



Grade 11

TDJ3M Technological Design
(College/University Destination)

Unit 4, Activity 2:
Design of an Information Kiosk/Device



*This Activity Resource Management Document (ARMdoc)
was produced by the Ontario Council for Technological Education (OC TE)
to supplement the Ministry of Education's Grade 11 Course Profiles.
It may be used in its entirety, in part, or adapted.*

Activity Resource Management Document



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TDJ3M Technological Design

UNIT 4, ACTIVITY 2:

Design of an Information Kiosk/Device

Activity Description (from Course Profile)

Time: 900 minutes (15 hours)

Students design and build a full-scale prototype or finished product to display information in a public venue. Using the scenario of a temporary public event or permanent installation, students consider criteria such as material and structural properties, graphic design, environmental considerations, and client specifications in the design of an information kiosk or display system. Students are made aware of the design considerations and career opportunities in the multi-billion dollar trade fair and event display industry.

Activity Resource Management Doc (ARMdoc) Contents

Teacher Resource Pack (TRP)	Pre-planning Notes, Expectations by Category, Activity Evaluation Deliverables, Instructional Aid Sheets, Terminology List, Career Information
Student Project Brief (SPB)	Project Brief, Assessment/Evaluation Checklists and Rubrics, Activity Log
Safety Resource Pack (SRP)	Safety Information (list of pages to be inserted from the separate Safety Resource Pack)

This Activity Resource Document (ARMdoc) was produced to supplement the Ontario Ministry of Education's Grade 11 Course Profiles. These profiles can be found at:

<http://www.curriculum.org/occ/profiles/profiles.htm>

ARMdocs for several Technological Education profiles can be found at:

<http://www.octe.on.ca>

The Technological Education policy documents can be found at:

<http://www.edu.gov.on.ca/eng/document/curricul/seccurr.html>

Pre-activity Planning Notes

This activity is well suited for developing signage or information displays for local community events, for malls or museums or schools. Teachers should look ahead to upcoming events for possible school or community collaboration.

After determining project, teachers should then decide on the scope of this activity. This activity can range from simple flat signage systems to interactive information kiosks or occupied trade show booths. If this project is used for an actual event or placement, issues of storage, delivery, installation and possible decommissioning should be pre-determined.

This activity is an open-ended design project, that concludes at the prototype/mockup stage. It incorporates every aspect of design analysis, design synthesis, technical drawing, testing/prototyping and technical reporting. It can be used for the final culminating task for the course. While 15 hours should be plenty of time for completion of design and fabrication prototypes, the fabricating of any final products, installations, etc. is beyond the scope of this activity. If the teacher decides on bringing this project to an end result, time should be allocated for the extra work.

Teachers should prepare example existing information systems or arrange for students to bring in pictures and/or observation notes from research into similar projects. Teachers should review engineering principles of structures used in displays.

Expectations by Category (from Course Profile)

Knowledge

- TF3.01** identify, in technical reports, factors (e.g., materials, fabrication methods, trends, costs, ergonomics, alternative solutions) that influence design decisions for a particular product;
- SP1.03** identify materials for particular projects based on desired physical properties using technical reference material such as *Machinery's Handbook*, *Sweet's Catalogue*, or *Architectural Graphics Standards*;
- ICV.01** identify concerns related to technical design, such as product safety, durability, costs, choice of materials, and ergonomics;

Inquiry

- TFV.01** use the design process to create products or services based on an analysis of consumer needs and market requirements;
- TFV.05** determine project criteria and evaluate solutions to decide how well the criteria have been met;
- SPV.02** analyse the physical characteristics of common building and manufacturing materials proposed for a design solution;
- SPV.04** estimate the materials, fabrication, and labour costs associated with a project;
- SPV.05** build effective models and prototypes;
- TF1.01** evaluate consumer needs and expectations in relation to a specific product;
- TF1.02** evaluate the suitability of materials to meet the project criteria based on the

materials' properties and costs, and on the manufacturing methods being used;

TF2.01 apply the design process to develop solutions for a particular product or service;

TF3.02 evaluate solutions to ensure that project criteria are met;

Communication

SPV.01 follow drafting conventions to produce technical drawings;

SPV.03 produce technical reports and design briefs that follow a prescribed format;

TF2.02 create technical drawings that reflect appropriate line type, weight, and density;

TF2.03 use technical illustrations, drafting, computer graphics, and models to present ideas and solutions;

SP1.01 create effective design briefs that outline consumer needs and any other requirements or limitations that will affect the design solution;

SP1.02 produce technical reports that follow a prescribed format;

Application

TFV.02 follow Canadian Standards Association (CSA) drawing practices (e.g., using standardized symbols orthographic projection and applicable codes such as the Ontario Building Code, the Electrical Safety Code, and municipal by-laws) when creating drawings;

ICV.03 describe liability issues that necessitate the inclusion of safety features in a product's design;

ICV.04 follow safe operating procedures for tools and materials.

