

Camp Directors, Staff, and Instructors—The following information will be helpful in planning your summer manufacturing camp. Please read through the materials carefully. Contact the NBT Foundation office at foundation@fmanet.org or (888) 394-4362 with any questions.

Camp Objectives, Learning Activities, and Desired Outcomes:

- To introduce students to the world of manufacturing through hands-on projects made in real “shop” facilities, presentations by industry professionals regarding careers and training, and site visits to manufacturing facilities.
- To introduce students to basic entrepreneurial concepts and skills.

Approximately 80% of contact time should be spent on manufacturing skills, process, projects, and facility tours while 20% of contact time should be spent on introduction of entrepreneurial concepts and skills. Some of the entrepreneurial content can effectively be delivered by guest presenters during plant tours or at the camp location, as well as during evaluations of the projects built by students. Several entrepreneurship lessons contained in these materials have been designed as homework so students can get their parents and family involved.

Expected learning activities:

1. Students receive a camp safety manual provided by NBT, they are guided through a basic shop safety lesson, and they learn how to practice appropriate shop safety.
2. Students learn basic computerized product design using CAD software (student licenses of SolidWorks® will be provided by NBT if requested by the camp).
3. Students manufacture a product—start to finish—using manufacturing equipment, hand tools, and other appropriate aids.
4. Students explore and gain a basic understanding of the challenge of an inventor/entrepreneur in taking a product from idea to business. Lessons are provided in the curriculum on topics such as new product creation, pricing, marketing/advertising, etc.
5. Students learn about the types of manufacturing jobs available in the local community through tours of local manufacturing companies, presentations and mentoring by local manufacturing professionals, and other appropriate activities.
6. Students learn about the teamwork required in an effective manufacturing work environment.
7. Students gain an understanding of the kinds of academic and technical training they will need (in high school and beyond) to prepare themselves for 21st century manufacturing careers.

Preparation and Responsibilities Before, During, and After Camp:

Prior to camp:

- The staff members who will teach the camp need to determine an appropriate project for the campers to make. A list of product ideas successfully completed in previous camps is provided as an appendix.
- The school that is offering the camp is responsible for marketing to their local community and registering the students for the camp. NBT will provide customized marketing materials and resources for each camp location. In addition, camps will be posted on the NBT website and promoted through NBT media channels.
- Camp staff will arrange to purchase or obtain donated materials needed to complete the manufacturing project.
- If the camp does not already have the capacity to allow students to work with CAD software, NBT will provide student-version SolidWorks® CAD design software licenses in sufficient quantity to meet the needs of the camp. These 365-day licenses are donated by SolidWorks through its sponsorship with Nuts, Bolts & Thingamajigs. Donated software can be installed on students’ personal computers only. Schools that have purchased SolidWorks through a reseller can download the trial student version software for use during the NBT camp. On the marketing form, camps must notify NBT if they wish to receive the SolidWorks licenses and provide the number of participants.
- Camp staff prepares shop equipment, hand tools, and other elements of the work area to facilitate smooth and efficient movement by students from one phase to another of the product manufacturing process.
- Camp staff arranges visits to local manufacturers, confirms guest speakers, etc.
- Camp staff requests financial support from local manufacturers, community organizations, economic development groups, and other local agencies and businesses which can supplement the grant provided by NBT and the tuition collected from students.

During the camp:

- On or before the first day of camp, staff must obtain signed photo release forms for each participant from parents/guardians (provided in appendix).
- On the first day of camp, participants will take the pre-camp survey online.
- Staff arranges to document camp activities in photos which will be shared with NBT for inclusion on the foundation's website, in magazines published by FMA, through NBT's social media, and in promotional and fundraising materials produced by NBT. Tips for taking great photos and video are provided in the appendix.
- Staff should also consider recording some of the camp activities to create a promotional video that can be shared on the college's Facebook page, the NBT Facebook page, and/or YouTube channel. Videos can also be great tools for recruiting students into a camp in the future. Examples of camp videos can be found at www.nbtfoundation.org/camps.

Tip: Many schools' communications department offer videography courses and students from these classes are always looking for opportunities to create projects for a portfolio. These are often great videographers and they might take on a project like this for little or no charge.

- On the last day of camp, participants will take the post-camp survey online.

After camp has ended (within 30 days of the final day of camp):

- The director or staff will complete the online evaluation survey and submit a complete financial report in order to receive the second grant payment.
- Provide contact information for local supporters, manufacturers, entrepreneurs, speakers, tour locations, and donors.
- Submit/upload photos and video files via NBT's file sharing site as outlined below:
 1. Before uploading, ensure that all files are in the appropriate format as outlined on the tips sheet and rename all photos/videos with your school or camp name to identify your files.
 2. Go to: www.nbtfoundation.org/uploadcamps
 3. Enter your info on the first screen, click Continue, browse your computer to add camp photos and video files, then click Upload. That's it—you're done!

