

1. Memory hierarchy

- a. Forms a pyramid

- b. Key to success of the hierarchy

- c. Locality types

- i. Temporal locality

- ii. Spatial locality

- d. Locality is the key behind why caches work so well

- 2. Cache principles
  - a. Cache holds a much smaller subset of RAM's contents

- b. Terminology
      - i. Memory *block*

- ii. Cache *line*

- iii. Cache *tag*

- iv. Cache *hit*

- v. Cache *miss*

- vi. *Eviction*

- vii. *Dirty*

- 3. Cache addressing
  - c. What type of addresses does the cache use?
  - d. Cache addresses can be *physical*
  
  - e. Can also be *logical*
  
  
  
  
  
  
  
  - i. However, these caches encounter the *aliasing* problem
  
- 4. Cache design
  - f. Multiple-level caches
  
  
  
  
  
  
  
  - g. Unified or split
  
  
  
  
  
  
  
  - h. Cache size