

# The Cardinal Way



Starting and Operating a School Based Enterprise

Completed December, 2014

Eleva-Strum School District, Wisconsin

[www.CardinalManufacturing.org](http://www.CardinalManufacturing.org)



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# Introduction

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Cardinal Manufacturing, a student run manufacturing operation or School Based Enterprise (SBE), began in the Eleva-Strum School District during the 2007-2008 academic year when instructor, Craig Cegielski, approached the School Board about the potential of pursuing an in-school manufacturing business similar to one he started in his prior school district in Antigo, WI.

The school board approved and since that time Cardinal Manufacturing has gone from its infant stages to a company which had more than \$70,000 in income during the 2013-14 academic year. The growth of the program has attracted national and international attention and Cardinal Manufacturing has attended national tradeshow and hosted celebrity guests including Wisconsin's Governor, Scott Walker. Cardinal Manufacturing has served hundreds of customers from private individuals to clients throughout the state of Wisconsin and other parts of the country. A number of students have gone directly to skilled employment positions after high school, but most choose to go on to post-secondary education through technical college or the university system. Chippewa Valley Technical College and UW-Stout have taken a particular interest in the program.

Craig Cegielski, instructor and founder and Craig Semingson, District Administrator, are contacted by hundreds of individuals each year who have an interest in starting or enhancing their in-school manufacturing programs.

In-school manufacturing programs such as Cardinal Manufacturing serve as a grassroots economic development effort. Not only do these programs expose students to career opportunities in manufacturing, but they also work toward changing the attitudes of counselors and parents to be more open to the idea of encouraging students to look at manufacturing careers. Students get hands-on opportunities to try out these roles before making an expensive decision in choosing a post-secondary program. In other words, kids get the chance to try welding, machining, construction, office management, and marketing prior to committing to a major or area of study.

This binder will attempt to cover the most common questions school districts have when starting up or growing their in-school manufacturing programs.

Completed December, 2014

# Planning/Beginning

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## Step One: Situation Analysis

The Eleva-Strum School District was very supportive of the idea of Cardinal Manufacturing from the moment it was proposed by instructor, Craig Cegielski. This isn't always the case and many districts have numerous questions and ask for written plans and documentation of other programs prior to supporting the idea. While Cardinal Manufacturing did not have to officially go through these steps, we understand that many organizations have to do so.

### **Situation Analysis**

The first step most districts go through is a situation analysis. This can be done on your own or with the help of students or volunteers. Critical questions you need to answer during this step include:

Facility analysis-Does your district currently have the physical space needed to pursue an in-school manufacturing program or are there plans to expand your physical space to accommodate one?

- Take a careful inventory of any space available in your district facilities that may be available.
- Take an inventory of tools and equipment and start a wish list.
- Develop a list of improvements that could be made to your space during class time (building of dividers, cleaning, painting, or other space maintenance)
- Create an initial budget for items that would be needed right away such as paint or cleaning supplies, raw materials, new tools and prioritize that list.
- Start to develop a list of repair or manufacturing projects that could be accomplished in your current facilities and with your current equipment.
- Keep track of all information in a centralized file.

Private-sector support-Do you have any local businesses who might be interested in working with you? This is the time to begin to seek out private industry connections for your project.

Course development-Do you have the courses in place for proper prerequisites and can you craft a curriculum to match this program?

Budgeting-Is there a way to create the seed funding needed for your initial projects? Now is the time to determine what your initial projects will be and how much income might be generated by sale of goods or services from your program.

### **Creation of a Steering Committee**

Often times creating a manufacturing program in a school district takes hard work and dedication by a few key individuals. Eleva-Strum's Cardinal Manufacturing Program was created through informal partnerships and cooperation, although most districts need to create a formal committee. Our best suggestions when creating your team include approaching individuals in the following roles:

- School District Representative (most likely the Technology Education teacher)
- Local Economic Development person, if available
- Local Technical College participant, particular an outreach person or business & industry specialist

- Local Manufacturing Manager or company owner

These key individuals can bring wide-ranging experience and resources to the new entity from public and private sector experiences. Educational connections and economic development groups may provide in-kind services such as consulting or volunteer hours or they may have access to grant funds or political support for your new program. Private industry representatives have a vested interest in workforce development and generally have an interest in investing in improving the quality and quantity of the incoming workforce. Private industry partners are also an important source of work projects for the entity as well as for donations of used equipment and tools.

All key individuals on a steering committee can bring various resources to the project and also help garner community support by addressing the school board and private and public groups.

### **Preliminary Plan Creation**

An early presentation to the administration should include:

- Needed physical changes to school district facilities, if any
- Necessary additions to current curriculum including prerequisite allowances
- Curriculum of new course including references to state standards for technology education
- Letters in support of program development from local businesses
- Statements of support from potential students and parents for the program
- Initial budget or seed money needed to begin the program and possible grants or donors who might assist

For further information and resource materials concerning planning and starting School-Based Enterprise visit [www.GoldCollarCareers.com](http://www.GoldCollarCareers.com)

# Academic Coursework

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Course Description from Eleva-Strum Student Handbook:

Cardinal Manufacturing

Prerequisite: Metal Working I & II and instructor permission

2 Credits

Grades 11 and 12

This class will run for two periods a day for the whole year being worth two credits. This class will operate its own student run business out of the high school machine shop. The class will focus on all aspects of today's manufacturing industry. Students will use previously learned skills from metals lab 1 and 2. The students will be responsible for quoting jobs, ordering material, manufacturing parts, quality control, shipping, receiving, invoicing, customer service, accounting, keeping track of hours, maintaining equipment, and everything else it takes to run a business. The class will also be generating funds to help further our tech. ed. program, and pay a percentage back to students for working hard and smart.

Objectives:

1. Teach career success principles
2. Advance technical skills
3. Understand operations of business
4. Teambuilding
5. Enhance customer service skills and learn professional manners
6. Career opportunity awareness
7. Project management
8. Emulate real manufacturing operations

WI Standards for Technology & Engineering

Six Wisconsin Common Core Technical Standards

1. Career Development
2. Creativity, Critical Thinking, Communication and Collaboration
3. Environment, Health and Safety
4. Global and Cultural Awareness
5. Information, Media & Technology
6. Leadership

Through daily work interactions, Cardinal Manufacturing seeks to meet the Wisconsin Core Technical Standards as listed above. When reviewing the MNF1 Standards, each standard is met and applied through daily operations of Cardinal Manufacturing.

Cardinal Manufacturing is a 36-week course. The course is designed to satisfy the Manufacturing Standards set forth by the Wisconsin Dept. of Public Instruction through daily real world manufacturing experiences in a School-Based Enterprise.

Review of Safety, Shop Education, and Measurement take place at the beginning of each term as outlined in Standards MNF 1.a through 1.b. Students entering the course should have a background in these topics because of prerequisite requirements.

A great deal of the time in Cardinal Manufacturing is spent reinforcing employment skills outside of the technical skill area, often referred to as soft skills. Every day students review skills such as:

- Positive attitude
- Reliability and punctuality
- Diligent work
- Getting along and respect for other abilities and cultures
- Doing more than expected
- Flexibility
- Problem solving
- Teamwork-pride in the organization
- Continual learning
- Personal responsibility and good citizenship
- Focus-keeping non-work distractions such as cell phones to a minimum
- Professional etiquette including handshakes, neatness, good manners, and more

These efforts support all of the standards MNF 1.c.

Routine projects for Cardinal Manufacturing present daily and weekly opportunities for covering MNF 1.d standards. Each time a new project is presented to Cardinal Manufacturing a discussion about the project takes place during the first 10-15 minutes of class. The class discusses the process to manufacture the product, materials needed, what tools will be needed, how to best create this product, whether it is durable or non-durable, and other details about the project.

Daily meetings about projects expand into covering standards MNF 1.e as the methods for creating the product are further discussed. If a new technique is required for the project, demonstrations and further research take place at this time.

The overwhelming majority of day to day operations of Cardinal Manufacturing focus on the remaining MNF standards. As projects are presented the instructor covers the origin of products, technologies required to manufacture items, the importance of maintenance, and other background information. Specifics about welding are covered related to particular projects. Machining, robotics, safety, and advanced techniques for welding and machining. These standards are outlined in MNF 1.f through MNF1.h.

The routine flow of projects virtually ensures that all of the topic areas are covered during the course of a year. In order to ensure that all topic areas are covered, Cardinal Manufacturing does manufacture a few of its own projects throughout the year including items needed for its own use, items to sell such as flip flop grills, and repairs to its own equipment. Because of the changing workflow of projects based upon customer needs, standards are checked off as they are covered. Any standards missed through client project work are filled in as needed. Progress on teaching the standards is reviewed each month by the instructor/advisor.