If you need assistance or have questions, contact:

Daunel Czarnecki

Nuts, Bolts & Thingamajigs®
2135 Point Blvd.
Elgin, IL 60123

daunelc@fmanet.org

(815) 227-8222

PREVIOUS CAMP MANUFACTURING PROJECTS AND IDEAS

THE FOLLOWING REPRESENT THE KINDS OF PROJECTS THAT WERE CONSTRUCTED IN PAST CAMPS:

- Electric Guitar
- Key chains
- Dice and chess pieces
- Windmill
- Soda can airplane
- Bridge
- Rube Goldberg project
- Assemble robots
- CD/DVD holders
- Ball-drop game
- Picture frames
- Jet toys, steel-can rovers
- Personal electronic device holder (cell phone, iPod)
- Single hole paper punch
- Grill
- Candle holders
- Metal candle holder
- Rose flower
- Storage box
- Star
- Plant holder
- Radio-controlled car
- Lawn ornament
- Aluminum accent lamp
- Dog tags as jewelry, luggage, or pet ID tags
- Hover craft
- Machined game
- Brass ink pen
- Mill-spec dominos
- Tool box
- Bottle opener
- Table lamp
- Children's swing
- Functional metal art objects
- Pliers
- Wrought-iron end table
- Horseshoe coat hook
- Trivet/hot plate
- Small decorative welded project
- Mailbox
- Metal organizer for electronics components
- Finger rings
- Aluminum engraved desk plate
- Accent lamp
- Welded artwork
- Robot
- Hammer
- Thermoformed plastic projects: bottles, cup holders
- Functional metal art for placement in community
- Power tool dragster
- Model-size motorcycle
- Wind turbine
- Clock

PHOTO TIPS AND FORMATS

SOME TIPS TO REMEMBER WHEN TAKING PHOTOGRAPHS:

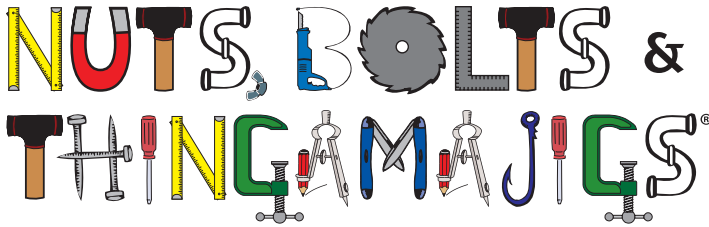
1. **Move in close** – don't be afraid to get close to take a picture. Remember zoom only goes so far before the picture becomes blurry.
2. **Watch the light** – be conscious of where light is falling on your subject. Try to avoid harsh light that will distort your photo don't be afraid to move yourself or the subject to get better lighting.
3. **Be conscious of what is in the background** – be aware of what is in the background that could become distracting or make it appear as though things are “growing” from your subject. Whenever possible try to get a plain background.
4. **Become a picture director** – don't be afraid to set up a shot or ask the kids to pose for a photo, be creative! Also remember to position the shot to get as many faces as possible—not backs of heads.
5. **Take some vertical photos** – switch it up a bit and see what new angles you can get.
6. **Remember the following when submitting photos:**
 - Photos should originate from a 300dpi file (set camera on middle to high quality/resolution setting).
 - JPG and/or TIFF files are preferred and BMP files are acceptable. Unacceptable files include GIFs and photos embedded in a Word document.
 - Please do not resample images to be lower than 300dpi.

SOME TIPS TO REMEMBER WHEN TAKING VIDEOS:

1. **Avoid zooming in and out too much** – Use the zoom in and out feature sparingly. A slow, well-controlled zoom is much more professional looking than a quick zoom. In between scenes you can move the camera closer or further away instead of zooming.
2. **Steady the camera** – Use a tripod if possible. Alternatively, you can brace yourself against something like a wall, or stoop down on your knee while shooting.
3. **Lighting** - Nothing spoils a video shoot as much as poor lighting. Turn on lights or move near a window if possible. One important tip is to shoot video with the light source behind you, shining on the subject.
4. **Sound** - Use an external microphone if possible. When using the camera's mic, get in closer so you won't pick up as much background noise. Record some extra footage describing what you are filming. It could be used to substitute for bad audio on a good clip.
5. **Where are you?** - Look for a landmark, a company sign, or even a name on a T-shirt that tells the audience where you are. This makes the whole video more interesting.
6. **Change your perspective** - Don't limit your shots to one angle only. Record your subject from different angles. Capture facial expressions.
7. **When submitting video to NBT please be aware of the following:**
 - Videos submitted as a Flash .flv format, must be the correct size: 360 x 240px or 360 x 270px.
 - Videos submitted as one of these file types: .avi, .dv, .mov, .mp4, .mpg, or .wmv will be converted to the Flash. flv format and resized to 360 x 240px or 360 x 270px.
 - Please also provide a title and brief description of the video.

