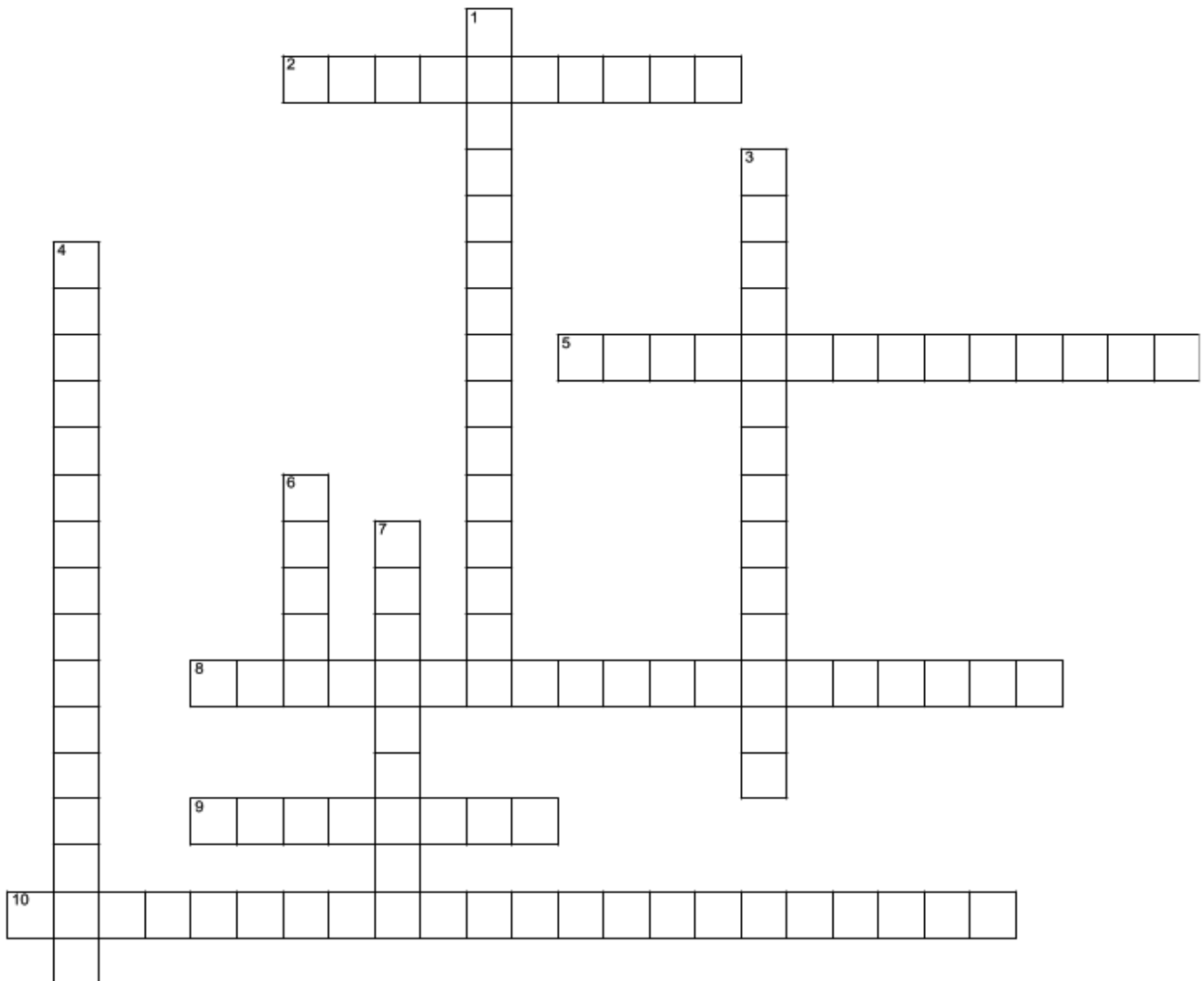
Across:

2. A technique that investigates and models the relationship between a dependent variable (Y) and independent predictors (Xs). (2 words)

5. The bi-variate relationship of two variables plotted on a graph in the form of dots (2 words)

8. a correlation coefficient commonly used in linear regression. (2 words)

9. a measure of the amount of variation that exists in a process. The variance is equal to the standard deviation squared. (2 words)

10. Coefficient that quantifies the relationship between two variables (2 words)

Down:

1. A change in the value of one variable does not have any effect on the value of the other variable (2 words)

3. Statistical tests used for validation of our assumptions. (2 words)

4. Attempts to model the relationship between two variables by fitting a linear equation to observed data. (2 words)

6. It compares the amount of variation between groups with the amount of variation within groups

7. A test also written as χ2 test (2 words)

Analyze Phase : Quantification of Opportunity to Improve

Across:

1. 2x2 matrix used to selecting causes of high impact and control (3 words)
3. Founder of Pareto chart (An Italian economist) (2 words)

Down:

2. a type of chart used for prioritization (2 words)

Improve Phase: Generating and Screening Solutions

Across:

1. Compares two completely different things and look for similarities between two things or concepts and it only focuses on that angle.