Assessment/Evaluation

Students will be assessed and evaluated on the following deliverables. See the Student Project Brief for assessment/evaluation instruments.

	Deliverable	Notes	Suggested Time (hr)
1	Project Proposal (incl. sketches)	Individual	3
2	Model/mockups	Team	4
3	Production prototype/end user product	Team	6
4	Post project design report	Individual	2
5	Time Log	Individual (for discussion)	-

NOTE: this activity can be used as the final culminating activity of the course.

Terminology List

Anthropometrics:	the statistical study of the dimensions of the human body, used by designers to ensure proper heights of surfaces or distances of reach.
Branding:	creating an image of a product, service or company brand in a potential customer's mind.
Display Booth:	a self-standing area for displaying information, generally with operators to offer visitors further information or to ask questions. Can be as simple as a tabletop, or as complex as a wide area with several operators.
Ergonomics:	the study of the human-machine or human-mechanism interface, used by designers to ensure proper and comfortable use of components, such as handles or screen heights.
Industrial Design:	the design of commercial devices, equipment and systems, (the "bought" environment), as opposed to architecture, the design of spaces, (the "built" environment).
Kiosk:	a self-standing device or system to present information, (such as directions, event times, product advertising). Kiosks range from single signage to multimedia interactive display booths.
Mock-up	a full-scale model of a product, usually made of simple and cheap materials such as cardboard or wood. Used in testing scale, ergonomics, mechanisms, etc.
Prototype:	a full scale, initial model of a designed product, generally operational to test functionality, durability, etc.
Trade Show:	an exhibition event that gathers like-minded vendors from a business area or trade to display and sell their wares or services. There is probably a trade show for just about anything. Developing and presenting trade shows is a multi-billion industry in Canada.

Reference Resources

Books

Gordon, J.E. ***The New Science of Strong Materials***. Markham, Ontario: Penguin Books, 1999. ISBN 0-306-80151-5

Gordon, J.E. ***Structures, or Why Things Don't Fall Down***. Markham, Ontario: Penguin Books, 1999. ISBN 0-306-80151-5

These two books by Gordon describe material, structural properties and the underlying physics and chemistry. Concepts such as stress, strain, mechanical strength and the science of structures are described. This is very important information to have as background knowledge when designing structures and determining materials to use in projects.

Norman, Donald A. ***The Design of Everyday Things***. New York: Doubleday, 1988. ISBN 0-385-26774-6

Norman describes the symbolic and psychological meaning of everyday objects. These concepts are used by designers when they are designing objects for human use. The concept of symbolism is important when designing structures to deliver messages and advertise products and services, as information booths and kiosks are designed to do.

Salvadori, M. ***The Art of Construction, Projects and Principles for Beginning Engineers and Architects***. Chicago: Chicago Review Press 1990. ISBN 1-55652-080-8

Salvadori describes the principles of structures such as the arch, trusses, post and beam, geodesic dome, etc. This is important knowledge when designing display structures and associated joinery that will carry loads.

Websites

Suggested keywords are “kiosk”, “exhibits”, “trade shows”, “branding”. Other sites specific to the project may be searched (e.g., world fairs, trade shows or local malls). Specific sites include:

Core77 Design Network – <http://www.core77.com/>

Core 77 is a design magazine. This site features information on design events, current research and directions, careers in design, design competitions, and information to design companies.

Feature Factory (Canadian) - <http://www.fefa.com>

According to their website, “Feature Factory is the largest company in Canada devoted to the design and construction of eye-catching and media savvy features and special projects, and has been a strategic resource to the architecture and design community

since 1984.” The Feature Factory are designers of information kiosks, trade show booths, architectural signage and design prototypes of steel, fabric and wood, and their web site showcases their many products, (mostly Canadian).

Kiosk Design – <http://www.kiosks.org>

This site is a kiosk industry association portal that highlights kiosks industry news, lists kiosk manufacturers and designers, and offers information on all types of kiosks and public information terminals. Links go to various commercial kiosk sites and related industry news.

TSNN Ultimate Trade Show Resource -

<http://www2.tsnn.com/html/forexhibitors/boothtools.html>

This page on the TSNN site lists helpful hints on designing and operating trade show booths, calculating costs, and design tips and trends

Designing Useable Public Information/Transaction Machines –

<http://trace.wisc.edu/world/kiosks/>

Information on current design issues on access for ITM and ATM kiosk devices. News on Canada’s approach can be found at http://www.kioskmarketplace.com/news_story.htm?i=10552

KIOSK Marketplace - <http://www.kioskmarketplace.com/index.htm>

An industry magazine site that lists current news items on public information/transaction machines or ITMs.

