# Suggested Plan of Action for MESA Advisors

**September**

- Attend MESA Advisor Training Institute September 19 & 20 (azmesa.arizona.edu/mati2014)
- RECRUITMENT
  - Promotion: utilize school announcements, school open houses, email, Facebook, Twitter.
  - Seek new students with college aspirations (ask for help from other teachers & admin.)
  - Personally encourage students to come to your first MESA meeting.
- ORIENTATION:
  - Screen MESA videos and ask returning MESA student leaders or MESA alumni to overview what MESA is about, why it is fun, why it matters to them. Ask MESA leaders to briefly share what competitions they competed in last year and what they learned. Describe MESA so all members will remember our main goals: college preparation and simply having fun with math and science.
  - Overview Last Year's Competitions (or this year's competitions, if specifications are already released statewide.)
  - Overview your school's MESA Calendar & Highlights.
  - Overview MESA Student Information Form (SIF) which includes a student enrollment survey, complete contact information, and a section for parent/student signatures. Learn about whether Facebook/Twitter might be a good option for these students. Consider establishing Facebook page or web page to share MESA related links. Ask students to complete online SIF if possible.
  - Learn about personal/career interests of students.
  - Include during first MESA meeting/orientation at least one fun, short icebreaker activities (e.g. edible engineering)
- BEGIN REGULAR SCHEDULED MEETINGS:
  - Introduce Engineering Design Process (use 'Introduction to The E.D.P.' Activity)
  - Group Activities (2-4 students)
    - Continue using fun, short activities that connect to youth interests.
    - Introduce activities in which youth can use engineering design process (explore/design/test) and use their notebooks..
    - Group new with returning MESA members; observe with an eye for how to group members on competition teams.
  - Class/Club Projects
    - Build MESA team-spirit through shared projects (e.g. STEM service learning projects, building a MESA bulletin board, etc.)
  - College Culture. Begin monthly practice of incorporating one short activity or discussion around their college aspirations (e.g. Screen/Discuss video from *startnow.arizona.edu*.)

- Some Suggested Activities

| High School | Middle School |
|---|---|
| Pizza Box Solar Oven | Paper Tower |
| Cantilever | Keep a Cube |
| Design A Glider | Kinetic Sculpture |
| Graphing Motion | Balloon Rocket Cars |
| Pendulum Clock | Body Astronomy |
| Sweet 16 – College Planning | Sweet 16 – College Planning Lesson |

*NOTE: All suggested activities can be found on the Arizona MESA website's Advisors page at http://azmesa.arizona.edu*

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## October

- Continue to discuss the Engineering Design Process
    - Introduce concepts students will need as the begin preparing for competition
    - Show students how to critically and comprehensively read the specifications.
- Have students identify competition interests and build their teams (with your guidance). This is important especially if your students might want to compete in a December MESA Sectionals event.
    - Have students began researching and brainstorming designs.
    - Have students put together notes, research, drawings, etc in a notebook
    - Have students develop of plan of action for design development
- Introduce some activities in which youth can use engineering design process:

| High School | Middle School |
|---|---|
| ○ Solar Water Stills | ○ Careful Reading: Know the Specs |
| ○ Spaghetti Beam Bridge | ○ Spaghetti Beam Bridge |
| ○ Mousetrap Car | ○ Seeing The Wind |
| ○ Careful Reading | ○ Pizza Box Solar Oven |
| ○ Cost of Attendance/Calc Financial Need | ○ Time Management |

## November

- Participate in or Observe Tucson Pumpkin Toss Nov 1 (tucsonpumpkintoss.org)
- Introduce more concepts important to you (or ask returning MESA students to introduce these in the context of the projects they worked on in past years.)
- Consider visiting another MESA team (MS or HS) for a shared STEM activity or project.

## December

- Host and/or have students compete in a local MESA Sectionals
- STEM Career Awareness: Share career options handouts and discuss.
- STEM Controversies: ask students to canvas the news for current events that involve STEM controversies and or compelling ethical issues. Screen a movie or short film relating to STEM.

## January

- Teams re-visit plan of action and set calendar to be prepared for Southern Regional Competition
- Teams build projects based on designs, test, analyze, and generate improvements
- Suggested Activities – High School & Middle School (Intro to Technical Writing)
- STEM Industry Exposure: tour a local engineering or science-related facility

## February

- Suggested Activities – High School (Writing a Technical Paper)
- Participate in Regional Competition (Southern 2/14, Central 2/23); use results to further develop designs for MESA Day

## March and April

- Finalize teams and submit registration for MESA Day.
- Teams finalize designs, formally present their projects to their peers.
- Teams participate in MESA Day, April 18 @ UA

## May

- Teams reflect on performance at MESA Day.
- Youth Recognition and/or End of Year Celebration at Your School (_____)

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