

# *Mini-Lecture Series*

Team 3176 Off-Season  
Engineering Orientation

# High-Level Introduction

- Over the next several weeks, we will introduce some general concepts / fundamentals that will be used throughout the build season
  - Engineering Design Process
  - CAD / Design
  - Mechanical Design
    - Gearboxes / Motors / Pneumatics
  - Electrical Systems
  - Etc.

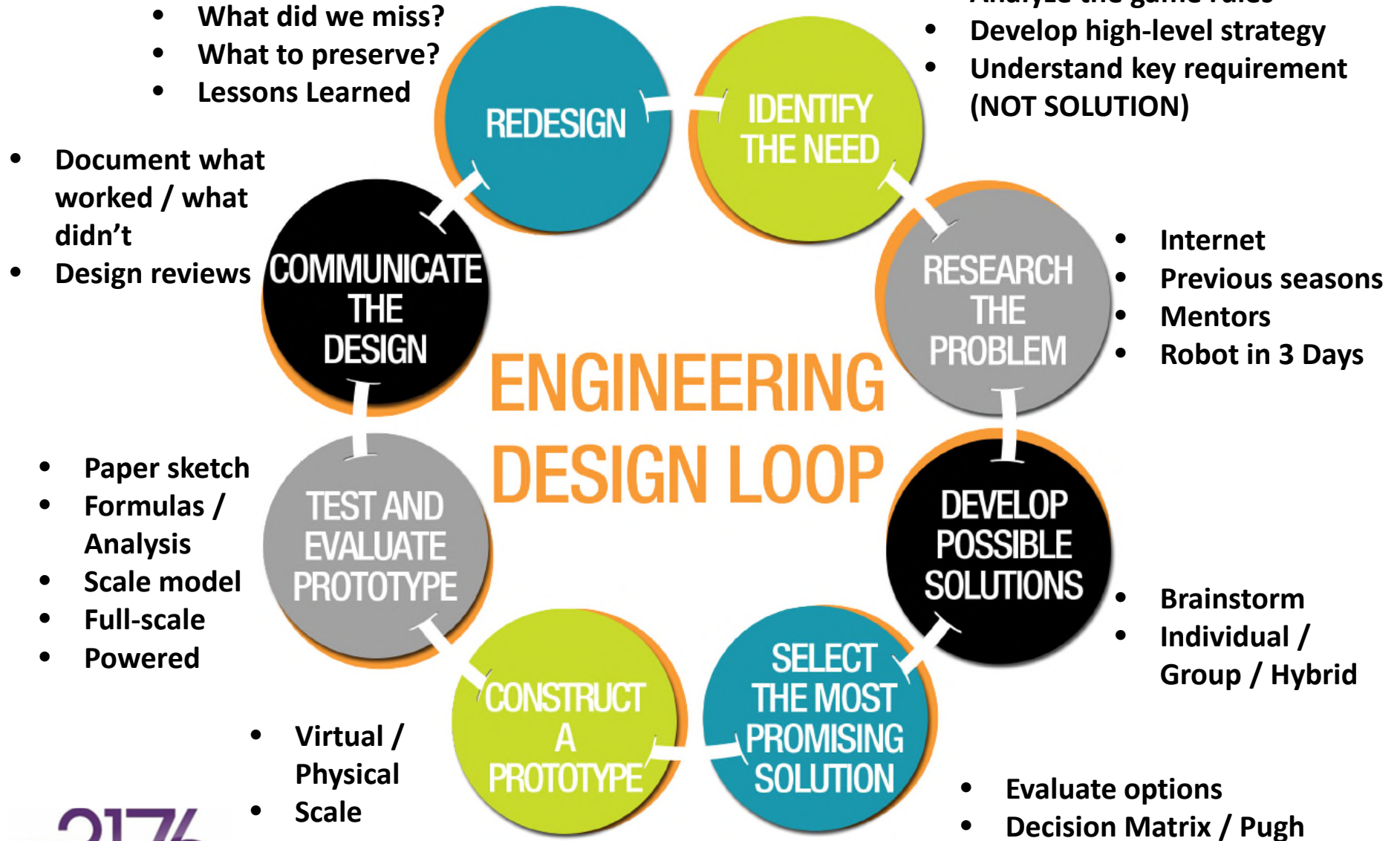


# Engineering Design Process

- Safer highways. Cool phone apps. Green buildings. Thrilling roller coasters. What do all these things have in common?
- All bear the stamp of **engineering design** – a process of brainstorming, building, testing, and refining to create a product, service, or system within time or resource limits
- Not limited to the robot! Everything the team develops can utilize this approach...

# Engineering Design Process

- Analyze the game rules
- Develop high-level strategy
- Understand key requirement (NOT SOLUTION)



# Engineering Design Process

- Can take short-cuts where appropriate
  - **BUT** think through each step
  - Be ready to answer the “skipped” steps
- Be open during brainstorming to all ideas
  - Don’t hold personal ownership
  - All ideas belong to the team
  - Based decisions on facts / test results
- Only do the “minimum” to verify solution
  - Saves time, material, money!

# Questions?