ASM Materials Education Foundation
Mission

“To excite young people in materials, science, and engineering careers.”

Materials Park, Ohio, USA

- Global headquarters
- Unique facility
- World’s largest open air geodesic dome
- Inspired by R. Buckminster Fuller (“Bucky Balls”)
- East of Cleveland, Ohio
- Mineral Garden
WHO IS ASM FOUNDATION?

- Almost 60 years old (founded 1953)
- IRS 501-c-3 not for profit educational foundation charity
- HQ located near Cleveland / Chardon, OH
- Pioneers in STEM teacher training
- Invested $10+ million to date

WHY NEED “STEM”? 

- Economic Survival
- Stiff Global Competition
- US Quality of Life
- Unprepared Future Workforce
- Student skills do not match jobs available
PROJECT PARTNERS

Funds and Operations

• ASM Materials Education Foundation

• US Navy: Office of Naval Research

• Navy League

MISSISSIPPI LOCATIONS

OPERATIONAL
1.) University Southern Mississippi: Hattiesburg
2.) Hancock Vo – Tech HS: Gulfport / Kiln MS
3.) Meridian MS

POSSIBLE / PENDING
1.) Mississippi State University
2.) University of Mississippi - Oxford
OBJECTIVES

• **Recruit + Train** 30 regional STEM Teachers
• **Expose** teachers to practical, simple, affordable, applied STEM
• **Enhance** teaching methods:
  - Project –based
  - Hands-on
  - Guided inquiry
  - Standards - based

KEY FACTS

• **US Navy** – ONR Funded
• **No $ costs** locally
• **Host Academic partner** is vital
• **40+ hours / 5 days** lab –based STEM instruction
• **Hands-on** and physical methods: Actively Engaged in Learning
• **Teacher Focused:** designed, created, tested & evaluated, refined, taught
TURN KEY READY
PROVIDED BY ASM FOUNDATION

1. Team of 2 ASM Master Teacher Instructors
2. 40 boxes of consumable supplies + equipment
3. All curriculum tools
4. Food & beverages
5. CEU’s
6. Graduate credits at cost
7. Free ASM membership / mentors

Unique Features

• **Scalable:** 35 + locations in 2012

• **Effective:** Participant surveys

• **Multiplier Effect:** High impact on students

• **Diverse partners** involved: $ + talents

• **Proven curriculum** and teaching methods
STEM-TM

STEM Thru Materials

Materials are:

• Gateway
• Connector
• Integrator
• Logical
• Engaging

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<tr>
<th>ASM Materials Camp - Teachers</th>
<th>Academic Host Locations</th>
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<tr>
<td>Ashbury College</td>
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11,255 Attendees
450,200 Hours of Impact

MATERIALS CAMP® - Teachers

TO DATE

- 11 years of operations completed
- 160 various Camps held
- 3,778 teachers trained
TO DATE: 160 CAMPS

ASM Materials Camp®
Number of Locations
Total Thru 2011: 346 (Students: 166; Teachers: 160)

Materials Camp®

TARGET AUDIENCES
High school students
High school teachers
MATERIALS CAMP® - Teachers

**Goals**

- Take advantage of “Multiplier Effect”
- Fun = informative classroom experiences
- Low/no cost
- Labs are 100% proven

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MATERIALS CAMP® - Teachers

**IMPACT**

Sample: High School Materials Course Title

- “Materials Science”
- “Materials Science Technology”
- “Chemistry Materials Science”
IMPACT IN HIGH SCHOOLS

– 42% of 270 survey respondents report they are using 4 or more MST labs / demos in their classrooms

– Quite often in Chemistry class

– Integration

OR

– Stand-Alone Materials Science Courses

MATERIALS CAMP® - Teachers

IMPACT

100% Will use in classroom

• “I saw things that I would never have thought of using as a classroom activity.”
PARTNERS
Corrosion Module

MATERIALS CAMP® - Teachers Curriculum

- Materials Science and Technology Teachers Handbook,
  (Pacific Northwest National Lab Battelle Memorial Institute)

- Numerous ASM Resources
MATERIALS CAMP® - Teachers

Core Faculty “Master Teachers”

- 20 + Years in Classroom Experience
- Teach High School Materials Class
- “Teachers Teaching Teachers”

MATERIALS CAMP® - Teachers

Participants Formal Education

- Chemistry
- Physics
- Math
- Industrial Arts (Shop)
- Computer
- Art
RECRUITMENT : A LOCAL RESPONSIBILITY

GOAL: 30 TEACHER ATTENDEES

• OVER RECRUIT 33 to 36 TEACHERS TO COVER TYPICAL ATTRITION

• MAKE MANY PERSONAL CALLS AND PERSONAL VISITS TO SCHOOL LEADERS

• USE NETWORKS TO COMMUNICATE

HOST FACILITY: DONATIONS

• Lab Technology : Support staff time
• Free campus parking
• Campus or local vendors: food service + delivery
• Shipping & Receiving
• Sink in wet lab / work benches
• Safety equipment
• Hot Plates
• Instructional A/V Technology
INDUSTRIAL VISITS