# Community Partnerships

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When pursuing an in-school manufacturing program, creating meaningful partnerships with businesses, other local entities, other programs within your school, post-secondary institutions and more is a critical ingredient to long term success.

First, determine who you need to get to know and partner with. Start a list of area companies other instructors at school, parents of students who might be business owners or work in some of the companies of interest, instructors in affiliated programs at the nearest technical college or professors at area universities, and more.

## Area Companies:

Most manufacturing companies experience challenges recruiting entry level employees and people to fill skilled labor positions. Many are seeking ways to help alleviate the worker shortage and are open to partnering with educational institutions both to provide input on programs and also to have exposure to students and graduates for future work/employment opportunities. Look to the immediate community and surrounding communities first.

The best first contact person at area companies is usually the human resources manager. Depending upon the size of the company or the focus of your organization you may wish to contact the owner, office manager, or production manager. When approaching area companies it is best to explain your program and plans and begin by asking for input. Ask area firms what kinds of skills are important to instill (soft skills, particular technical skills, etc.) in students. Ask if they would be willing to host field trips or send a guest speaker to talk about careers at their company. Ask key personnel if they would be interested in acting in an advisory role as your program takes shape. There are numerous ways in which an area company can be a help to your organization without making monetary donations.

As you build more and stronger relationships with companies, you are likely to find that they want to do assist your organization in more practical ways such as through donations or paid projects for your students, internships, and more. **See the forms section for specific suggestions for approaching companies.**

## Post-Secondary Education:

Creating good working relationships with area technical colleges and universities is important for linking students with future career and educational goals. Start with instructors in the program areas where students are most likely to be interested in after high school. Cardinal Manufacturing, for example, has a wonderful relationship with department heads in the manufacturing, machining and welding programs at Chippewa Valley Technical College. Cardinal Manufacturing also has many connections with UW-Stout and their Technology Education program as well as manufacturing engineering, packaging engineering and more. Consider asking some of these individuals to serve in an advisory role for the program either as part of an official board or as an occasional advisor for special cases.

## Other Teachers or Parents:

The talent or advice needed to take your program to the next level might be found in another department at school or through the involved students. Consider utilizing the talents of other instructors or parents of your students as resources to help accomplish your next goal.



# Operations

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## Legal Structure

Cardinal Manufacturing is simply an organization of the Eleva-Strum School District and not a freestanding entity. It does not have corporate papers, structure, or any formalized charter.

The school district handles Cardinal Manufacturing financially as it would any other student activity meaning it manages an account for the organization but does not provide any financial contribution or subsidy to the program at all.

The Cardinal Manufacturing Activity is overseen by an advisor and the activity account is reviewed periodically by administrative staff just as any other activity account would be.

## Financials

Cardinal Manufacturing does not have an independent bank account. The organization has an account with the school district which is part of the Activity Account. School district bookkeeping staff manages the account and only accepts and disperses funds through certain channels. District bookkeeping staff works very closely with the Cardinal Manufacturing Office Manager and the program advisor to ensure an efficient process with checks and balances.

A more specific example of how day to day financials are handled by the Cardinal Manufacturing Office Manager is included in the employee section of this guide.

In summary, all financial transactions pertaining to Cardinal Manufacturing are transactions of the Eleva-Strum School District and are managed ultimately by the district bookkeeping and accounting staff.

Overall budgeting and planning for the annual budget of Cardinal Manufacturing is the responsibility of the advisor. The advisor works with students in the program and other parties to create an annual budget planning for necessary improvements, repairs, adequate supplies, new purchases, promotions, conferences, and student profit sharing. The budget runs on the same annual schedule as the school district budget from July 1 to June 30.

## Student Employees

### Interview Process

Students who wish to be hired or accepted into the Cardinal Manufacturing program must apply and have completed prerequisites to be considered. They must also present a portfolio of completed projects to demonstrate skills in the area they are interested in working in. Recommendation from other instructors and a resume are also required of student applicants. The instructor meets with every applicant individually and more formal interviews are in place for the managerial roles.

Each student is asked to interview with the instructor toward the end of the sophomore year. Interviews are brief, but candidates are scored on professionalism, quality of resume and portfolio, recommendations, and how they respond to the interview questions. All students applying for Cardinal Manufacturing have had prior exposure to the instructor via the prerequisite courses, so there is a level

of familiarity on both sides. Nearly all students who apply for roles with Cardinal Manufacturing receive them at this time.

Students applying for the three current office/management roles are asked to have additional coursework in English, Business, or Math, and the office/marketing managers are not required to have the Metal Working I and Metal Working II prerequisites. The Production Manager is expected to have the Metal Working I and II prerequisites as well as coursework in math, business, and communications courses.

When students are accepted into the Cardinal Manufacturing program, they must have the proper employment paperwork on file with the school district. For most students this includes a work permit and a W-4 form. Information on Wisconsin work permits for minors visit the Dept. of Workforce Development ([http://dwd.wisconsin.gov/er/labor\\_standards\\_bureau/work\\_permits.htm](http://dwd.wisconsin.gov/er/labor_standards_bureau/work_permits.htm)) and for a W-4 form visit <http://www.irs.gov/pub/irs-pdf/fw4.pdf>. Check with your district office for any other forms that might apply to students who will be receiving compensation from your program.

### **Job Descriptions**

Seven years into the program, Cardinal Manufacturing has students in the following positions:

- Machinists
- Welders
- Production Manager
- Office Manager
- Marketing Manager

During the 2014-15 academic year there were 7 machinists, 5 welders, and a single individual in each of the other roles

#### **Welders and Machinists**

It would seem obvious that welders and machinists would be responsible for welding and machining in the operations area of Cardinal Manufacturing. While that is true, all individuals in these positions also have assigned duties for cleaning and maintaining certain areas of the shop, greeting customers, reporting proper job information and filing paperwork as needed, performing inventory, and minor maintenance work on equipment. Additional duties may be assigned by the instructor throughout the year.

#### **Marketing and Communications**

Marketing and communications duties for Cardinal Manufacturing are primarily handled by the student Marketing Manager. This includes making website updates, delivering e-mail announcements to customers and supporters, ordering promotional materials such as logo shirts and hats, organizing special events such as the open house and trade show appearances, thanking donors, and other items that come up during the year.

#### **Office Manager**

The office manager works closely with all other employees, the instructor, and the school district bookkeeping staff and plays a very critical role in communications between all parties. This individual is responsible for invoicing, tracking and recording hours, managing accounts, maintaining documents, and more. The Office Manager also maintains a binder for "Check Marks" which is managed by the instructor. Each student employee is expected to maintain a

professional demeanor on the job and they receive a check mark for any infractions of the behavior rules. Students receive check marks for behaviors such as unexcused tardiness/leaving early, not completing required record-keeping, checking cell phones without permission during Cardinal Manufacturing time, and other bad work habits. Superb organization skills are an asset in this position.

### **Production Manager**

The position of production manager is the most complex and demanding of any of the student roles in Cardinal Manufacturing. This student is in charge of scheduling jobs, talking with clients/customers, bidding jobs if necessary, tracking supplies and materials needed for a job, reviewing the quality of the finished product, providing job information to the office manager for invoicing, and other production management duties.

### **Instructor's role**

The instructor's role is to back up all of the positions, teach students about their particular positions, and handle all behavioral/human resource issues. The instructor also has contact with all new clients/customers, does quality control inspections, oversees all expenses and income, and works on strategic planning for the operation. The instructor coordinates the efforts of student staff, other school staff, and volunteers to make the most productive use of time. Cardinal Manufacturing is also a course taken for credit and students are reviewed and graded throughout the year based upon their performance in their role.

### **Employee Compensation**

The employees of Cardinal Manufacturing receive a profit-sharing check at the end of the academic term. The amount each student receives is based upon a formula. First, the activity fund for Cardinal Manufacturing is balanced and all expenses are paid. Any needed repairs or purchases are budgeted for and an amount of money is set aside for paying the student employees. Students participate in the planning and budgeting process informally throughout the year.

Once the amount of profit sharing funds is determined, it is divided between employees by taking several criteria into account. Each student earns certain shares based upon total hours worked in the program compared with all other Cardinal Manufacturing participants. Then any check marks that they have accrued during the year are discounted from the total they earned and the totals for each student are distributed via profit sharing checks. Students who participate in the program must have all employee paperwork on file with the school district and each receives a W-2 form at the end of the calendar year for pay received. At the time of this printing, students earn between \$600 and \$2000 per academic year for their work in Cardinal Manufacturing with most earning more than \$1000. The amount of profit sharing distributed after the 2013-2014 academic year was \$15,000.

Check mark demerits are tracked throughout the year and are marked by the instructors for infractions on the job such as tardiness and looking at cell phones. Each check mark during the 2013-14 academic year will result in a \$10 deduction in the profit sharing check at the end of the year. The forms used by Cardinal Manufacturing are included at the end of this document. Cardinal Manufacturing continually sees fewer and fewer infractions of the work habit rules.