SUBMIT/UPLOAD PHOTOS AND VIDEO FILES VIA NBT'S FILE SHARING SITE AS OUTLINED BELOW:

1. **Before uploading**, ensure that all files are in the appropriate format as outlined on the tips sheet and rename all photos/videos with your school or camp name to identify your files.
2. Go to: www.nbtfoundation.org/uploadcamps
3. Enter your info on the first screen, click **Continue**, browse your computer to add camp photos and video files, then click **Upload**. That's it—you're done!



The Foundation of the Fabricators & Manufacturers Association, Intl.

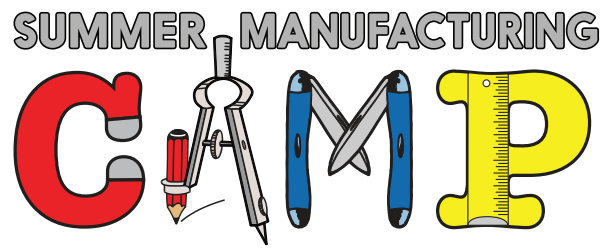


PHOTO RELEASE FOR SUMMER MANUFACTURING CAMP PARTICIPANTS

I hereby authorize Nuts, Bolts & Thingamajigs (NBT), its affiliates, successors and assigns (collectively the "Company"), the right to take, utilize and/or publish (i) photographic, digital or video images of myself and/or the minor child or children listed below, (ii) our names and likenesses, (iii) artwork produced by my child during the camp, and (iv) comments submitted as a result of my child's camp experience (collectively the "Images and Statements") for use in the Company's print, online and video-based marketing materials, as well as the other Company publications listed below.

I hereby release, discharge, and agree to hold harmless the Company, its directors, officers, employees, and agents from any liability, whether intentional or otherwise, that may occur or be produced in the development of any media created and used by the Company, as well as the publication of such media, including without limitation any claims for libel or violation of any right of publicity or privacy or copyright infringement claims. I hereby waive any right that I may have to inspect or approve any finished copy, photograph, or other media that may be developed and used by the Company. I further waive any right to royalties or other compensation arising or related to the use of the Images and Statements. I attest that I am the parent or legal guardian of the child or children listed below and that I have full authority to consent and authorize the Company to use the Images and Statements.

Authorized Publications: Any of the magazines published by the Fabricators & Manufacturers Association (FMA) and its publishing company, FMA Communications, as well as the websites of those organizations and the Nuts, Bolts & Thingamajigs foundation. In addition, the quarterly newsletters of NBT and the social media channels maintained and managed by the aforementioned organizations.

Camp Location (School) _____ Date _____

Attendee Name(s) _____

Parent/Guardian Signature _____

Print Parent/Guardian Name _____

Camp staff: Make copies of this page and distribute on or before the first day of camp. Please collect a signed release form for each camp participant then scan and FAX to Daunel Czarnecki at (815) 227-8222 or UPLOAD to www.nbtfoundation.org/uploadcamps.

EXAMPLE: PRE-Camp Survey

NOTE: Pre- and Post-camp surveys are administered online. The example is provided as reference only.

Which camp are you attending?

Indicate how strongly you agree with each of the following statements:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
a. I am confident in my ability to design a product using a computer software program.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. I am confident in my ability to construct a product start to finish using manufacturing equipment and tools.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. I understand the challenges of taking a product from an idea to a business.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. I know the types of manufacturing jobs available in my local community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. I understand the training needed for a future manufacturing career.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. I understand how people work together to create an effective manufacturing work environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. I am confident in my ability to practice appropriate shop safety.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. I would consider pursuing a career in manufacturing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. I would consider starting my own business (being an entrepreneur).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Manufacturing is essential to the global economy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Manufacturing careers offer high paying jobs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. People can use their creative skills in manufacturing careers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How did you hear about the camp?

- A friend
- A teacher
- A school counselor
- A parent
- A newspaper
- TV
- Other: _____

What do you expect to learn from this camp?

EXAMPLE: POST-Camp Survey

NOTE: Pre- and Post-camp surveys are administered online. The example is provided as reference only.

Which camp did you attend?

