MASS PRODUCTION

OVERVIEW

Participants manufacture a marketable product related to the current year's theme, noted on the TSA website (www.tsaweb.org) under Competitions/Themes and Problems. The team submits a documentation portfolio of the activities and the product—three (3) identical—made during the manufacturing process.

ELIGIBILITY

Participants are limited to one (1) team of a minimum of two (2) students per chapter. Two (2) members of a team must be present at a semifinalist presentation/interview.

TIME LIMITS

The entry must be completed during the current school year.

ATTIRE

TSA competition attire, as described in the National TSA Dress Code section of this guide, is required.

PROCEDURE

A. During the school year, participants should follow these steps in preparing their entry:
   1. Research designs for products related to the current year's theme.
   2. Create working drawings.
   3. Develop a prototype.
   4. Devise a production plan flow chart(s).
   5. Develop a personnel plan with assigned responsibilities.
   6. Tool up for production.
   7. Conduct a trial run and evaluate process effectiveness and efficiency.
   8. Manufacture several products using line production techniques.
   9. Document the team project with a photo timeline.

B. Participants check in their entries at the time and place stated in the conference program. No more than two (2) team members may turn in the portfolio and products.
C. Entries are reviewed by evaluators. Neither students nor advisors are present at this time. A semifinalist list in random order is posted.

D. Representatives from each semifinalist team report to the event room at the time and place stated in the conference program.

E. Semifinalist teams make a presentation to the evaluators to explain the manufacturing process used in the production of the product; the presentation is followed by an interview. The presentation may be up to five (5) minutes in length, and the interview will be no more than five (5) minutes in length. Audio/visual materials may be used in the presentation.

F. Ten (10) finalists are announced at the awards ceremony.

G. No more than two (2) students pick up their team’s entry from the display area at the time and place stated in the conference program.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and competitive event guidelines. This information is found on the website under Competitions/Competition Updates. When students participate in any TSA competitive event, they are responsible for knowing of all updates, changes, and clarifications related to that event.

REGULATIONS

A. Documentation

1. The documentation must be turned in with the product (three identical) at check-in.

2. Documentation materials (comprising a "portfolio") are required and should be secured in a clear front report cover. (Click here for a sample.) The report cover must include the following single-sided, 8½" x 11" pages, in this order:

   a. Title page with the event title, the product name, the conference city and state, the year, and the team/chapter ID number; one (1) page

   b. Table of contents

   c. Description of the product: a written description of the product, instructions for its use, the overall advantages and usefulness of the product, its audience, and related safety considerations; one (1) page

   d. Design efforts: sketches, pictures, magazine clippings, and other graphic design elements used in the
development of the final design; three (3) pages maximum

e. Drawings:
   i. An orthographic drawing in three (3) views with dimensions to aid production; one (1) page
   ii. An assembly drawing or a pictorial drawing with labels; one (1) page
f. Materials list: a list of materials (including sizes and market value) used to fabricate the product; each item or sub-assembly should be identified as student produced, standard stock item, or purchased sub-assembly; one (1) page
g. Tool and machine list: a list of any hand, power, and stationary tools and/or machines used to fabricate the product; one (1) page
h. Production plan: a production outline or flow chart; up to two (2) pages
   i. Photographic verification: photographic or digital images that verify the mass production of the product; maximum two (2) pages

3. All documentation must be contained in the portfolio. Tabs or dividers may be used between sections of the portfolio and are not counted as pages. Sheet protectors may be used.

B. Product (all three identical copies)
   1. Craftsmanship
      a. The product must display good craftsmanship.
      b. The product must maintain tolerances as indicated by the working drawings.
   2. Appropriate materials—the product must use the materials in a manner that adds value to the product.
   3. Efficiency of design—The product must address the identified consumer need, and use the materials effectively.
   4. Aesthetics—The product must be pleasing to view.
   5. Ergonomics—The product must be easy to use.
   6. Appropriate solution—The product must function in a manner that solves the identified problem.
   7. Creativity—The product must display an original solution to the identified consumer need.
   8. ONLY the documentation contained within the portfolio and the three (3) samples of the product may be submitted for judging.
   9. Documentation and the product must fit in a cube that measures 24" deep x 24" wide x 24" high. Should the product(s) exceed any dimension, the result will be a twenty percent (20%) deduction of the total possible points.
EVALUATION

Evaluation is based on the documentation, the product, and the presentation/interview (semifinalists only). Please refer to the official rating form for more information.
STEM INTEGRATION

This event has connections to the STEM areas noted below. Please refer to the STEM INTEGRATION section of this guide.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

LEADERSHIP SKILLS

Leadership skills promoted in this event:

- Creative thinking: Students generate original product ideas based on research. Use leadership activities: Be Prepared! and Fashion Forward
- Organization: Students develop flow charts and other documentation required for a presentation. Use leadership activities: Organizing the Stress Away and Time It
- Teamwork: Students work as a team to create a product with accompanying documentation. Use leadership activities: Find Someone Who... and TV Station