### **Hours Worked**

The average Cardinal Manufacturing participant works approximately 7.5 hours each week. Cardinal Manufacturing is also a for-credit course offered at the Eleva-Strum High School which takes place

during the last two class periods of each weekday. Students earn both profit sharing and credit toward high school graduation.

### **Employee Behavior**

Cardinal Manufacturing participants are expected to follow the same employment guidelines as any other student school district employee. Beyond district guidelines, Cardinal Manufacturing has additional policies in place.

#### **Behavioral Standards**

Participating in Cardinal Manufacturing is a privilege students must apply for. To that end, the instructor/advisor holds students accountable to behavioral standards in all areas of school. If Cardinal Manufacturing participants are creating discipline problems in other courses, the Cardinal Manufacturing advisor becomes involved and requires the student to create a written apology and take responsibility for their past actions and improving future behavior.

Students who have received more than three disciplinary write-ups per semester in any courses or school activity can be removed or suspended from the program. In other words, infractions in any area of school will be considered infractions to the employment policy of Cardinal Manufacturing. When a student is suspended from Cardinal Manufacturing he or she loses the privilege of actively working in the shop, tracking hours for earnings, and interacting with other members or customers. When on suspension a student is assigned purely classroom work which often includes reading of behavioral or motivational books, technical textbooks, or other technical articles and writing reports on the contents. Most students enjoy the hands on aspects of working in Cardinal Manufacturing and having to be still in a classroom and see the rest of the class actively working is a significant punishment.

A student can be ejected from the program, but to date it has not happened at Eleva-Strum Schools.

## **Procedures**

### **Employee Management**

Orientation:

When a new term begins and new students join Cardinal Manufacturing a brief orientation program takes place. This covers:

- Safety practices
- Goals of the program
- Job duties
- Behavior expectations
- Equipment issue

Equipment issued to student participants includes:

Cardinal Wear – students receive a Cardinal Manufacturing t-shirt and embroidered polo shirt at the beginning of the term. They are required to wear the clothing on certain occasions such as open house events, during tours, to trade shows, to other conferences or gatherings, etc.

Tools and Storage Areas – Each staff member in the shop is assigned an individual tool box that can be locked and secured. Tools are issued and it is the responsibility of each participant to care for his or her tools.

Office Storage & Equipment – the office staff is each assigned file and desk space as well as reference materials for use for their specific positions. Eleva-Strum schools already provides a laptop computer to each student, otherwise a dedicated computer would be provided to each of the three management staff.

## **Daily Employee Management/Assessment**

### Daily Staff Meetings

The beginning of each Cardinal Manufacturing Class is marked by a 10 minute all staff meeting. The meeting consists of an update on all active projects, notification of products to ship, raw materials to order, special events, visitors, and other pertinent topics. Demonstrations on techniques, problem solving discussions, or plans for future projects are included in the meeting content routinely. The meeting is run by the instructor/advisor.

### Daily Employee Management

After the staff meeting the instructor/advisor visits with each Cardinal Manufacturing member at least once during the class period. Most days, the instructor meets with everyone numerous times simply by making the rounds and checking on everyone's progress. Participants are free to request the help or attention of the instructor at any time. The instructor records progress, problems, or additional lesson ideas based upon direct feedback from the students.

### Time Tracking

Employees track the number of hours worked each day. Students write down the amount of time worked and note the particular project they had been working on then the office manager tabulates the hours and logs them for profit sharing distribution at the end of the academic year. Forms utilized at the time of this guide's creation are attached at the end of the report.

### Review/Assessment

Assessment and review of student work is completed informally on a daily basis. A formal review is done at least quarterly for each student participant and it includes a review of hours worked, projects completed, gains in skill improvement including technical and soft skills, quality of any design or communications work, quality of completion of other tasks such as cleaning/maintenance, teamwork, and other measurements. Each student participates in goal setting for the next quarter including specific areas to focus on improving and creating a plan for doing so.

## **Workflow Management**

### Client Project Information Management

Cardinal Manufacturing's Production Manager in cooperation with the Office Manager and Instructor maintain a hard copy binder for each recurring client. The binder contains copies of any part plans/drawings, reference materials for supply ordering, customer contact information, and any other pertinent information to the specific projects for that client. When a project is a one-time project, a record is simply kept in a regular file. The record might simply be a copy of the invoice, particularly if the job was a small repair. If a single job required a bit more planning

and preparation the notes and other pertinent project information is kept in a paper file under the client's name.

#### Labor Rates and Charging for Projects

Sometimes work is bid in advance but most often it is simply charged upon completion by time and materials. Cardinal Manufacturing labor rates are \$10 to \$25 per hour, depending upon the project. The goal is not to undercut private businesses, but to provide some of the simple services that aren't very profitable to larger and more experienced shops as well as provide learning opportunities for students. The low rate on entry level welding and machining projects provides a great opportunity for private companies to outsource the lower level work for a very affordable rate and partner with this program at the same time. A pricing guide has been created for some routine services to streamline the estimating and invoicing process.

#### Invoicing

All invoicing for Cardinal Manufacturing is completed by the Office Manager. The information for the project invoicing comes from the Production Manager and Advisor including the amount of work time to bill for, any supplies and materials utilized, and other expenses to collect for.

#### Payroll

Participants in Cardinal Manufacturing are paid employees of the school district. Cardinal Manufacturing does not have a regular payroll, but rather a profit-sharing system that pays out a single check at the end of the academic year to participants based upon a number of criteria. Once hired, each employee of Cardinal Manufacturing is required to submit paperwork as any other employee would.

## **Policies**

### Customer Policies

All customers of Cardinal Manufacturing are well aware that the organization is a student-run manufacturing program. All new incoming projects are reviewed by the Production Manager and the Advisor/Instructor to ensure that they are within the capabilities of the Cardinal Manufacturing team. Billing takes place after a project is completed and payment is requested within 30 days.

Projects can be quoted in advance or billed time and materials once completed.

When a new project is presented to Cardinal Manufacturing, the Production Manager and Advisor work with the client to provide anticipated completion date and cost estimate.

The school district's liability insurance policy protects Cardinal Manufacturing with a special rider for any losses incurred as a result of accidents in the shop which could include damage to a customer's property.

Most projects accepted by Cardinal Manufacturing are under \$5000 in total value and the vast majority of the work is under \$500 per project. This keeps an overall risk of liability to a minimum because the dollar value of projects and opportunities for loss are low and limited.

### Industry Partners

While there is not a specific written policy for working with industry partners, your district may wish to formalize the creation of an Advisory Committee. The group will ideally include no more than six professional individuals. Good choices for members include representatives from companies your organization serves (your customers), large employers in the area, an individual with financial/legal/business management experience, someone with a marketing expertise, a post-secondary educational representative, and potentially a local government official or other well-connected local person. The advisory committee can be formal or informal. Cardinal Manufacturing utilizes an informal group of advisors as needed. There are no routine committee meetings, but rather individual calls and e-mails for advice and ideas as needed for specific projects.

### **Suppliers**

When your organization is taking on projects for other entities, your program must become sophisticated in arranging suppliers and vendors to support your efforts. The type of operation you are creating will dictate the types of vendors you need to create accounts and relationships with. Cardinal Manufacturing and the Eleva-Strum School District have created vendor relationships with:

- Steel suppliers
- Welding suppliers
- Hardware supplier
- Shipping companies
- Specialty product companies (t-shirts, hats, etc)

Because all expenditures are handled ultimately by the School District bookkeeping department all of these relationships and vendor accounts were created with the help and guidance of the administrative office.

### **Warranties**

Cardinal Manufacturing does not provide any specific warranty of goods produced by the student employees. The goal of the program is to encourage learning and all customers are aware of this. If a project is not done to a client's satisfaction, it is unlikely to be billed. Cardinal Manufacturing takes pride in producing quality products up to industry standards and customer expectations. If a disappointment occurs, it is handled on a case-by-case basis by the instructor/advisor.

### **Facilities Maintenance**

Maintaining the space and equipment utilized for Cardinal Manufacturing and other technology education courses is managed as a joint effort between the school district, students, Cardinal Manufacturing, and community volunteers. Ultimately, the School District has the responsibility for maintaining the facilities. Some janitorial and maintenance service is provided by the district staff. Students in all shop courses have significant responsibility for keeping the shop clean and organized on a daily basis. The instructor and advanced students share responsibilities for basic maintenance of machines. Any time machinery is involved, break downs are inevitable. Cardinal Manufacturing budgets for repairs each year and also has been fortunate to have a volunteer maintenance manager assist in keeping the machinery in good working order. Learn more about this in the Outreach and Community Support section of this paper.