• GOAL: HIGHLY INTERACTIVE SITES

• “UP CLOSE AND PERSONAL”

• WITHIN 30 MINUTE DRIVE OF CAMPUS

• ADVISE OF ALL SAFETY REQUIREMENTS

• ADVISE WHERE TO LOCATE FREE PARKING

• TOUR GUIDES AWARE OF UNIQUE VISITORS KNOWLEDGE AND INFO DESIRES

TECHNICAL LAB STAFF

• “IDEAL SITUATION”: SECURE FULL TIME AND 100% AVAILABLE GRAD STUDENT(S) AS TA

• OPTION TO SLIGHTLY COMPENSATE FOR TIME?

• NEED ACCESS TO ALL LAB FACILITY EQUIPMENT CAPABILITIES

• A LEARNING EXPERIENCE FOR TA
GUESTS AS EXPERTS

• RECRUIT FOR **ON-GOING** DAILY CAMP PRESENCE

• ROLE IS ‘**DEEPER SCIENCE EXPERTS**’

• INVOLVED **ONLY WHEN REQUESTED** BY MASTER TEACHER, SUPPORTING MANNER

PUBLIC & MEDIA RELATIONS

• **AUTHOR** ‘NEWSWORTHY’ PRESS RELEASES TO SECURE LOCAL PRINT AND VISUAL MEDIA COVERAGE

• **AUTHOR** AND SUBMIT OP-ED ARTICLES AND MEMBER LETTER TO EDITOR COPY

• SHARE QUALITY ‘**ACTION**’ PHOTOGRAPHS AND VIDEO CLIPS
FOOD & BEVERAGES

• SECURE **CAMPUS OR EXTERNAL VENDOR CATERING**

• **PROVIDE** DAILY LIGHT BREAKFAST + AFTERNOON SNACK, HEARTY HEALTHY LUNCH

• ATTENTION TO UNIQUE ALLERGIES, DIETARY REQUIREMENTS AND PREFERENCES

• VENDOR TO DELIVER, SECURE (HIDE) AND DISPOSE OF ALL FOOD AND PAPER LEFTOVERS

EVENTS AND CEREMONY

• ORGANIZE **GALA GRADUATION EVENT**

• CONSIDER A **GUEST SPEAKER** KEY DONOR OR CAMPUS HOSTS TO SPEAK BRIEFLY

• **ARRANGE CEREMONIAL PRESENTATION** OF CERTIFICATES TO GRADUATES

• **INVITE** LOCAL DONORS, SCHOOL LEADERS AND MEDIA
SHIPPING/ RECEIVING

• 40+/- BOXES WILL ARRIVE FROM NUMEROUS SOURCES AND ALL WILL NEED:

• SECURED AND STORED

• KEPT NEAR TO CAMPUS LAB / CLASSROOMS

• SURPLUS SHIPPED BACK, DONATED TO PARTICIPANTS OR HOST, STORED FOR NEXT YEAR

MASTER TEACHER SUPPORT

• ARRANGE FOR NEARBY HOTEL
• NEED A VOLUNTEER TEAM TO HELP SET UP SUNDAY PM AND WRAP UP ON FRIDAY PM
• ARRANGE AT LEAST ONE EVENING SIMPLE DINNER WITH LOCAL LEADERS / ORGANIZERS
• IDENTIFY MAP LOCATIONS OF PURCHASES NEEDED FROM NEARBY HOME DEPOT, LOWES, HARDWARE STORES
VISUALS

• CREATE PARTICIPANT **NAME TAGS** PRIOR TO ON-SITE REGISTRATION

• CREATE **DONOR THANKS** PROMINENT LOGOS AND BANNERS

• CREATE AND POST NUMEROUS **DIRECTIONAL SIGNS** FROM PARKING LOT THRU HALLS / STAIRS TO LAB / CLASSROOMS

GENERAL DUTIES

• OWN AND **PERSONALIZE** THE CAMP

• **INVOLVE A TEAM** OF 5 OR 6 VOLUNTEERS

• PLAN AND **THINK AHEAD**

• **ASK** FOR ADVICE EARLY

• MAKE CHECKLISTS AND **FOLLOW UP**
PROGRAM SUMMARY

• 50+ YEARS OF OPERATIONS
• DIVERSE PROGRAMS
• GOAL TO ‘FILL HUMAN PIPELINE’
• VOLUNTARY CONTRIBUTIONS ENABLE ALL OPERATIONS
• 3.5 FULL TIME STAFF
• $10.8 MILLION RESOURCES
• $1 MILLION ANNUAL BUDGET

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