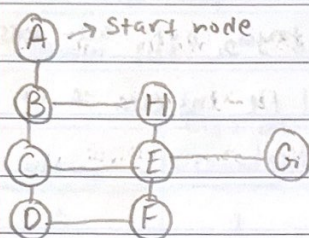


## Graph Traversal #4 Breadth-First Search



### Visited

A (Starting)  
 AB (since B is connected to A)  
 ABHC (since connected to B)

ABHCDE

ABHCDEFG

↑  
 BFS

### Things to remember

- We are traversing Breadth wise rather than going in depth first
- We will use visited array to store mark nodes visited
- To store nodes to be traversed next we need to store them in a queue

### Time Complexity

$O(V+E)$ , when adjacency list is used

$O(V^2)$ , when adjacency matrix is used

Use Case	DFS or BFS
Spanning Tree, Connected Components	either DFS or BFS
Paths Cycles	DFS
Shortest path	BFS
Minimal use of Memory Space	DFS