# Administrative Concerns

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## Insurance & Liability Concerns

Many districts wonder if incorporating a student-run manufacturing operation into the technology education program will cause additional risk or liability for the district. The Eleva-Strum School District at the time of publication of this guide (December, 2014) works with Spectrum Insurance Group of Eau Claire and Joe Lonsdale (715.858.5029) on the policy for the district which also covers Cardinal Manufacturing.

### Liability:

The School District's liability policy includes a special endorsement, General Liability 97220, which is a "Machine Shops" code. The insurance company may wish to tour your facilities before adding the endorsement and once you are operating. If the insurance provider for the district is unsure or unwilling to provide the endorsement, there are insurance companies that will.

### Workers Compensation:

If your district is paying students you will need to cover them under Workers Compensation insurance, also. The student employees would be handled just as you would any other student employee (lunch ticket taker, summer school helper, etc.) paid in another part of the school district.

### Product Liability:

Your district insurance provider will be able to give you an opinion on the need for additional liability coverage or a liability waiver which clients will need to sign. Parts manufactured by student organizations are low risk and are not considered to be critical parts and often the district's existing liability policy will be sufficient to cover this. The insurance company for the Eleva-Strum School District at the time of the development of this guide (December, 2014) has indicated several product categories of manufacturing that should be avoided by Cardinal Manufacturing. As long as the parts manufactured by Cardinal Manufacturing fall within low risk industries the general liability policy provides necessary coverage. For certain parts a waiver of liability risk may be required from the customer. If your district has any questions about your liability risk bring up the issue specifically with the district's insurance carrier.

## Activity Financial Accounts

Operating a successful student-run manufacturing program relies on excellent communication with the school district bookkeeping staff. Neither students nor advisors have any direct access to funds spent or collected by Cardinal Manufacturing. The financials of the organization are run in the same manner as other student activity groups.

Cardinal Manufacturing does not have an independent bank account. The organization has an account with the school district which is part of the Activity Account. School district bookkeeping staff manages the account and only accepts and disperses funds through certain channels. District bookkeeping staff works very closely with the Cardinal Manufacturing Office Manager and the program advisor to ensure an efficient process with checks and balances.



#### Deposits-

When money is received by Cardinal Manufacturing via a paid invoice or a donation, it must be documented by the Cardinal Manufacturing Office Manager. The Office Manager tracks all incoming funds, creates receipts, and notes what the funds are deposited for (payment of an outstanding invoice, donation, or other reason). All transactions are reviewed and signed off by both the student Office Manager and the program advisor.

#### Payments

When bills arrive to Cardinal Manufacturing, they are documented, approved internally by both the student Office Manager and program advisor, then submitted to the School District Bookkeeping Staff for payment. At times the production manager, maintenance manager or other Cardinal Manufacturing staff or volunteers may be asked to review a bill for supplies or services to ensure accuracy before the invoice is paid.

At the time of the creation of this guide, these processes are all completed manually via paper forms. Examples of the forms utilized by Cardinal Manufacturing and the Eleva-Strum School District for internal communications are included in the forms section.

#### **Student Employees**

Because of the profit-sharing checks at the end of the academic year, student participants in Cardinal Manufacturing are considered to be employees of the school district. Districts need to be sure to have proper workers comp coverage in place as well as work permits and other necessary paperwork in accordance with district employment standards.

#### **Program Oversight**

The Advisor/Instructor of Cardinal Manufacturing reports regularly to the District Administrator. Periodic reports are also made to other administrative staff as well as to the School Board. Since Cardinal Manufacturing is not independent of the school district, routine status updates are requested.

# Outreach & Community Support

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## Utilizing Community Volunteers

Cardinal Manufacturing relies on the ongoing help of several key volunteers to keep everything running smoothly.

### **Maintenance Manager:**

Cardinal Manufacturing is very fortunate to have a recent retiree from a manufacturing maintenance role who volunteers 5-10 hours each week to completing preventive maintenance and repairs to all types of machinery in the shop. This individual takes care of locating and ordering needed parts, stocking routine parts, scheduling routine maintenance and some cleaning of the various equipment.

The volunteer maintenance manager does not handle repairs in entirety, but his help allows Cardinal Manufacturing to keep costly repairs by outside companies to a minimum. Cardinal Manufacturing does budget some money each year for equipment repairs and does need to rely on paid professional assistance on occasion to keep the shop equipment in good repair. Students assist the volunteer maintenance manager as needed.

### **Fundraising:**

While Cardinal Manufacturing sells a significant amount of product during the year to fund ongoing operations, the organization relies on donations and other fundraising efforts to provide additional funds for program improvement. Several local individuals have taken on the role of assisting Cardinal Manufacturing in these efforts. These individuals assist in finding door prizes for the open house event, selling raffle tickets, asking area companies and residents for monetary donations, and more. If a need arises in the shop, these individuals are often the ones to take on the fundraising for the particular project.

An annual raffle is a significant fundraiser for Cardinal Manufacturing. In the State of Wisconsin any raffle is regulated by State law. Cardinal Manufacturing follows all requirements as outlined in the law. For specific information regarding Wisconsin raffles visit the WI Dept. of Administration and their content on the topic:

<http://www.doa.state.wi.us/divisions/gaming/charitable/raffle/raffle-license>.

### **Professional Services:**

On occasion, Cardinal Manufacturing is in need of professional services such as legal advice, accounting/bookkeeping assistance, marketing services, photography, video production, graphic design, or other services outside of the scope of students and Technology Program staff. In these cases Cardinal Manufacturing may seek the assistance of other instructors, parents of program participants, or local professionals engaged in these businesses. Cardinal Manufacturing has generally been able to obtain professional assistance for little or no cost because of the generosity of professionals in our community.

## **Presentations**

The plans for the new program need to be communicated to potential students, parents, other educators, local industry, and post-secondary educational institutions. Creating a presentation is a terrific strategy to prepare for these opportunities. Some elements to include are:

- Videos of other similar programs (Cardinal Manufacturing <http://youtu.be/fTYPrx3RRaI> )
- Present labor market information about available jobs, salary opportunities, and diversity of opportunities in your area
- Create return on investment examples outlining education costs versus starting salaries in manufacturing careers and other careers
- Show success stories from all types of companies illustrating the variety of workplaces, jobs, and roles employees in manufacturing have to choose from
- Share information about the types of products manufactured in your local area
- Cover course information including prerequisites and any possible technical college credit (similar to advanced placement) opportunities
- Illustrate successful partnerships in other districts with post-secondary education and employers
- Utilize Gold Collar Careers ([www.goldcollarcareers.com](http://www.goldcollarcareers.com) for some of the background research information)

Once your Student Run Enterprise is in operation, it is likely that you will be asked to make presentations to the School Board, other districts, regional groups, business organizations and more. Be prepared with a presentation highlighting:

- Number of student participants
- Skills stressed in the program
- Private partnerships created with area industry
- Accomplishments of students
- Donations received or other private sector support
- Results of employability training
- Partnerships with post-secondary educational institutions
- Earnings of the program
- Future plans, goals, and needs

## **Press Releases**

Coverage of a Student Run Enterprise in news media can be a positive experience for your school district. Utilize press releases and invite area media to visit your facilities and classes regularly and particularly if special events are planned.

## **Open House Events**

Hosting a public open house to showcase the facility and program is a great way to generate publicity and awareness of your plans and goals. An event also gives students an opportunity to showcase their skills and put them to use in planning and organizing an event. Do not neglect personally inviting area businesses to participate in the open house event as well as elected officials.

## Forms and Extras

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## Contacting Companies Guidelines

### Building Relationships with Regional Industries

One of the keys to ongoing success of Cardinal Manufacturing is the strong partnerships and relationships that have been built with area manufacturing companies. Most educators don't have a lot of private business connections or experience and are unsure about how to begin, build and foster these important relationships.

#### Beginning:

Identify a few area companies that you would like to build a relationship with. Make a phone call and ask to speak with the manager or Human Resources Manager. What do you say?

