**Brainstorming**

At a meeting of the team,

- *Generate ideas* and throw them out
  - *Without criticism*
  - *Without praise*
  - *Without feedback* of any kind
- Welcome *off-the-wall ideas*

When new ideas have been exhausted

- *Examine* the ideas
- *Combine and improve* them

Problems with brainstorming:

- Members get *unequal speaking time*, sometimes *unequal consideration* due to
  - Competition
  - Prejudice
  - Inappropriate feedback
- Ideas *block* each other
- Group activities encourage *social loafing* [failure by one or more team members to contribute meaningfully]
Nominal Group Technique [an alternative to brainstorming]

- Anonymous submissions of ideas
  - Improves credibility of the ideas
  - Reduces competition between team members
- Individual efforts reduce social loafing

Mechanism:

- Individuals submit detailed solutions to problem [may require research]
  - Anonymously and
  - In writing
- Ideas presented to team
  - By swapping proposals or
  - By a presenter chosen by the team
- Team
  - Discusses ideas
  - Combines ideas
  - Expands or elaborates ideas
- Additional rounds if necessary (as for subsystems)
Assignment!

Individually, not as a team

- Propose a solution to the problem
- Work it out in some detail
- Send mentor an e-mail describing your solution
  - One page or so of plain text [figures may be sent as Word attachments]
  - Display team number prominently
  - Put GGG and only GGG in subject line
- Mentor will
  - Strip e-mails of identification
  - Distribute to teams on project day

Example [proposed solution to an earlier earth-moving project]

- Catapult
- Giant rubber band (made from salvaged inner tubes)
- Wound by electric motor
- Released by razor blade
  - Problem: rubber band gets shorter & shorter
- Energy to power motor derived from earth’s tidal force

[Notice that this is a fairly detailed solution, however impractical.]