Additional leadership skills promoted in this event:

- Communication
- Evaluation
- Problem solving

TSA AND CAREERS

This competition has connections to one or more of the career areas featured in the TSA AND CAREERS section of this guide. Use The 16 Career Clusters chart and the TSA Competitions and Career Clusters grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

- Electromechanical engineer
- Mechanical drafter
- Production planner
- Standards engineer
MASS PRODUCTION
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL
A. Event coordinator
B. Evaluators, two (2) or more

MATERIALS
A. Coordinator’s packet, containing:
   1. Event guidelines, one (1) copy for the coordinator and each evaluator
   2. TSA Event Coordinator Report
   3. List of evaluators/assistants
   4. Marking pens for evaluators
   5. Stick-on labels for identifying entries
   6. Results envelope with coordinator forms
B. Tape measure to determine the size of the product
C. Display tables for entries
D. Chairs for event coordinator and evaluators

RESPONSIBILITIES
A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator’s packet. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.
B. Inspect the area(s) in which the event is to be held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.
C. Check in the entries at the time stated in the conference program. Anyone reporting who is not on the entry list may check in only after official notification is received from the CRC. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant’s control. Requirements for attire do NOT apply during check-in.
D. Each entry must include the participant’s identification number in the upper right-hand corner of the entry. Position documentation and products for viewing by evaluators.
E. Meet with evaluators/assistants to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the event manager before the event begins.

F. For participants who violate the rules, the decision either to 1) deduct twenty percent (20%) of the total possible points or 2) disqualify the entry, must be discussed and verified with the evaluators, event coordinator, and CRC manager, who all must initial either of these actions on the rating form.

G. Evaluators independently assess the entries.

H. Submit semifinalist results to the CRC for posting.

I. Evaluators independently assess the semifinalist entries.

J. Evaluators determine the ten (10) finalists and discuss and break any ties.

K. Submit the finalist results and all related forms in the results envelope to the CRC room.

L. If necessary, manage security and the removal of materials from the event area.
### MASS PRODUCTION

**2016 & 2017 OFFICIAL RATING FORM**  
**MIDDLE SCHOOL**

**Static Entry (110 points)**

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>Minimal performance</th>
<th>Adequate performance</th>
<th>Exemplary performance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Portfolio</strong></td>
<td>Portfolio is missing several components and/or is unorganized; it is messy and lacking quality.</td>
<td>Most components are included; portfolio is generally organized and displays some quality.</td>
<td>All components are included; effort and quality of work are evident.</td>
</tr>
<tr>
<td><strong>Description of product</strong></td>
<td>Description of the product and instructions for its use are unclear.</td>
<td>Description of the product and instructions for its use are defined and explained.</td>
<td>Description of the product and instructions for its use are defined and explained precisely.</td>
</tr>
<tr>
<td><strong>Instructions for use</strong></td>
<td>(X1)</td>
<td>(X1)</td>
<td></td>
</tr>
<tr>
<td><strong>Design efforts</strong></td>
<td>Most design effort components are missing, and/or they are unorganized; they are messy and lack quality.</td>
<td>Some design effort components are included; they are generally organized and display overall quality.</td>
<td>Design effort components are included; effort and high quality of work are evident.</td>
</tr>
<tr>
<td><strong>Design efforts</strong> (X1)</td>
<td>(X1)</td>
<td>(X1)</td>
<td></td>
</tr>
<tr>
<td><strong>Working drawings</strong></td>
<td>Working drawings are sloppy and disorganized; they do not demonstrate labeling and dimensioning.</td>
<td>Working drawings are of sufficient quality, and most are labeled and dimensioned.</td>
<td>Working drawings are of excellent quality and are correctly labeled and dimensioned.</td>
</tr>
<tr>
<td><strong>Working drawings</strong> (X1)</td>
<td>(X1)</td>
<td>(X1)</td>
<td></td>
</tr>
<tr>
<td><strong>Materials list</strong></td>
<td>Lists are missing several components, and/or they are unorganized.</td>
<td>Most components are included; the lists are generally organized and complete.</td>
<td>All components are included and organized in the lists.</td>
</tr>
<tr>
<td><strong>Tools and machines list</strong></td>
<td>(X1)</td>
<td>(X1)</td>
<td></td>
</tr>
<tr>
<td><strong>Production plan</strong></td>
<td>Plan is missing several components, and/or it is unorganized.</td>
<td>Components of the plan are mostly included, and the plan is generally organized.</td>
<td>All components are included and well-organized in the plan.</td>
</tr>
<tr>
<td><strong>Production plan</strong> (X1)</td>
<td>(X1)</td>
<td>(X1)</td>
<td></td>
</tr>
<tr>
<td><strong>Photographic verification</strong></td>
<td>Photographic verification is not complete, and/or images are missing.</td>
<td>Photographic verification is complete, and the quality of images is adequate.</td>
<td>Photographic verification is clear and supports all aspects of the process.</td>
</tr>
<tr>
<td><strong>Photographic verification</strong> (X1)</td>
<td>(X1)</td>
<td>(X1)</td>
<td></td>
</tr>
<tr>
<td><strong>Product</strong></td>
<td>Product is not built to detailed standards; it is poorly constructed and finished; it lacks creativity and imagination.</td>
<td>Product is somewhat built to detailed standards; the design is satisfactory and works, and creativity or uniqueness are somewhat apparent.</td>
<td>Product is built to detailed standards, and it is of a quality that could be purchased by a consumer; the design is unique and demonstrates creativity.</td>
</tr>
<tr>
<td><strong>Product</strong> (X2)</td>
<td>(X2)</td>
<td>(X2)</td>
<td></td>
</tr>
<tr>
<td><strong>Product functionality</strong></td>
<td>Little specific functionality per the original specification is demonstrated.</td>
<td>The product meets some of the functionality per the original specification.</td>
<td>The end product exhibits functionality as per the original specifications.</td>
</tr>
<tr>
<td><strong>Product functionality</strong> (X1)</td>
<td>(X1)</td>
<td>(X1)</td>
<td></td>
</tr>
<tr>
<td><strong>Tolerance of examples</strong></td>
<td>Materials are not joined cleanly and are not consistent with working drawings.</td>
<td>Materials are somewhat joined cleanly and are fairly consistent with working drawings.</td>
<td>Materials are joined cleanly and are consistent with working drawings.</td>
</tr>
<tr>
<td><strong>Tolerance of examples</strong> (X1)</td>
<td>(X1)</td>
<td>(X1)</td>
<td></td>
</tr>
</tbody>
</table>