- Introduce yourself. Provide your name and position.
- Briefly explain why you are calling. Something like, "I'm hoping to build relationships with area companies like yours to help bring the real world of work into the classroom. I'm looking for connections who might be willing to speak to a class, provide company tours, host a student or two for a job shadow experience, or other simple partnership."
- Ask if it is a good time to talk, if this is the person you should be talking with, or if there is someone else at the company who you should be speaking with.
- Once you have identified the correct party to visit with, ask for a one on one meeting at their business for an introduction and to share information and receive ideas for bringing real world work information into your classroom. Be ready to ask about their company, products, request a tour, ask about job titles, skills needed, and any needs that your class might fulfill for them. Be ready to ask for guest speakers, student tours, or professional input about what you are planning for your program.
- The first conversation/meeting is an introduction for both sides. After a worthwhile conversation and/or a personal meeting be sure to send a thank you letter or handwritten note thanking them for their time

**Cardinal Manufacturing  
Summary Budget  
2012-2013 academic year**

Sales: \$43,529.60

Expenses: \$33,546.51

- Supplies and materials: \$31,784.77
- Promotions and advertising: \$1,389.65
- Shipping: \$372.09

Profit sharing (net income): \$9,983.09

## Existing Facilities & Capabilities Analysis

Size of existing shop area: \_\_\_\_\_

List of repairs or improvements needed in shop:

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List of existing operational equipment:

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List of existing equipment that needs repair (if any):

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List of any existing class projects which may have market value:

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List of types of repairs that could be performed for hire in your current shop environment:

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# Tool and Facility Wish List

Facility Improvements Needed:

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Facility Improvements Wanted:

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Additional Tools and Equipment Needed:

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Additional Tools and Equipment Wanted:

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### Cardinal Manufacturing Interview Questions

1. Why do you want to work here/be accepted into this program?
2. What qualifications do you possess that will make you successful in this position?
3. If I asked your former coworkers, classmates, or instructors/teachers to describe you, what would they say?
4. What are your strengths and weaknesses in terms of doing well in this position?
5. Which courses have you liked best? Least? For what reasons?
6. What have you done that shows initiative and willingness to work?
7. Tell me about a difficult situation you faced with work or school and how you resolved it.
8. Discuss a situation during the past year in which you had to deal with an angry or upset customer, coworker, or classmate. How did you handle this situation?
9. Why should Cardinal Manufacturing hire you?

# District Activities Policy JFIJ



Date of Board of Education Approval July 11, 2011

## FORWARD

Eleva-Strum School District offers co-curricular and extra-curricular programs that provide a wide variety of experiences to students. It is hoped that these activities will aid in the development of positive habits and attitudes in our students that will better prepare them for their future role as functioning adults in a democratic society.

Ineligibility and eligibility shall not apply to **co-curricular events but would apply to extra-curricular activities**. If a student is in a sport and an activity, he/she is subject to violation consequences of either or both the athletic and activity policies, in grades 7-12 as applicable.

***This policy is not meant to preclude the existing policies on suspension or expulsion from school. If a student is suspended (including in-school suspension) or expelled from school that student may not participate in any co-curricular or extra curricular event during the duration of the suspension or expulsion.***

# School District of Eleva-Strum District Activities Policy JFIJ

## I. Defining Activities:

This policy is enacted to primarily regulate **extra-curricular** activities as distinguished from co-curricular activities. Both categories are defined herein. In the event there is an overlap between the two categories or a question arises as to whether an activity is co-curricular or extra-curricular, school officials will make the final decision.

**Co-curricular Activities:** Those that are an extension of an assigned regular class objective and/or coursework (e.g. supervised work study or job shadowing; concerts held in which student participation is part of a student's grade in a vocal or instrumental music class). Instructors must show how such events are related to course grade.

**Extra-curricular Activities:** organizations or events a student joins voluntarily; could be related to curricular goals and objectives but are not necessarily part of any assigned school class or coursework.

### EXAMPLES OF CO-CURRICULAR

### EXAMPLES OF EXTRA-CURRICULAR

Music contests or concerts on school grounds:	Student clubs and organizations (e.g. FBLA, FCCLA, FFA, S.A.D.D.)
Vocational events beyond the school building that are part of classroom activity.	School plays and musicals
Concerts and events off school grounds <b>directly</b> related to a class requirement	Concerts and parades off school grounds not related to a class requirement

## II. **Violations of Code:**

- A. Use, possession, buying or selling of drugs and/or alcohol.
- B. Use, possession, buying or selling of tobacco products.
- C. Attendance at functions where alcohol and drugs are present and/or being consumed and not immediately removing themselves from the situation.
- D. Flagrant violation of the school's behavioral expectations policies outlined in the student handbook.
- E. Conduct contrary to the ideals, principals and standards of the school and WIAA, including but not limited to criminal behavior. Such conduct shall be considered unbecoming of an athlete. Examples may include but not limited to:
  - Theft in or out of school
  - Flagrant misbehavior in the class
  - In-school and out-of-school suspension
  - Disorderly conduct as defined by state laws in or out of school
  - Criminal behavior
  - Vandalism in or out of school
  - Fighting in or out of school
  - Harassment and/or bullying

## III. **Penalties for Violations:**

Whereas school activities as distinguished from athletics are not governed by the WIAA or the athletic code, the activities policy and consequences for violation cannot exactly parallel or be

# **School District of Eleva-Strum**

## **District Activities Policy JFIJ**

consistent with the athletic policy. For instance, it is illogical and impracticable to suspend a student from participating in 10% or 20% of a class play or concert. Therefore, violations of the activity code will result in exclusion from extra-curricular activities as determined by club advisor and school administration.

#### **IV. SCHOLASTIC ELIGIBILITY (ADAPTED FROM THE ATHLETIC POLICY):**

A. A student receiving failing grades at the end of a grading period will result in exclusion from extra-curricular activities as determined by club advisor and principal. Eligibility will be reinstated as soon as the grade is brought up to passing. Any student who receives a failing average at mid-quarter is required to provide weekly progress reports to the advisor from all classes in order to remain eligible throughout the grading period.

V. **DRESS CODE:** The advisors will establish acceptable standards in regard to appearance for formal events.

VI. **SCHOOL ATTENDANCE:** A student must report to school by at least 11:00 a.m. the day of an activity in which he/she is to participate and remain in school the rest of the day. Absences excused by the principal or school nurse in advance will be accepted.

VII. **DUE PROCESS PROCEDURE:** An appeals process recognizes the rights of the individual and outlines his/her recourse in the event he/she feels a wrong decision has been made that affects him/her. The appeals process outlined below is the procedure for a student and his/her parents and/or guardians to follow in appealing decisions relating to disciplinary action. It should be understood that students and parents will be expected to follow the appeals process as outlined in the event an appeal is made.

A. After a decision of disciplinary action has been made, a student and/or his parents may formally appeal the decision (written or oral) to the principal within five school days or ten calendar days of the date of verified written notification of the decision.

B. The principal will hear the appeal within three school days or five calendar days. The parents and students will be notified of the principal's decision on the appeal within five calendar days. If the parents and/or student do not agree with the appeal decision of the principal, they may follow the same procedure to appeal the decision to the superintendent and then the school board. The superintendent and board will respond to the appeal request within the same time frame as spelled out for the principal. The Board of Education will address the appeal at their next regularly scheduled board of education meeting and respond to the parties involved within five calendar days of that meeting.

C. The provisions as previously outlined shall be the sole and exclusive means for an appeal for the rulings.

#### **VIII. BUS TRIPS TO AND FROM EVENTS**

## **School District of Eleva-Strum District Activities Policy JFIJ**

1. All **participants** must ride the school bus or van to and from activities and events.
2. Exceptions must be cleared in advance with the **advisor and principal**. The parent must speak personally to the **advisor** about the exception. **Students** may only ride with parents to and from events and with permission from their **advisor**. Without such permission:
  - a. Failure to ride the school bus to an **event** will result in the **student** not being allowed to participate in that **event**.
  - b. Failure to ride the **school** bus home from an **event** will result in the **student** not being allowed to participate in the next **event**.



www.nexengroup.com

## Ten Commandments for Career Success

- I. **Be Positive**      Attitude is everything
- II. **Show Up**      On time, every day, reliably
- III. **Work Hard**      Earn your keep, get something done
- IV. **Get Along**      Play together nice in the sandbox
- V. **Pay it Forward**      Do more than is expected today, and you will receive more than you expected
- VI. **Be Flexible**      Willingly take on different tasks
- VII. **Figure It Out**      Be a problem solver, not a problem asker
- VIII. **Join the Club**      Be proud to be a part of your organization
- IX. **No Whining**      Communicate positively and well, don't be high maintenance
- X. **Keep Learning**      If you don't keep up, you will become obsolete

