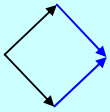
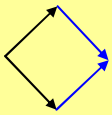
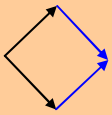
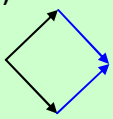
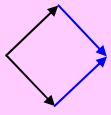
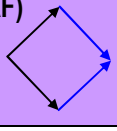
The Stages of the Creative Problem Solving (CPS) Process

Stage	Purpose	How to Diverge	How to Converge
Stage 1: Objective Finding (OF) 	To find a goal, wish or challenge upon which you might want to apply the Creative Problem Solving process.	List your goals, wishes, or challenges. Make a long list of wishes even if you already know your general area of interest. The list takes the form of "I wish…" "It would be great if…." Questions: What do you wish for? What opportunities are there? What are your dreams?	The Problem Owner chooses on goal, wish, or challenge that feels right to him or her: This becomes the starting point for Fact Finding. Check the chosen objective for ownership, motivation, and imagination.
Stage 2: Fact Finding (FF) 	To list all the data, facts, questions and feelings that will give you a clear picture of the situation as it exists now.	Make a long list of facts about the situation. Questions: Who is involved? What is happening? When is it happening? Where is it happening? Why is it happening? What have your tried? What don't you know? What are your opinions?	The Problem Owner highlights all the facts that seem important or interesting. Use the facts as a starting point for Problem Finding.
Stage 3: Problem Finding (PF) 	To redefine the problem in as many different ways as possible, and then to pick a specific statement that most clearly identifies the problem that you wish to solve. A problem well defined is half solved.	Construct as many varied "In What Ways Might I/We…" or "How might…" or "How to…" statements as possible. Hint: Try using key facts (From fact Finding) or restatements from the Objective Finding list to lengthen your list.	The Problem Owner selects a single specific IWWMW statement that, if answered successfully, would best address their goal, wish, or challenge. You can combine more that one statement, or reword to improve the statement. Check the final Problem Statement with the Problem Owner for specificity, suitability, and potential.
Stage 4: Idea Finding (IF) 	To generate as many solution to the Problem Statement as possible.	Brainstorm a list of ideas that answer the "IWWMW…" statement selected. Hint: Change perspective: How would a ____ view this problem? Simulate divergence by using SCAMPER, forced connections, analogies. GET WILD & CRAZY.	The Problem Owner narrows the list down to ideas that are "intriguing" or "might work", even if he or she doesn't know exactly how yet.
Stage 5: Solution Finding (SF) 	To identify the strengths and weaknesses of promising ideas and to decide which ones to use.	Brainstorm criteria for judging ideas. What factors will determine whether or not an idea works for the Problem Owner? Generate criteria by asking "The solution will work if it…" "Will it…" or "Does it…" Be specific. "Money" is not a criterion, but "Does it cost less than $450?" is.	1. The list of criteria is narrowed down by the Problem Owner to the most important criteria. 2. The ideas from the Idea Finding Stage are run through the criteria. Solutions that work for the Problem Owner go to the next step.
Stage 6: Acceptance Finding (AF) 	To develop an action plan for your solution by taking stock of resources, who/what will assist in, and who will object to implementing your idea.	List all the things you need to do to get the idea accomplished. Questions: Who will be involved? Who's approval do you need? What has to happen? Where does it happen? When are the deadlines? How will the ideas be implemented?	1. The Problem Owner narrows the list to the action steps necessary to get the solution implemented. 2. The Problem Owner commits to dates and resources for completing the selected action steps.

Source: ***Osborn-Parnes Creative Solving Model,*** Creative Education Foundation, 1999.

Idea Finding Techniques

Technique	How
Inverse A problem statement that has the opposite meaning as the original problems statement *(e.g., "How best to increase communications" and how best to decrease communications").*	➢ Word a problem statement so that it has the opposite meaning. ➢ Facilitate brainstorming around the inverse technique. ➢ Reverse ideas toward the original problem statement.
Forced Connections Involves connecting two or more apparently different ideas, concepts, or things which have been previously unrelated *(e.g., a new car and an excellent marketing organization; an iceberg and an effective manager).* Although seemingly unrelated items, if you think about a new car or an iceberg, you can find characteristics and qualities that might also relate to excellent marketing organizations and effective managers. Quantity is a must with this technique.	➢ First, select something — an object, word, or a piece of music. ➢ Focus on what makes it special; describe ten or more of its characteristics. ➢ The facilitator then presents the problem statement. ➢ The group then forces associations and connections between the descriptions and the problem. For example, the object is a pig, and its characteristics are "tastes good", "fat", and "dirty". If the problem is to develop a new roof material, connections might include making it dirt repellent and keeping it thin to cut costs.
Analogy Analogical thinking is the ability to borrow ideas from one context and use them in another, borrow a problem solution from a related problem, or otherwise "see a connection" between one situation and another. It involves using a statement with the same goal but different content as the problem statement *(e.g., "increased productivity of a vegetable garden" used as an analogy for "increased productivity of customer service reps.").*	➢ Lead group in developing an analogy for the problem statement. Consider analogies from world of sports, animal kingdom, plants, machines, geography, etc. ➢ Brainstorm properties/characteristics for the analogous situation. ➢ Translate ideas back to the original statement.
SCAMPER Alex Osborn, a pioneer teacher of creativity, first identified the nine principle ways of improving divergent thinking. They were later arranged by Bob Eberle into an easy to remember acronym **SCAMPER**. SCAMPER can be a useful tool to generate diverse ideas. **REMEMBER:** **Divergent Thinking: Generating lots of options by:** ➢ Deferring Judgment ➢ Striving for Quantity ➢ Seeking wild ideas ➢ Combining and Building on ideas. **Convergent Thinking: Judging options; making decisions by:** ➢ Judging affirmatively; "What I like about this is …" ➢ Being Deliberate ➢ Examining, refining, revising and improving ideas ➢ Checking your objectives; "It would be nice if … a list of your criteria"	➢ **Substitute** something. "What could I use instead?" or What other ingredients, materials, or components could I use ➢ **Combine** it with something else. "How can I combine parts or ideas?" "Are there two things I could blend rather than coming up with something new?" ➢ **Adapt** something to it. "What else is like this?" "Could we change or imitate something else?" ➢ **Magnify** or add to it. "How could I make it bigger, stronger, more exaggerated, or more frequent?" ➢ **Modify** it. "Could we change a current, idea, practice or product slightly and be successful?" ➢ **Put** it to some other use. "How can I use this in a new way?" ➢ **Eliminate** something. "What can be omitted or eliminated? Are all the parts necessary? Is it necessary to solve this problem at all?" ➢ **Rearrange** it. "Could I use a different sequence? Could I interchange parts?" ➢ **Reverse** it. "Could I do the opposite?" What would happen if I turned it upside down, backward, or inside out?" e.g. reversible winter coat