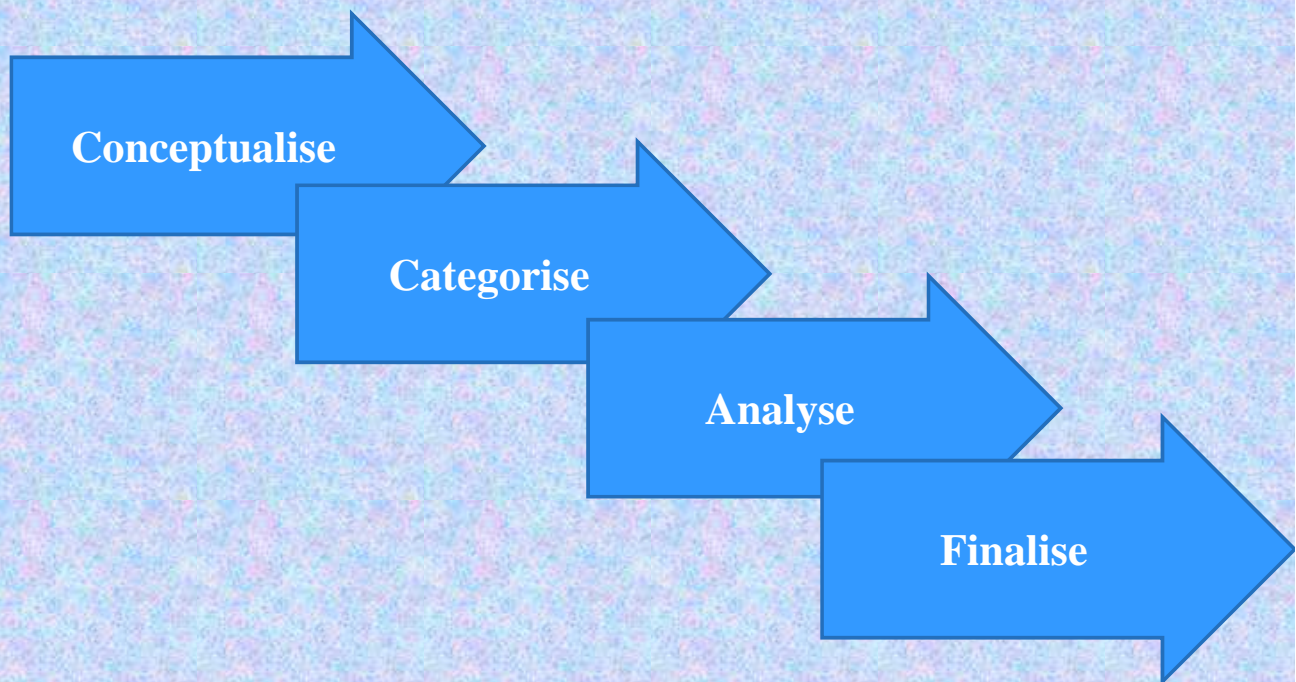


# General Problem Solving Strategy



51

# General Problem Solving Strategy

## 1. Conceptualize

- **Think about and understand the situation (Diagrams, figures, tables)**
- **Construct a movie in your mind of what is happening**
- **Make quick sketch to the problem**
- **Focus on numerical and algebraic information**
- **Look for key phrases (stops, start from rest, free falling)**
- **Focus on the expected result of solving the problem (What is exactly the question is asking for?)**
- **Don't forget to incorporate information from your own experience and common sense (can the speed of an ordinary car reach 1000 km/hr?)**

52

# General Problem Solving Strategy

## 2. Categorize

- After you understand the problem, simplify the problem. By removing non important details to the solution.
- Categorise the problem, is it simple plug-in problem? Or you need to think and analyse more deeply.
- Have you seen this problem before? Do you solve similar problem before?

53

# General Problem Solving Strategy

## 3. Analyze

- Select relevant equations to solve the problem
- Use algebra and Calculus to solve for the unknown parameters
- Calculate the result and round it to the appropriate significant figures.

54

# General Problem Solving Strategy

## 4. Finalize

- This is the most important part.
- Examine the numerical result, Does it have the correct unit?
- Does it meet you expectations of you conceptualisation in stage 1
- Does it make sense?
- Think about how this problem compares with the other you already solved before.
- Is it new problem you didn't solve before? Make it as a model for next problems

55

## Problem Solving – Some Final Ideas

- When solving complex problems, you may need to identify sub-problems and apply the problem-solving strategy to each sub-part
- These steps can be a guide for solving problems in this course

56