<b>State Standard</b>	<b>Date Accomplished</b>	<b>Project</b>
<b>Standard: MNF1:</b> Students will be able to select and use manufacturing technologies.		
<b>MNF1.a:</b> Identify, select and safely use tools, machines, products and systems for specific tasks.		
<b>MNF1.a.1.e:</b> Discuss health safety in the workplace.		
<b>MNF1.a.2.e:</b> Recognize tools, machines and materials along with their applications and failures.		
<b>MNF1.a.3.e:</b> Recognize the characteristics of length, volume, weight, area and time.		
<b>MNF1.a.4.m:</b> Discuss health and safety procedures in the workplace that keep workers safe.		
<b>MNF1.a.5.m:</b> Use tools, materials and machines safely to diagnose, adjust and repair systems.		
<b>MNF1.a.6.m:</b> Explore both customary and metric systems of measurement and conversions.		
<b>MNF1.a.7.h:</b> Identify safety and health protections and procedures that are critical to worker well-being.		
<b>MNF1.a.8.h:</b> Use appropriate tools, materials, and machines to repair a malfunctioning system.		
<b>MNF1.a.9.h:</b> Select and apply the appropriate units and scales for situations involving measurement.		
<b>MNF1.b:</b> Create and communicate alternative solutions.		
<b>MNF.1.b.1.e:</b> Introduce critical thinking skills to make educated decisions and solve problems.		
<b>MNF.1.b.2.e:</b> Learn basic methods of verbal, written and graphical communication as it relates to manufacturing.		
<b>MNF.1.b.3.m:</b> Practice appropriate problem-solving approaches and critical thinking skills to on-the-job issues and tasks.		
<b>MNF.1.b.4.m:</b> Comprehend and engage in communication methods to convey ideas, concepts and requirements to other individuals and teams.		
<b>MNF.1.b.5.h:</b> Apply methodical problem-solving models which include input, process, outcome and feedback components.		
<b>MNF.1.b.6.h:</b> Design and publish documents using advanced publishing software and graphic programs to defend and promote results.		
<b>MNF1.c:</b> Demonstrate cooperation with others in ways to exhibit respect for individual and cultural differences and for the attitudes and feelings of others.		
<b>MNF1.c.1.e:</b> Learn how to cooperate with others in ways to exhibit respect for individual and cultural differences and for the attitudes and feelings of others.		
<b>MNF1.c.2.e:</b> Recognize characteristics and benefits of teamwork, leadership and citizenship in the school, community and manufacturing settings.		
<b>MNF1.c.3.m:</b> Learn how to cooperate with others in ways to exhibit respect for individual and cultural differences and for the attitudes and feelings of others.		
<b>MNF1.c.4.m:</b> Recognize characteristics and benefits of teamwork, leadership and citizenship in the school, community and manufacturing settings.		
<b>MNF1.c.5.m:</b> Participate in the student organization SkillsUSA competitive career development events to enrich academic skills, encourage career choices and contribute to employability.		
<b>MNF1.c.6.h:</b> Learn how to cooperate with others in ways to exhibit respect for individual and cultural differences and for the attitudes and feelings of others.		
<b>MNF1.c.7.h:</b> Recognize characteristics and benefits of teamwork, leadership and citizenship in the school, community and manufacturing settings.		
<b>MNF1.c.8.h:</b> Participate in the student organization SkillsUSA competitive career development events to enrich academic skills, encourage career choices and contribute to employability.		
<b>MNF1.c.9.h:</b> Identifying various strategies to conflict resolution and their importance for a variety of situations.		
<b>MNF1.c.10.h:</b> Recognizing how to bring together projects individually and in teams for effective performance and the achievement of objectives.		
<b>MNF1.d:</b> Select, use and identify manufacturing processes, such as casting, forming, machining, joining, rapid manufacturing (CNC) and treating/coating.		
<b>MNF1.d.1.e:</b> Learn processing systems convert natural materials into products.		
<b>MNF1.d.2.e:</b> Manufacturing processes include designing products, gathering resources and using tools to separate, form and combine materials in order to produce products.		
<b>MNF1.d.3.m:</b> Identify manufactured goods as durable and nondurable.		

<b>MNF1.d.4.m:</b> Identify the manufacturing process; including the designing, development, making and servicing of products and systems.		
<b>MNF1.d.5.h:</b> Recognize durable goods are designed to operate for a long period of time, while nondurable goods are designed to operate for a short period of time.		
<b>MNF1.d.6.h:</b> Demonstrate the interchangeability of parts increases the effectiveness of manufacturing processes.		
<b>MNF1.e:</b> Select, use and identify manufacturing systems.		
<b>MNF1.e.1.e:</b> Explore manufacturing systems that produce products in quantity.		
<b>MNF1.e.2.e:</b> Discuss essential components of a manufacturing system.		
<b>MNF1.e.3.m:</b> Identify that manufacturing systems use mechanical processes that change the form of materials through the processes of separating, forming, combining and conditioning.		
<b>MNF1.e.4.m:</b> Define the purposes of marketing.		
<b>MNF1.e.5.m:</b> Identify the sub-components of a manufacturing system.		
<b>MNF1.e.6.h:</b> Recognize manufacturing systems may be classified into types, such as customized production, batch production and continuous production.		
<b>MNF1.e.7.h:</b> Use marketing to establish a product's identity, conduct research on its potential, advertise it, distribute it and sell it.		
<b>MNF1.e.8.h:</b> Use a manufacturing system to produce a product.		
<b>MNF1.f:</b> Select and use manufacturing technologies.		
<b>MNF1.f.1.e:</b> Learn manufacturing enterprises exist because of a consumption of goods.		
<b>MNF1.f.2.e:</b> Learn that manufactured products are designed.		
<b>MNF1.f.3.e:</b> Products are produced of materials to benefit our lives (e.g., safer, easier and more enjoyable).		
<b>MNF1.f.4.m:</b> Define harvesting, drilling and mining processes.		
<b>MNF1.f.5.m:</b> Discuss how technologies are used to modify or alter chemical substances.		
<b>MNF1.f.6.m:</b> Describe the relationship between materials and manufacturing.		
<b>MNF1.f.7.h:</b> Recognize servicing keeps products in good operating condition.		
<b>MNF1.f.8.h:</b> Recognize technologies provide a means for humans to alter or modify materials and to produce products.		
<b>MNF1.f.9.h:</b> Identify materials have different qualities and may be classified as natural, synthetic or mixed and their effects on our world.		
<b>MNF1.g:</b> Analyze and use GMAW, GTAW, SMAW and oxy-acetylene welding.		
<b>MNF1.j.1.e:</b> Discuss how metal is joined together.		
<b>MNF1.g.2.e:</b> Discuss dangerous situations and the importance of safety in welding processes.		
<b>MNF1.g.3.m:</b> Analyze the different processes needed to fuse metal together (i.e., MIG, TIG, oxy-acetylene, Arc, etc.).		
<b>MNF1.g.4.m:</b> Identify various types of metal, both ferrous and non-ferrous.		
<b>MNF1.g.5.m:</b> Identify the importance of safety and different types of safety equipment needed for different welding processes.		
<b>MNF1.g.6.m:</b> Demonstrate basic welding joints and processes used to weld them.		
<b>MNF1.g.7.m:</b> Discuss how robotics and automation play a role in manufacturing.		
<b>MNF1.g.8.h:</b> Demonstrate the ability to choose proper welding supplies given the process.		
<b>MNF1.g.9.h:</b> Identify different types of welding machines.		
<b>MNF1.g.10.h:</b> Demonstrate appropriate use of welding blueprint symbols and codes used in industry.		
<b>MNF1.g.11.h:</b> Demonstrate safety and chose the proper safety equipment given the process being used (i.e., oxy-acetylene, GMAW, SMAW, GTAW, etc.).		
<b>MNF1.g.12.h:</b> Identify different types of welding joints and be able to demonstrate the ability perform the welds (i.e., butt, corner, edge, lap, tee).		
<b>MNF1.g.13.h:</b> Identify the different type of welding positions and be able to demonstrate the ability to perform the welds (i.e., flat, horizontal, vertical and overhead).		
<b>MNF1.h:</b> Analyze and use metal and manufacturing cutting operations.		
<b>MNF1.h.1.e:</b> Discuss dangerous situations and the importance of safety with manufacturing cutting processes.		
<b>MNF1.h.2.m:</b> Identify the importance of safety and different types of safety equipment needed for different metal and manufacturing cutting processes.		
<b>MNF1.h.3.m:</b> Compare and contrast different metal and manufacturing cutting operations.		
<b>MNF1.h.4.m:</b> Demonstrate different metal and manufacturing cutting operations.		
<b>MNF1.h.5.m:</b> Discuss how robotics and automation play a role in manufacturing cutting operations.		



<b>MNF1.h.6.h:</b> Demonstrate the proper use and proper way to set-up and close down oxy-acetylene equipment and check for leaking gases.		
<b>MNF1.h.7.h:</b> Demonstrate the proper safety and use with plasma cutting equipment.		
<b>MNF1.h.8.h:</b> Demonstrate how to use oxy-acetylene and plasma cutting.		
<b>MNF1.h.9.h:</b> Compare the pros and cons with plasma cutting and oxy-acetylene cutting manufacturing operations and analyze other cutting operations used in industry.		
<b>MNF1.h.10.h:</b> Analyze the metallurgical effects heat has on metal during a cutting process or in forming and heat treating.		

**Employee Name:** \_\_\_\_\_

## **Cardinal Mfg. Review**

**Quality of work:** You pay attention to detail, work is always within tolerance, no burrs, everything countersunk, consistently making good parts the first time. Double check prints and do not saw out parts the wrong size or material. Over \$100 mistake in time and material

\$10 pay and 1% grade deduction for each infraction over 2.

