

# Decision Matrix Analysis

Choosing the Best Idea with Logic



OPTION	A	B	C	D	D
↘ COST	3	5	5	4	4
⊕ Time	9	5	5	2	2
🔧 Feaibility	3	5	3	2	4
🎯 Risk	4	5	3	4	4
🚀 Impact	3	8	5	3	5
SCORE	42	56	48	48	33

WEIGH OPTIONS

A	B	C	D	D
A	B	C	D	33



## CHOOSE THE BEST IDEA

Option B has the highest score.



When students brainstorm solutions to a problem, they often come up with many creative ideas. For example, they might think of different ways to save water in school, reduce plastic waste, or improve energy efficiency. However, choosing the best idea is not always easy. Sometimes several ideas seem good, and students may struggle to decide which one to pursue.

This is where **Decision Matrix Analysis** becomes useful.

A **Decision Matrix** is a simple tool that helps people compare different options using clear criteria. Instead of choosing randomly or relying only on personal opinions, students evaluate each option in a structured way. This method is widely used by scientists, engineers, businesses, and policymakers when making important decisions.

For teachers, decision matrix analysis provides an easy way to guide students through logical thinking and collaborative decision-making.

### What Is a Decision Matrix?

A **Decision Matrix** is a table used to compare several options against a set of criteria.

Each option is evaluated based on how well it satisfies the criteria, and scores are given for each factor. The scores are then added to identify the option that performs best overall.

The matrix helps students answer an important question:

### Which solution works best when we consider multiple factors?

This approach teaches students that decisions should consider **different perspectives**, such as cost, feasibility, impact, and time required.

## Understanding the Components of a Decision Matrix

A typical decision matrix has three main components:

### 1. Options

These are the different ideas or solutions students want to compare.

Example: If students want to reduce plastic waste in school, their options might include:

- Installing water refill stations
- Encouraging reusable lunch boxes
- Organizing plastic collection drives
- Running awareness campaigns

### 2. Criteria

Criteria are the factors used to evaluate each option. These are the aspects that matter when making a decision.

Common criteria used in classroom innovation activities include:

- Impact – How much positive change will the idea create?
- Cost – How expensive will it be to implement?
- Feasibility – How easy is it to implement?
- Time required – How quickly can it be implemented?
- Sustainability – Will the idea have long-term benefits?

Choosing the right criteria helps students think more carefully about the practical aspects of their ideas.

### 3. Scores

Each option is scored against the criteria using a simple scale such as **1 to 5**, where:

- 1 = Very Low
- 2 = Low
- 3 = Moderate
- 4 = High
- 5 = Very High

Higher scores indicate better performance for that criterion.

After scoring, students **add up the total score for each option**. The idea with the highest score may be the most suitable solution.

## A Simple Example

Suppose students want to **reduce electricity usage in school**. After brainstorming and prioritizing, they select three possible ideas:

1. Turning off lights and fans when leaving a room
2. Replacing bulbs with LED lights
3. Installing solar panels

They decide to evaluate these ideas using the following criteria:

- Impact
- Cost
- Feasibility

Their decision matrix might look like this:

Idea	Impact	Cost	Feasibility	Total
Turn off Lights	4	5	5	14
LED Bulbs	4	3	4	11
Solar Panels	5	1	2	8

In this case, **turning off lights and fans** receives the highest score. This suggests that it is the most practical solution to start with.

Students learn an important lesson here: the **most powerful idea is not always the most practical one**. Sometimes simple actions can make a big difference.

## Why Decision Matrix Analysis Is Useful for Students

Decision matrix analysis teaches several important skills:

### Logical Thinking

Students learn to analyze options carefully instead of making decisions based only on personal preference.

### Structured Problem-Solving

The matrix provides a step-by-step way to evaluate solutions.

### Collaboration

Students discuss criteria and scoring together, which improves teamwork and communication.

### Evidence-Based Decision Making

Students justify their choices using reasoning and evaluation.

These skills are essential not only in science and innovation but also in everyday decision-making.

## Classroom Activity: Choosing the Best Environmental Idea

Teachers can easily use decision matrix analysis during project-based learning activities.

### Step 1: Define the Problem

Ask students to explore a real-world challenge such as:

**How can our school reduce plastic waste?**

### Step 2: Generate Ideas

Students brainstorm possible solutions. For example:

- Reusable water bottles
- Waste segregation bins
- Plastic-free lunch days
- Awareness campaigns

### Step 3: Select Evaluation Criteria

As a class, identify criteria such as:

- Impact
- Cost
- Ease of implementation
- Long-term sustainability

### Step 4: Create the Decision Matrix

Draw a simple table on the board and fill in the options and criteria.

Students then assign scores from **1 to 5** for each criterion.

### Step 5: Calculate the Scores

Add the scores for each option and identify the idea with the highest total.

### Step 6: Discuss the Results

Encourage students to reflect on questions such as:

- Did the highest-scoring idea surprise you?
- Which criterion influenced the decision most?
- Would you change the scores after discussion?

This reflection helps students understand the decision-making process more deeply.

### Tips for Teachers

Decision matrix analysis works best when the process is kept simple and interactive.

Here are a few suggestions:

#### Use the board or chart paper

Teachers can draw the matrix on the board so the entire class can participate.

#### Limit the number of options

Comparing three to five ideas is usually manageable for students.

### Keep criteria clear and relevant

Too many criteria can make the process confusing.

### Encourage discussion before scoring

Students should explain their reasoning for each score.

### Allow group work

Small groups can create their own matrices and then compare results with the class.

These strategies help teachers conduct the activity smoothly while keeping students actively engaged.

## Connecting with Prioritization Techniques

Decision Matrix Analysis is often used **after prioritization techniques**.

For example:

1. Students **brainstorm ideas**.
2. They use **prioritization tools** such as ranking or dot voting to narrow down the options.
3. Finally, they apply **Decision Matrix Analysis** to select the best solution.

This sequence mirrors the real-world innovation process used in research, engineering, and business.

### Reflection Questions for Students

Teachers may conclude the session by asking students:

- What criteria were most important in your decision?
- Did different groups choose different solutions?
- How did the decision matrix help you think differently?
- Would you use this method in other situations?

These questions encourage students to recognize the value of structured thinking.