

Being Ingenious & Fixing Problems

Understanding Creative Thinking, Problem Solving, and Testing Creative Solutions

Understanding Creative Thinking



Creative thinking involves looking at problems from fresh perspectives.



Key stages: Preparation, Incubation, Illumination, Evaluation, Implementation.



Techniques: Brainstorming, Mind Mapping, SCAMPER, Random Word Association.

What is Creative Thinking?



Creative thinking is the ability to look at problems or situations from a **fresh perspective**.



It goes beyond traditional logic and involves **imagination, flexibility, and originality**.

Key Elements of the Creative Thinking Process:



Preparation – Gathering information and understanding the problem.



Incubation – Letting ideas marinate subconsciously.



Illumination – The “Aha!” moment when a new idea or solution emerges.



Evaluation – Analyzing the idea for feasibility and impact.



Implementation – Turning the idea into a practical solution.

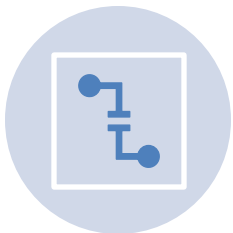
Techniques to Stimulate Creativity:



Brainstorming – Generating many ideas without immediate judgment.



Mind Mapping – Visualizing connections between ideas.

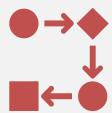


SCAMPER Technique – Substitute, Combine, Adapt, Modify, Put to another use, Eliminate, Reverse.



Random Word Association – Using unrelated prompts to inspire new ideas.

Understanding Problem Solving



Step-by-step approach to identifying and resolving issues.



Steps: Identify, Define, Generate, Evaluate, Implement, Review.



Skills: Analytical thinking, Decision-making, Collaboration, Resilience.

Stages of Problem Solving:



1. Identify the Problem –
What exactly needs to be fixed?



2. Define the Problem Clearly – Why is it a problem, and who is affected?



3. Generate Possible Solutions – Be open to all ideas (even wild ones).



4. Evaluate and Select the Best Option –
Consider resources, time, risks, and outcomes.



5. Implement the Solution – Act on the chosen solution.



6. Review and Reflect –
Did the solution work?
What could be improved?

Critical Problem-Solving Skills:



Analytical thinking

Logical reasoning

Decision making

Resilience under pressure

Team collaboration

Analytical Thinking

Definition:

The ability to break down complex problems or information into smaller, manageable parts to understand relationships, causes, and effects.

Why It Matters:

- Helps identify root causes of a problem.
- Aids in evaluating all components of a situation before jumping to solutions.

Example:

When facing declining grades, an analytical thinker might examine study habits, test performance, time management, and course difficulty before deciding what to change.

Logical Reasoning

Definition:

Using structured and step-by-step thinking to arrive at a conclusion based on available evidence or facts.

Why It Matters:

- Ensures solutions are based on logic, not emotion or assumptions.
- Supports clarity in decision-making and explanation.

Example:

If a student is late to school regularly, logical reasoning may help connect the dots: wake-up time → transportation delays → route selection → new plan.

Decision Making

Definition:

Choosing the best course of action from several alternatives after considering the pros and cons.

Why It Matters:

- Good decision-making leads to efficient and effective solutions.
- Builds confidence in handling complex or uncertain situations.

Key Components:

- Weighing options
- Considering risks and outcomes
- Being timely in response

Example:

A student team choosing the most practical project idea for a science fair based on budget, time, and creativity.

Resilience Under Pressure

Definition:

The ability to stay calm, focused, and persistent even when facing stress, failure, or setbacks.

Why It Matters:

- Not all problems are solved on the first try.
- Being resilient means you keep working on solutions despite difficulties.

Signs of Resilience:

- Emotional control
- Adaptability
- Optimism and bounce-back ability

Example:

Continuing to refine a solution after an idea is rejected or fails in testing, rather than giving up.

Team Collaboration

Definition:

Working effectively with others to solve a problem, leveraging diverse ideas and skills.

Why It Matters:

- Complex problems often need multiple viewpoints.
- Collaboration leads to more well-rounded and inclusive solutions.

Skills Involved:

- Listening actively
- Sharing responsibilities
- Respecting others' ideas
- Conflict resolution

Example:

In a group task, distributing roles (e.g., researcher, designer, presenter) to solve a challenge like redesigning a classroom for better learning.

Summary Table

Skill	Focus	Real-Life Impact
Analytical Thinking	Breaking down problems	Understand causes clearly
Logical Reasoning	Structured, fact-based thinking	Make sense of complex issues
Decision Making	Choosing best actions	Reach effective conclusions
Resilience	Staying calm & focused	Solve even under stress
Team Collaboration	Working together	Create stronger solutions

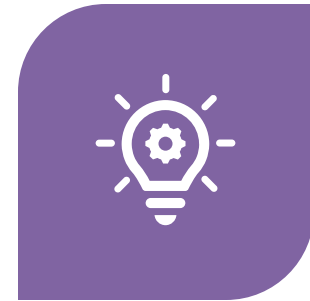
Testing Creative Problem Solving



COMBINE CREATIVITY WITH
STRUCTURED LOGIC TO FIND
INNOVATIVE SOLUTIONS.



ACTIVITIES: SIMULATIONS,
GROUP CHALLENGES, PEER
FEEDBACK.



EVALUATE IDEAS FOR
ORIGINALITY, FEASIBILITY,
AND IMPACT.

How to Test and Apply It:



Simulated Scenarios – Case studies or real-life challenges where participants brainstorm and present solutions.



Group Activities – Encourage collaboration and observe how different minds approach the same problem.



Reflection – Discuss which ideas worked and why others didn't.



Peer Feedback – Understand how others perceive your creative solutions.

Applications and Examples

Real-life use:
Hackathons, School
projects, Community
initiatives.

Example: Designing a
no-cost anti-bullying
campaign.

Reflection and
feedback are key to
refining creative
solutions.

Summary



Creative Thinking = Generating new ideas.



Problem Solving = Structured resolution process.



Creative Problem Solving = Innovation + Logic to solve real problems effectively.