**Safety:** You are always wearing safety glasses, welding coats, welding gloves, shoes, working safely under control, using air safely, and following all safety rules. Always bring safety glasses, shoes, and pants if needed.

\$10 pay and 1% grade deduction for each infraction over 2.

**Job effort and working relationships:** You are always trying to do your best, always trying to learn more and improve your skills, willing to help out however needed, and willing to come in extra when needed. You're a team player, have sincere interest in the success of the company, work well with a variety of people, and stay busy even when not closely supervised. Not working or arguing.

\$10 pay and 1% grade deduction for each infraction over 2.

**Attendance:** You are always on time, work right up to the end of class. You let me know ahead of time if you are going to be absent or tardy. You will get three free tardys and absents. Excused absents and tardy with a pass will not count.

\$10 pay and 1% grade deduction for each infraction over 2.

**Clean up:** Cleaned your area everyday, when you did not have work you started cleaning. You helped keep the shop in good working order. Any tool left out including parallels or not sweeping around machine at the end of the day.

\$10 pay and 1% grade deduction for each infraction over 2.

**Professionalism:** Absolutely no phone usage. NO EXCUSES. No food or pop allowed in shop. No profanity must be school appropriate.

\$10 pay and 1% grade deduction for each infraction over 2.

## **Portfolio:**

Have a three ring binder with cover letter, resume, references, pictures of shop and projects you worked on with at least 10 pictures. Make a custom cover must show continuous improvement for each quarter.

If not satisfactory you will loose 5% of your pay and grade.

**Any pay that is lost from students will be divided up between all students that have no deductions.**

# Cardinal Manufacturing

www.cardinalmanufacturing.org  
 Eleva-Strum High School      Phone: 715-695-2696 x 2032  
 Cardinal Manufacturing      Fax: 715-695-3519 attn. Craig Cegielski  
 W23597 US 10 Strum, WI 54770      cegielskic@esschools.k12.wi.us

## Quotation #

Customer					Misc		
Name					Date		
Address					Order No.		
City		WI			Rep		
Phone					FOB		

Qty	Description	Unit Price	Total

					SubTotal																													
					Shipping																													
					Tax	Rate(s)																												
					<b>TOTAL</b>																													
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Comments																																		
Name																																		
CC #																																		
Expires																																		

*We will be happy to supply any further information you may need.*

*Thank you for doing business with Cardinal Manufacturing*



Eleva-Strum High School  
 Cardinal Manufacturing  
 W23597 US 10 Strum, WI 54770

Phone: 715-695-2696 x 2032  
 Fax: 715-695-3519 attn. Craig Cegielski  
 cegielskic@esschools.k12.wi.us

**Invoice # 680**

Customer				Misc	
Name				Date	
Address				Order No.	
City				Rep	
Phone				FOB	

Qty	Description	Unit Price	Total
	Labor		\$ 135.00
	Material		\$ 65.00
			\$ -
			\$ -
			\$ -

SubTotal	\$ 200.00
Shipping	

Payment	Other		
Comments			
Name			
CC #			
Expires			

Tax	Rate(s)	
<b>TOTAL</b>		<b>\$ 200.00</b>

Office Use Only

*Make Check payable to "Eleva-Strum Central" (attention Craig Cegielski)*

*Thank you for doing business with Cardinal Manufacturing*



**School District of Eleva-Strum**

**W23597 US Hwy 10**  
**Strum, WI 54770**  
**715-695-2696**

Purchase Order No. \_\_\_\_\_ Fund \_\_\_\_\_

Vendor No. \_\_\_\_\_ Ship To \_\_\_\_\_

Vendor \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

Quantity	Catalogue No. and Description	Unit Price	Total Price

Student Officer Signature \_\_\_\_\_

Signature \_\_\_\_\_ Date Approved \_\_\_\_\_

Date \_\_\_\_\_ Approved by \_\_\_\_\_

**School District of Eleva-Strum**

**W23597 US Hwy 10**  
**Strum, WI 54770**  
**715-695-2696**

Purchase Order No. \_\_\_\_\_ Fund \_\_\_\_\_

Vendor No. \_\_\_\_\_ Ship To \_\_\_\_\_

Vendor \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

Quantity	Catalogue No. and Description	Unit Price	Total Price

Student Officer Signature \_\_\_\_\_

Signature \_\_\_\_\_ Date Approved \_\_\_\_\_

Date \_\_\_\_\_ Approved by \_\_\_\_\_



www.nexengroup.com

Nexen Group, Inc.  
26837 Industrial Avenue  
Webster, WI 54893  
715 866-4298

September 15, 2014

Craig Semingson, Superintendent  
Eleva-Strum Schools  
W23597 US 10  
Strum, WI 54770

Dear Craig:

Our company has been very engaged with our education partners in dealing with the skills gap. One of those partners is your school system, specifically your Tech-Ed Program (**Cardinal Mfg.**).

We know that Eleva-Strum is a small district with 617 students, of which 36 percent are on free and reduced lunch, and that budget dollars are tight. You are fortunate to have Craig Cegielski, an energized tech-ed teacher who believes in the potentials of youth.

Craig has achieved amazing results with the manufacturing company he set up within his classroom. He has essentially self-funded this program through the help of business partners and community members. He has fostered an atmosphere of excellence in his classroom. He not only develops precision machining, welding and other metalworking skills in his students, he also models and has high standards for their soft skills and professionalism.

Cardinal Manufacturing is the gold standard for tech-ed programs, and it was visited by over 50 other school districts last year. Craig has so much e-mail traffic that he answers it daily from 10:00 PM to midnight! What he is doing for Eleva-Strum could be a model for school districts across the country.

This matters to employers in Wisconsin and across the country; because those of us in advanced manufacturing are having a difficult time finding skilled talent. It is not uncommon for it to take a year or more to find a skilled CNC Machinist, CNC Programmer, or Manufacturing Engineer.

We know that Craig needs additional equipment to take his program up to the next level. We strongly believe in this program and want to help with its success. Nexen will match the first \$25,000 in funds that you raise between now and June 30, 2015. Additionally, Dan Conroy, our Vice President of Human Resources has personally pledged an additional \$12,500 of matching funds. **That's a total of \$37,500 of matching funds from Nexen.**

We commend you and your staff for your enthusiastic and dynamic approach to education. It is our privilege to be able to lend support to this exceptional program. We hope you can find generous partners to join us.

Kind Regards,

Hutch Schilling  
President/Owner  
Nexen Group, Inc

cc: Craig Cegielski





Eau Claire Campuses  
Clairemont  
West  
Gateway

620 W. Clairemont Ave.  
Eau Claire, WI 54701-6162  
715-833-6200  
Fax 715-833-6470  
www.cvtc.edu

Bruce A. Barker, President

August 6, 2014

Barb Fleisner LaMue  
Sector Development Manager  
Wisconsin Economic Development Corporation  
2701 Larsen Road  
Green Bay, WI 54313

Dear Barb:

Please accept this letter as a show of my support for the Cardinal Manufacturing program at the Eleva-Strum School District. Over the years we have gotten to know Craig Cegielski and many of their students and we are very excited about the results the program is getting and how they have worked so closely with Chippewa Valley Technical College.

We have had the opportunity to provide advice on projects, donate equipment, etc. In working with Craig and Eleva Strum many partnerships have been developed including a new endeavor the NSF Advanced Manufacturing Mobile LAB grant. Eleva Strum is serving as a pilot school for many of the activities we are working on regarding the grant. Craig is instrumental in the professional development offerings we offer for the teachers in the area. Although Eleva is doing quite a bit more in their program than other schools Craig is working on some of the same developmental concepts other teachers are working on with our professional development offerings. We have also had the opportunity to get to know students, observe the level of skill each is developing, and counsel them about choosing programs at CVTC to best fit their developing skill sets.

Our institution is charged with providing the trained workers companies in this region need in order to grow their respective businesses. Cardinal Manufacturing is taking steps to help more students explore skilled trades and engineering careers and garnering support from parents, counselors, administrators, and private business partners in the process. The participants are learning technical skills as well as professional manners in communicating with customers, providing service, managing time and meeting deadlines and accuracy requirements. These are all valuable no matter the career path the student chooses. In short, the program is a real win-win situation for all involved. Their students arrive at CVTC well prepared and excited to take their learning to the next level.

We would like to see the reach of this program increase and hope you will consider providing grant funds to help Cardinal Manufacturing tell its story more formally and teach other districts how to incorporate a similar program into technology education.

Thank you for your consideration,

A handwritten signature in black ink, appearing to read 'Jeff Sullivan', written over a light blue horizontal line.

