An **algorithm** is a procedure to solve a problem:

A series of steps that when followed solve a specific problem

A problem can be seen to have two components:
- Input
- Desired output

Inputs have sizes

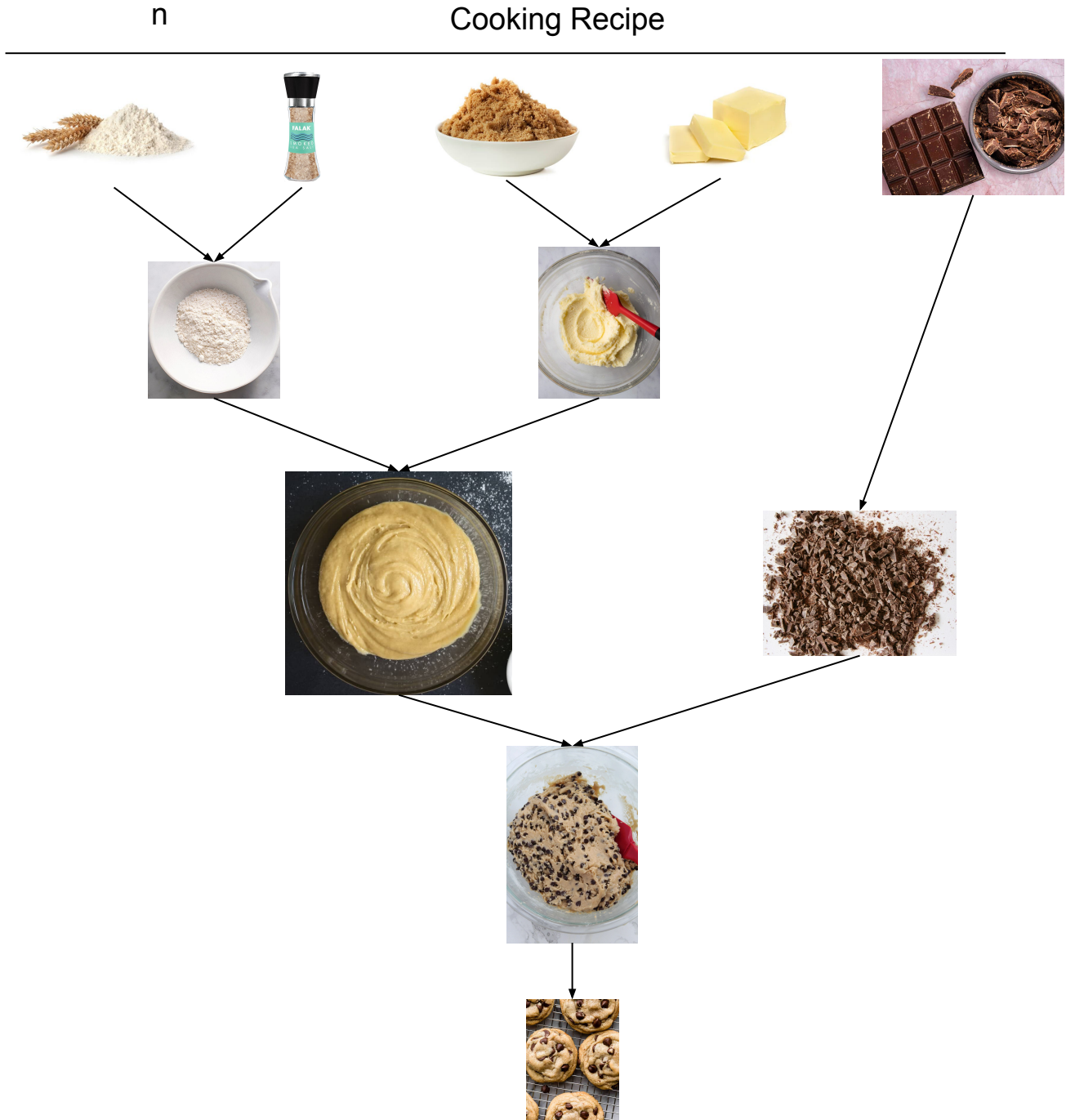The size of the input can affect the amount of steps (time) needed to solve a problem

This relationship between the size of the input and the time it takes to solve the problem is key focus of this course

128
64
32
16
8
4
2
1

7 steps
log(2) (128) = 7

N * log (n)

n   Cooking Recipe
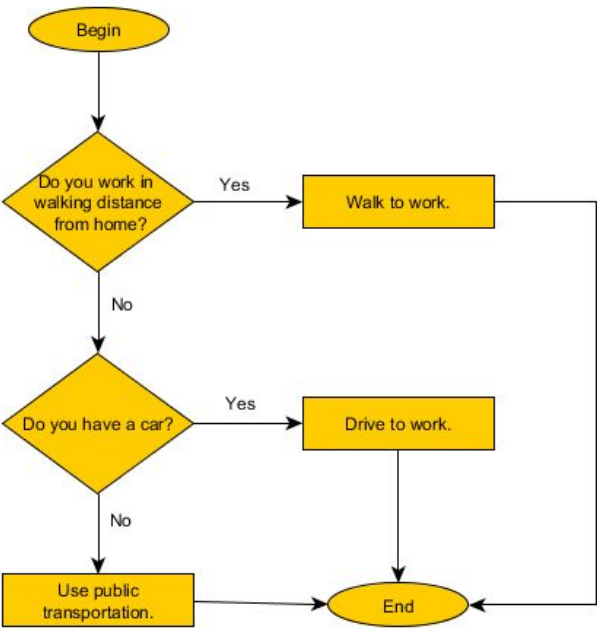
log (n)

Problem to Solve	What is N	How fast is the **best case** scenario to solve this problem	" " " **average case** " " "	" " " **worst case** " " "
Find the ace of spades	52	1	52/2 = 25.5	52
Count the cards in a deck	52	52	52	52
Check if the deck is in sorted order	52	1 (unsorted)	-	52 (sorted)
Check if a box of cards has cards inside	1	1	1	1
Solve the matching problem (Brute force)	36	18	-	n x m
Solve the matching problem (Perfect memory)				
Following a cooking recipe (of a specific style)	5	n * log $_2$ (n)		

The matching problem