3. Its involve interacting with a product with one or more physical or sensory abilities eliminated or modified. (2 words)

Down:

2. Solving problems through an indirect and creative approach, typically through viewing the problem in a new and unusual light. (2 words)

Improve Phase: Lean Management Systems

Across:

2. A way to visually communicate expectations, performance, standards or warnings in a way that requires little or no prior training to interpret.
4. A Japanese word that means Production leveling/smoothing.
7. A system only deals with what the customer's demands are.
8. A Japanese term that means "mistake-proofing"
10. When manufacturing products, which means that they produce more products than they actually need.

Down:

1. It arises due to various factors such as rework, waiting times, over processing and production, or inventory, etc,.
3. 5S Japanese organization method composed of the terms: seiri, seiton, seiso, ___, and shitsuke
5. A Japanese ___ is a term which is used for Waste.
6. A system for organizing spaces so work can be performed efficiently, effectively, and safely.
9. It focuses on analyzing workflow to reduce cycle time and eliminate waste
11. A system for dramatically reducing the time it takes to complete equipment changeovers.

# Improve Phase: Failure Mode Effects Analysis (FMEA)
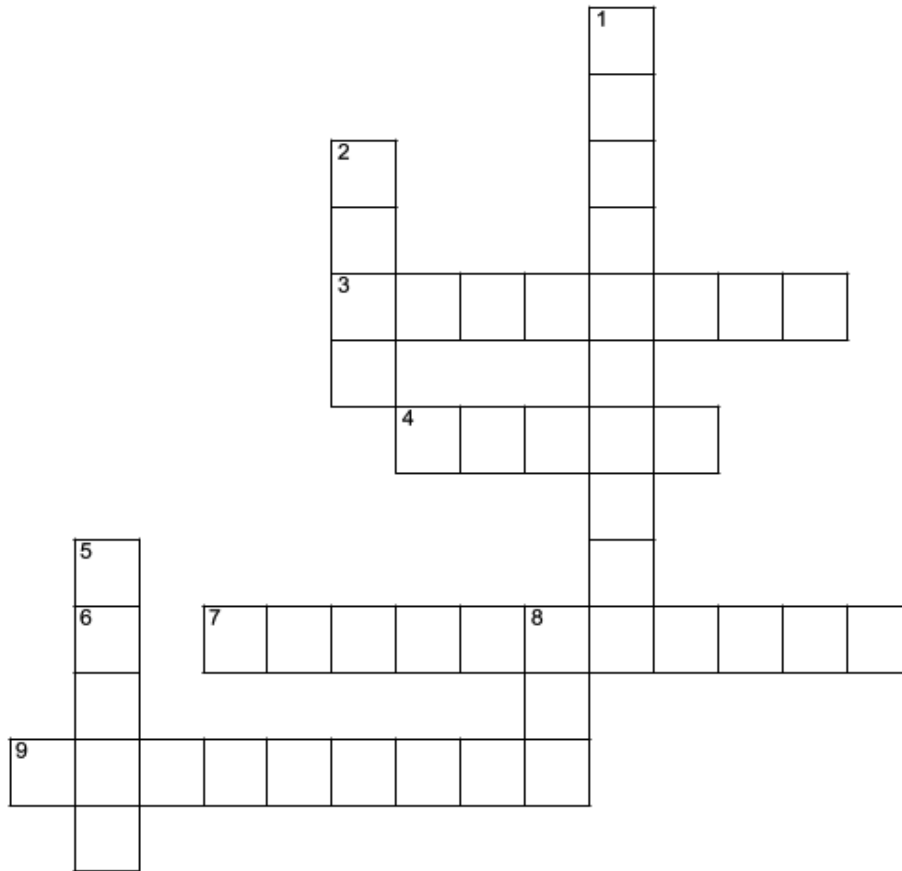
Across:

3. ___ scale is used for measuring the potential effect

4. FMEA used while developing new products/services

7. The mechanism by which failure happens (2 words)

9. ___ Scale is used for measuring the current controls mechanism

Down:

1. ___ scale is used for measuring the potential cause

2. __ is usually associated with any Action leading to undesirable outcome or loss.