Jeff Sullivan  
Dean-Industry Energy and Ag  
Chippewa Valley Technical College

August 6, 2014

Barb Fleisner LaMue  
Sector Development Manager  
Wisconsin Economic Development Corporation  
2701 Larsen Road  
Green Bay, WI 54313

Dear Barb:

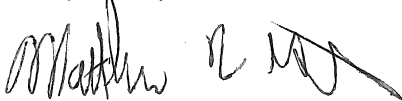
Please accept this letter as a show of our company's support for the Cardinal Manufacturing program at the Eleva-Strum School District. Over the years we have gotten to know Craig Cegielski and many of their students and we are very excited about the results the program is getting.

We have had the opportunity to provide advice on projects, donate equipment, and have Cardinal Manufacturing complete some projects for our shop, M.R.S. Machining, Co., Inc. We have also had the opportunity to get to know students, observe the level of skill each is developing, and offer employment to graduates who have participated in the program.

The skills gap is of concern for us and most manufacturing companies in Wisconsin. Cardinal Manufacturing is taking steps to help more students explore skilled trades and engineering careers and garnering support from parents, counselors, administrators, and private business partners in the process. The participants are learning technical skills as well as professional manners in communicating with customers, providing service, managing time and meeting deadlines and accuracy requirements. These are all valuable no matter the career path the student chooses. In short, the program is a real win-win situation for all involved.

We would like to see the reach of this program increase and hope you will consider providing grant funds to help Cardinal Manufacturing tell its story more formally and teach other districts how to incorporate a similar program into technology education.

Thank you for your consideration,

A handwritten signature in black ink, appearing to read "Matthew Guse". The signature is fluid and cursive, with a long horizontal stroke at the end.

Matthew Guse  
President/Owner  
M.R.S. Machining Co., Inc.



## SCHOOL DISTRICT OF ELEVA-STRUM

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Mr. Cory Kulig  
Middle/High School Principal  
kuligc@esschools.k12.wi.us

**Craig Semingson**  
Superintendent of Schools  
semingsc@esschools.k12.wi.us

Mr. Marty Kempf  
Elementary Principal  
kempfm@esschools.k12.wi.us

August 7, 2014

### **Letter of Support for Cardinal Manufacturing WEDC Grant Application**

When Craig Cegielski was hired as the TE education teacher at Eleva-Strum in 2005, he indicated that he wanted to replicate a program that he had started in Antigo in which students run all aspects of a for-profit manufacturing business. In the Antigo program, students manufactured products to sell, such as charcoal grills or cribbage game boards. Students also did welding and metal fabrication for clients. Mr. Cegielski presented a three-year plan for implementing an identical program at Eleva-Strum, which required no additional cost to the district. The administration and school board enthusiastically supported Mr. Cegielski's proposal.

In 2006-07, Mr. Cegielski offered a new class called Cardinal Manufacturing. It was described in the student course offerings as, "A student run manufacturing business where students will participate in all aspects of the operation." This was a paradigm shift for students, who were used to make-and-take courses in the tech ed program, building gun racks or tool boxes for personal use. Unlike previous tech ed courses, Cardinal Manufacturing students had to consider business concepts such as quality control, customer satisfaction, product deadlines, raw material inventory, product pricing, cash flow, marketing, profit sharing, orders, invoicing, shipping, division of labor, and much more.

Mr. Cegielski partnered with area manufacturing companies and took on orders that were too small for those companies to make a profit but made perfect learning opportunities for students in Cardinal Manufacturing. Soon, these companies began donating equipment, including welders, CNC lathes, high-speed drill bits, raw materials, specialized training, CAD programs, and more, all together worth hundreds of thousands of dollars. Cardinal Manufacturing grew from primarily a welding and simple metal fabrication program into a nationally recognized educational concept that benefits students, schools, and businesses. Most importantly, the Cardinal Manufacturing concept has the potential to secure the future of Wisconsin manufacturing by preparing students of all abilities for a career path in one of several rewarding manufacturing related vocations. Cardinal Manufacturing students have gone on to careers in mechanical engineering, drafting, welding, CNC operation, construction, and more.

Cardinal Manufacturing is now a completely student-run business. Students are in charge of marketing, office management, taking and prioritizing work orders, manufacturing products, maintaining quality, shipping, purchasing raw materials, invoicing, and bookkeeping. In my 34 years at Eleva-Strum as teacher, principal, and superintendent for the past four years, I have not see a program that has, in a very short time, gained vast community support, high student interest, and national recognition as did Cardinal Manufacturing. I believe the success of the program is due to many factors, the most significant of which is the instructor, Mr. Cegielski. His dynamic personality engages students of all interests and abilities. He is committed to replicating the operations of real manufacturing companies. He has partnered with private businesses, CVTC, and UW-Stout to offer the best possible educational experiences to his students. Mr. Cegielski often states that other schools can replicate Cardinal Manufacturing. However, it will also take a committed and dynamic instructor like him to ensure the success of such a program.

Respectfully,  
  
Craig Semington, District Administrator



INDUSTRIAL & CONSTRUCTION SUPPLIES

August 6, 2014

Barb Fleisner LaMue  
Sector Development Manager  
Wisconsin Economic Development Corporation  
2701 Larsen Road  
Green Bay, WI 54313

Dear Barb:

Please accept this letter as Fastenal Manufacturing fully supports the Cardinal Manufacturing program at the Eleva-Strum School District. Over the years we have gotten to know Craig Cegielski and many of their students and we are very excited about the results the program is getting. We have observed a program that had very little at inception and now can accomplish many different jobs and is getting well equipped. This is a testament to the outstanding job Mr. Cegielski performs and to the community for embracing a shift in the traditional Tech Ed. Curriculum.

Fastenal has had the privilege and the opportunity to provide advice on real world projects that the students are working on. Because this program is advantageous for the students, community, and industry; Fastenal has donated, equipment, tooling, and material to facilitate the knowledge and skills that are gained from this program. We also have had Cardinal Manufacturing student's tour and job shadow at our Winona, MN facility. Because of this program, students are better prepared for post-secondary schools or can come into industry with a "leg up" on students without this program. We have also had the opportunity to get to know students, observe the level of skill each is developing, and offer scholarships and/or employment to graduates who have participated in the program.

The skills gap is a major concern for us and most manufacturing companies in Wisconsin, Minnesota and the Nation. Cardinal Manufacturing is taking steps to help more students explore skilled trades and engineering careers and garnering support from parents, counselors, administrators, and private business partners in the process. The participants are learning technical skills as well as professional manners in communicating with customers, providing service, managing time and meeting deadlines and accuracy requirements. These are all valuable no matter the career path the student chooses. In short, the program is a real win-win situation for all involved.

We would like to see the reach of this program increase and hope you will consider providing grant funds to help Cardinal Manufacturing tell its story more formally and teach other districts how to incorporate a similar program into technology education.

Thank you for your consideration,

A handwritten signature in black ink, appearing to read "Daryl Bergen".

Daryl Bergen  
Trainer/Recruiter – Fastenal Manufacturing



**5408 3M Drive N.E., Menomonie, WI 54751**

**Phone: (715) 235-1111**

August 6, 2014

Barb Fleisner LaMue  
Sector Development Manager  
Wisconsin Economic Development Corporation  
2701 Larsen Road  
Green Bay, WI 54313

Good Day Barb:

Please accept this letter as a show of our company's support for the Cardinal Manufacturing program at the Eleva-Strum School District. Over the years we have gotten to know Craig Cegielski he actually worked for us while he was attending UW Stout. We have also gotten to know a number of his students and this fall one of his students will also be working part time for us while he is attending UW Stout. We are very excited about the results Craig is having with his program at Eleva-Strum.

We have had the opportunity to provide advice on projects, and have Cardinal Manufacturing manufacture a number of components for us here at REB. We have also had the opportunity to get to know students, observe the level of skill each is developing, and offer scholarships and employment to graduates who have participated in the program.

The skills gap is of concern for us and most manufacturing companies in Wisconsin. Cardinal Manufacturing is taking steps to help more students explore skilled trades and engineering careers and garnering support from parents, counselors, administrators, and private business partners in the process. For too many years young people have look at Manufacturing Jobs as a low paying, dirty, mindless type of work and that is just not the truth. The Program at Eleva-Strum is giving students a real good example of what they can do after high school other than go to College. The participants are learning technical skills as well as professional manners in communicating with customers, providing service, managing time and meeting deadlines and accuracy requirements. These are all valuable no matter the career path the student chooses. In short, the program is a real win-win situation for all involved.

I would like to see the reach of this program increase and grow. It will only benefit and help the young people of Eleva-Strum (and hopefully beyond) become more informed of the career path choices that are available to them at a younger age. Too many students waste money and or go into debt trying to find and figure out what they want to do by going to college and finding that is not for them. I hope you will consider providing grant funds to help Cardinal Manufacturing tell its story more formally and teach other districts how to incorporate a similar program into technology education.

Thank you for your consideration,

Reno Vuillemot  
President, REB/Translab