**SUBTOTAL (110 points)**

Rules violations (a deduction of 20% of the total possible points for the above section) must be initialed by the evaluator, coordinator and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____________________
<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>Minimal performance (1-4 points)</th>
<th>Adequate performance (5-8 points)</th>
<th>Exemplary performance (9-10 points)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organization</strong></td>
<td>Participants seem unorganized and unprepared for the presentation/interview; illogical explanation of the product is presented; team exhibits difficulty with the use of audio/visual materials.</td>
<td>Participants are generally prepared for the presentation/interview; explanation of product is communicated and generally organized; audio/visual materials are used somewhat effectively.</td>
<td>The presentation/interview is logical, well organized, and easy to follow; explanation of the product is communicated in an organized and concise manner; the use of audio/visual materials is effective, organized, and logical.</td>
</tr>
<tr>
<td>Use of audio/visual materials (X1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Knowledge</strong></td>
<td>Participants seem to have little understanding of the concepts in their project; the presentation, does not clearly define the product; answers to questions may be vague.</td>
<td>Participants exhibit an understanding of the concepts in their project; the presentation is for the most part, logical and/or clear.</td>
<td>Participants show clear evidence of a thorough understanding of the project; the presentation is concise and logical.</td>
</tr>
<tr>
<td>(X2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Articulation</strong></td>
<td>The presentation/interview lacks clarity, and/or there is insufficient information provided describing the project.</td>
<td>The presentation/interview is somewhat logical, easy-to-follow, and/or there is sufficient information describing the project.</td>
<td>The presentation/interview is clear, concise, and there is ample information describing the project.</td>
</tr>
<tr>
<td>(X1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Integration of theme</strong></td>
<td>The current theme is not demonstrated in the product and/or the product is not realistic/functional.</td>
<td>The current theme is adequately demonstrated in the product, and the product is generally realistic and functional.</td>
<td>The current theme is exceptionally well demonstrated in the product, and the product is extremely realistic and functional.</td>
</tr>
<tr>
<td>(X2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Delivery</strong></td>
<td>The team is verbose and/or uncertain in its presentation/interview; participants’ posture, gestures, and lack of eye contact diminish the presentation/interview.</td>
<td>The team is somewhat well-spoken and clear in its presentation/interview; participants’ posture, gestures, and eye contact are acceptable in the presentation/interview.</td>
<td>The team is well-spoken and distinct in its presentation/interview; the participants’ posture, gestures, and eye contact result in a polished, natural, and effective presentation/interview.</td>
</tr>
<tr>
<td>(X1)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUBTOTAL (70 points)**

Rules violations (a deduction of 20% of the total possible points for the semifinalist section) must be initialed by the evaluator, coordinator and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: ______________________

(To arrive at the **TOTAL score**, add any subtotals and subtract rules violation points, as necessary.)

**TOTAL (180 points)**

Comments:

I certify these results to be true and accurate to the best of my knowledge.

Evaluator

Printed name: ___________________________ Signature: ___________________________