5. Process FMEA

6. A structured approach to discovering potential failures that may exist within the design of a product or process.

8. A composite risk rating given by a team based on the elements of risk

Control Phase: Statistical Process Control
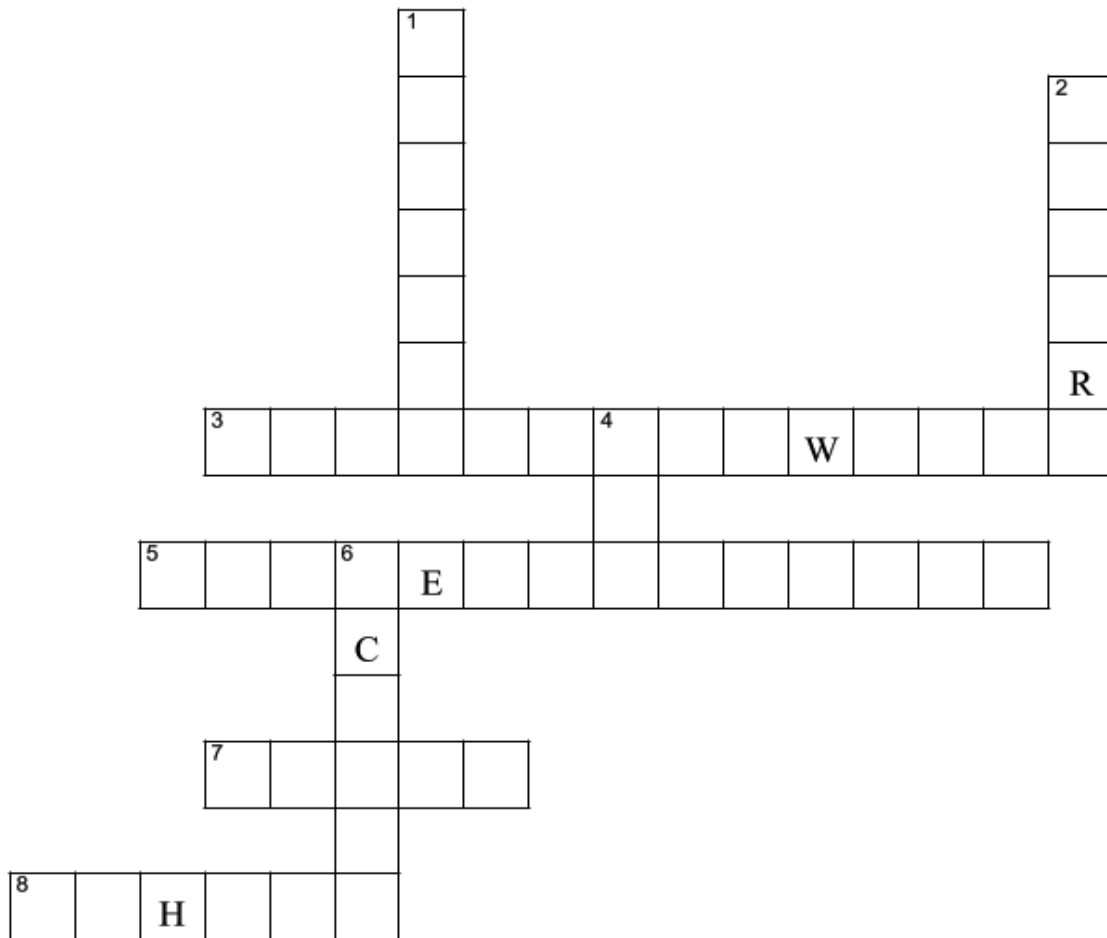
Across:

3. Person who developed Statistical Process Control System (2 words)
5. An engineering mechanism that uses continuous monitoring of an industrial process operational variables (2 words)
7. Chart used for representing continuous data (2 words)
8. Chart used for representing defectives of variable sample size (2 words)

Down:

1. Chart used for representing defectives of constant sample size (2 words)
2. Chart used for representing defects with variable sample size (2 words)
4. Controlling process inputs and outputs based on statistical priniciples
6. Chart used for representing defects with constant sample size (2 words)