

# BUILDING A SOLAR CAR TEAM



# SO... YOU WANT TO START A SOLAR CAR TEAM?



- ADMINISTRATION GIVES THE APPROVAL
- MANY QUESTIONS TO BE ANSWERED BEFORE TAKING STEPS TO FIND STUDENTS
- **FUNDING** – PRIMARY QUESTION TO BE ANSWERED
  - BUDGET- SCHOOL, DEPARTMENT, CLASS, PARENTS, COMMUNITY
  - DECIDE ON **YOUR LEVEL OF PARTICIPATION**
    - NOBODY WILL PAY YOU WHAT YOU ARE WORTH...HOW MUCH DO YOU LOVE IT?
    - ARE YOU A FACILITATOR, AN OVERSEER, OR A FABRICATOR??????
    - HOW MANY ASSISTANTS DO YOU GET?



# Expense has NOTHING to do with ability to win

48 Volt



2015



120 Volt

\$5000 total  
267 miles  
6<sup>th</sup> place

2016



96 Volt



\$100K  
Solar array





# CHARLIE DUKE WALKED ON THE MOON

Let your administrators drive the car



# WHEN SHOULD YOU MEET??

- BEFORE SCHOOL
  - OVERCOMMITMENT?
- DURING SCHOOL
  - MAKE IT A CLASS?
- AFTER SCHOOL
  - SPORTS/EXTRACURRICULARS?
- NIGHTS
- WEEKENDS
  - SHAKE AND BAKES

A solid 4 hour stretch Saturday morning was worth way more than everyday after school



# FINDING WHAT KIND OF STUDENTS

- **MATH/PHYSICS** CLASS IS YOUR BREEDING GROUND
  - DO NOT COUNT OUT OTHER CLASSES
    - ECONOMICS, POLISCI,
- **MECHANICAL** TYPES
  - SOLIDWORKS CAD DESIGN
  - DO'ERS – GET IT DONE TYPES
  - TRAILER GUY – LOGISTICS HELPER
- **ELECTRICAL** TYPES
  - SOLIDWORKS/CAD DESIGN



# **BUSINESS** TYPES

FUNDRAISING, PUBLICITY, EVENT PLANNING  
SOCIAL MEDIA - PARAMOUNT

**BE INCLUSIVE** — KIDS LEARN FROM EACH OTHER BETTER THAN THEY LEARN FROM  
TEACHERS

STUDENTS NEED AVAILABLE TIME

OVERCOMMITTED STUDENTS ARE **NOT** HELPFUL — ULTIMATELY KILLED MY  
PROGRAM



# WHAT YOU ARE ULTIMATELY LOOKING FOR: **STUDENTS WITH VISION**

**THEIR FUTURE/YOUR FUTURE/CARS FUTURE**

- 3D DIMENSIONAL SPATIAL ABILITY IS PARAMOUNT
- VISION — ABILITY TO “SEE IT”
  - RUBICK’S CUBES LAYING AROUND MY CLASSROOM
  - METAL PUZZLES EVERYWHERE



# BE THIS GUY





# ONCE YOU'VE FOUND STUDENTS

- **TEST OR NOT TO TEST**

- ENTIRELY DEPENDENT UPON NUMBERS OF STUDENTS AVAILABLE
- APPLICATION CAN BE TIED TO TEST SCORE (LARGER ESTABLISHED PROGRAMS)  
Insert number here

- **“MEMBERSHIP” FEE** - \$\_\_\_\_\_

OR **NOT** (EXCITED TO HAVE YOU)

- STUDENTS HAVE SKIN IN THE GAME



# ONCE YOUR TEAM IS TAKING SHAPE

- IDENTIFY ASSISTANTS – YOU WILL NEED HELP, **CAN'T BE DONE WITH JUST ONE PERSON**
- **THINK JV TEAM – NEWBIES START OUT AS HELPERS, GOPHERS, LEARN TOOLS AND LOCATIONS**
- IDENTIFY ALLIES IN YOUR SCHOOL – **SCIENCE DEPT, MATH DEPT, ART DEPT**
  - **FIND OTHER TEACHERS ON CAMPUS THAT SUPPORT YOU AND YOUR TEAM MEMBERS**



# HOW MANY DO I NEED TO FIND?

- **8 – 15 STUDENTS** (OPTIMAL NUMBER FOR TEAM COHESIVENESS)
  - 21 STUDENTS LARGEST TEAM I'VE EVER SEEN – A LOT OF DISENGAGED AND STANDING AROUND
- *RAN 2019 RACE WITH 5 GUYS - NOT ADVISABLE*
  - *STILL FINISHED 5<sup>TH</sup> OVERALL*





# WHERE ARE YOU GOING TO WORK

At Larry Meyer's Shop  
NHRA Racing Legend



My program started in a  
classroom, built a car and had to  
tear down the wall to get it out



# MAINTENANCE/SECURITY NEEDS TO BE YOUR FRIEND

- LOADING DOCK
- 240 AMP SERVICE
- AIR COMPRESSOR FOR TOOLS
- STORAGE
- SHOP SPACE
- ACCESSIBLE PARKING LOT FOR TESTING AND SOLAR



WHAT ARE YOU STARTING WITH????????????

TOTOOLSTOOLSTOOLSTOOLSTOOLSTOOLSTOOLS

TOOLSTOOLSTOOLSTOOLSTOOLSTOOLSTOOLS

TOOLSTOOLSTOOLSTOOLSTOOLSTOOLSTOOLS

TOOLSTOOLSTOOLSTOOLSTOOLSTOOLSTOOLS

- Swap Meets
- Facebook
- Estate Sales
- Other Schools



# SOLAR CAR ATTENDANCE DECIDES ON WHETHER THEY TRAVEL WITH THE TEAM

**There is more to building a team than just brains**

- ATTENDANCE
  - **WORK ETHIC** – *I HAVE ASKED STUDENTS TO NOT COME BACK*
  - **INITIATIVE** – *I CAN'T TELL YOU EVERYTHING*
  - **HOURS ON THE CAR**
  - **ATTENDANCE AT EVENTS** – HOME DEPOT SHAKENBAKE (COMMUNITY EVENTS)



# FOSTER STUDENTS PASSIONS

- LET STUDENTS TRY MULTIPLE THINGS
  - BATTERIES
  - MECHANICAL
  - TRAILER TEAM – INVALUABLE (TRUCK, HITCHES, TRAVEL SUPPLIES, ORGANIZATION)
  - TELEMETRY TEAM
  - STRATEGY
  - BUSINESS/MARKETING/SOCIAL MEDIA
- THEY WILL LET YOU KNOW WHEN SOMETHING HITS – RUN WITH IT



# START AN ALUMNI ASSOCIATION (KIND OF)

- STAY IN TOUCH WITH YOUR GRADUATES
  - TEXT IS EASY
- LET THEM SPEAK AT WORKDAY WHEN THEY COME HOME FOR BREAK
  - GEORGIA TECH                      AIR FORCE ACADEMY
  - CAL POLY                              RICE
  - MICHIGAN                              DARTMOUTH
  - TEXAS A&M                              COLORADO SCHOOL OF MINES
- LEARN FROM THEIR COLLEGE PROGRAMS
- LET THEM SPEAK ADULTING (JOBS, FAMILIES, ETC)