Indicate how strongly you agree with each of the following statements:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
a. I am confident in my ability to design a product using a computer software program.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. I am confident in my ability to construct a product start to finish using manufacturing equipment and tools.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. I understand the challenges of taking a product from an idea to a business.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. I know the types of manufacturing jobs available in my local community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. I understand the training needed for a future manufacturing career.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. I understand how people work together to create an effective manufacturing work environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. I am confident in my ability to practice appropriate shop safety.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. I would consider pursuing a career in manufacturing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. I would consider starting my own business (being an entrepreneur).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Manufacturing is essential to the global economy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Manufacturing careers offer high paying jobs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. People can use their creative skills in manufacturing careers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m. I would recommend this camp to a friend.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
n. I would enroll in this camp next summer if an advanced program was offered.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Overall, how satisfied are you with the summer camp?

- Very Satisfied
- Satisfied
- Neutral
- Dissatisfied
- Very Dissatisfied

My favorite part of camp was (select one):

- Operating equipment or machinery
- CAD/CAM (Design work)
- Welding
- Entrepreneurship activities
- Touring local manufacturers
- Guest speakers
- The instructors
- Special projects
- Other: _____

How would you improve the summer camp?

Describe your experience at this camp:

FINAL EVALUATION SURVEY AND FINANCIAL REPORT

Within 30 days of the last day of a camp, directors must complete the online evaluation survey and provide a financial report to NBT in order to receive the second installment of the camp grant funding. The following survey examples are provided as reference only – please do not complete this form.

FINAL EVALUATION SURVEY

1. Provide the following summary information:

Name of Camp:

Location (School):

Starting/Ending Dates:

Contact Person (Include name, address, phone, fax, E-mail):

Include Local Sponsoring Organization(s) **(organizations and/or companies that provided financial or in-kind support.)**

(Include name, address, phone, fax, e-mail, and web address)

This report prepared by:

Report date:

2. How many students registered and **completed** your camp program?
3. Please give an honest general assessment of the degree to which this project was successful in fulfilling the two program objectives as stated in the Camp Objectives and Learning Activities.
4. List each of the goals and objectives and beneath each, state the degree to which it has been accomplished. Be sure to include any adjustments made to the original goals or objectives. Comment on factors that contributed to accomplishing, exceeding, or not accomplishing your original goals and objectives.
5. List any additional goals and objectives established since the grant was approved. Use the procedure outlined in item #4 to address the degree to which each was accomplished.
6. What major changes (if any) did you make in procedures and activities after the beginning of the camp?
7. Were there unexpected successes, strengths, and benefits of this program?
8. What major obstacles or problems did you encounter?
9. What new ideas for improving this program or ideas for other programs surfaced as you learned from this project?
10. Overall, what have you learned from this camp? How will it impact the manufacturing industry and entrepreneurship in your community? What advice or encouragement can you offer to others who may attempt a similar effort?
11. Did the camp program help your organization to build or strengthen relationships in the local manufacturing community? Have those relationships led to offers of local support (in donations or in-kind) to support NBT camp activities in coming years?
12. Provide contact information for all local manufacturers who have participated in your camp in any way (i.e., served as a speaker, hosted a plant tour, served as a mentor or volunteer, and/or provided funds/goods/services to enable a camp activity.) Please include the following:

Company	Contact Name	Street, City, State, Zip	Phone	Email	Co. URL

13. Share the story of at least one individual (or more if possible) who has been directly impacted through this camp (a story other than what may have been submitted previously or with other reports.) Please use initials rather than the person's name to respect his/her privacy. How has the camp experience made a difference in the life of this person?
14. Please include a written entrepreneur profile and include a video of at least one entrepreneur/manufacturer presenter.
15. Please comment on your partnership with the Nuts, Bolts & Thingamajigs during the course of this camp experience. How were you helped through this partnership? How could NBT have more effectively served you?

CAMP FINANCIAL REPORT

Name of Camp: _____ **Last Date of Camp:** / /

Name of Organization: _____

STATEMENT OF PROJECT REVENUES AND EXPENSES

	NBT Grant	Registration Fee	Grantee's Funds	Other Sources	In-Kind	Total
TOTAL REVENUES						
EXPENSES						
Salary/Benefits (list)						
Contract Services						
Facility Rent/Lease						
Utilities						
Capital/Equipment						
Supplies/Materials						
Travel						
Printing/Publicity						
Other						
TOTAL EXPENSES						
EXCESS REVENUE OVER EXPENSES						

CERTIFICATION BY PROGRAM DIRECTOR: I have reviewed the above statement of revenues and expenses and find it to properly reflect the financial status of the named grant.

Signature: _____ Date: _____