

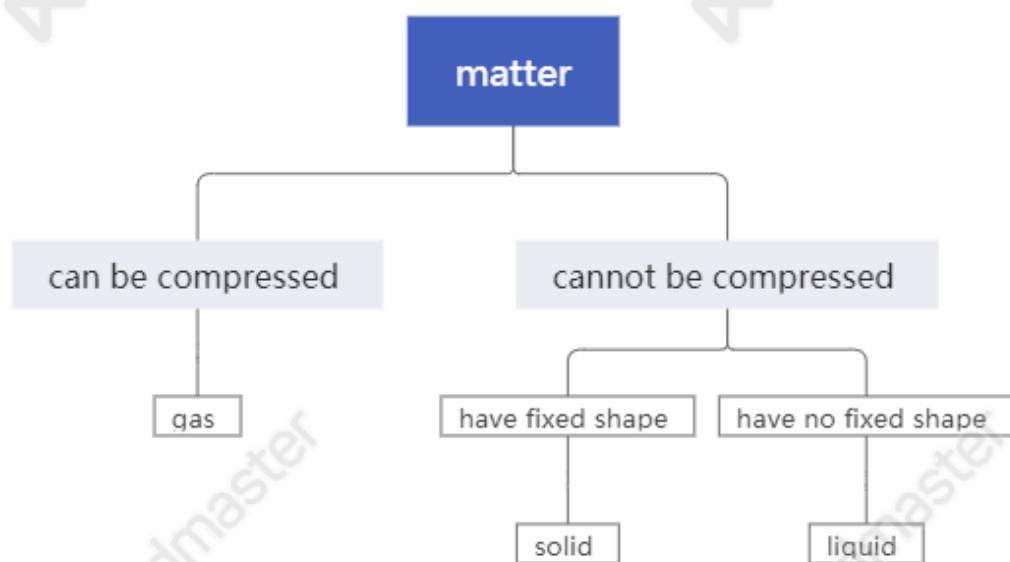
## 6.2 particle model

- properties of matter in 3 states

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- solid
  - ✓fixed shape
  - ✓fixed volume
- liquid
  - ✗fixed shape
  - ✓fixed volume
- gas
  - ✗fixed shape
  - ✗fixed volume

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- particle model

- models in science

- designing aeroplane → make model & test model in wind tunnel
  - help scientists study how aeroplane work
- use models → study & explained how things work

- illustrate structures of objects & real systems as well as concepts
- use kinetic motion model → explain Brownian motion of fat droplets in water
- arrangement & movement of particles in three states of matter
  - proposed particle model based on particle theory
    - help describe arrangement & movement of particles in solids, liquids & gases
  - solid
    - particles
      - close together & arrangement regularly
      - ~~X~~move from one position to another
        - only vibrate about fixed positions
    - particles in solids → like audience sitting in cinema
      - audience → close & in regular arrangement
  - liquid
    - particles
      - close together
      - arrangement irregularly
      - move around each other
    - particles in liquid → like people in crowd
    - people → close
      - move through crowd
  - gas
    - particles
      - far apart
      - move freely in all directions
    - particles in gases → like people running in all directions with lots of space between them
- scientists use particle model → describe arrangements & movement of particles in three states of matter.