Exhibit Builder Net - <http://www.exhibitbuilder.net/default.asp>

An industry site with information and links for exhibition booth builders.

Resource Note:

The URLs for the websites were verified by the writers prior to publication. Given the frequency with which these designations change, teachers should always verify the websites prior to assigning them for student use.

The ARMdocs make reference to the use of specific texts, magazines, films, videos, and websites. Teachers need to consult their board policies regarding use of any copyrighted materials. Before reproducing materials for student use from printed publications, teachers need to ensure that their board has a Cancopy licence and that this licence covers the resources they wish to use. Before screening videos/films with their students, teachers need to ensure that their board/school has obtained the appropriate public performance videocassette licence from an authorized distributor, e.g., Audio Cine Films Inc. Teachers are reminded that much of the material on the Internet is protected by copyright. The copyright is usually owned by the person or organization that created the work. Reproduction of any work or substantial part of any work on the Internet is not allowed without the permission of the owner.

Design Considerations: Information Booth

DESIGN CONSIDERATIONS: INFORMATION BOOTH

Environmental Graphics

- symbolism
- colour
- clarity
- fonts
- distance

Message

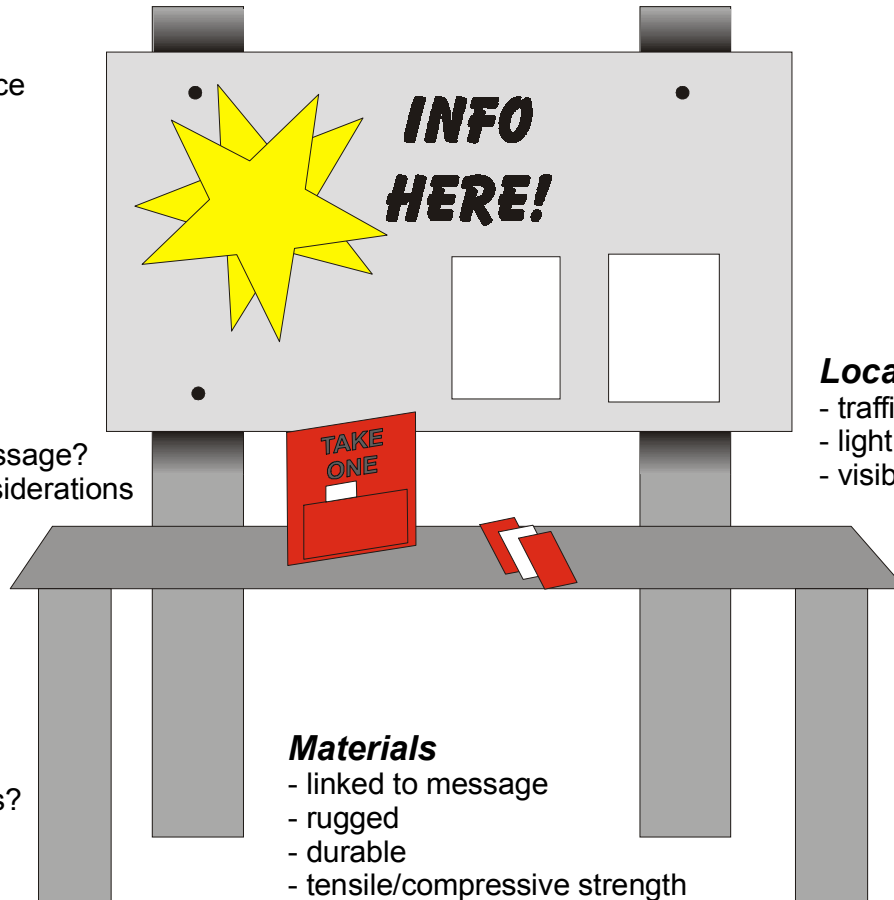
- symbolism
- clarity
- cultural considerations

Structure

- strength
- joinery
- linked to message?
- outdoor considerations

Location

- traffic considerations
- lighting
- visibility



Storage

- off season?
- compactness?
- reusable?

Materials

- linked to message
- rugged
- durable
- tensile/compressive strength
- cost
- labour costs

Public Safety

- is it stable?
- sharp edges/childproof?
- to building codes?

Anthropomorphic Dimensions

- height for intended audience
- eye level
- font size/readability
- interactivity considerations

Installation/Dismantalling

- ease of building/takedown
- ease of shipping
- additional costs?

ARMdoc: TDJ3MU4A2

Career Information

TDJ3M Technological Design

UNIT 4: ACTIVITY 2:

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Career Information Sites:

Human Resources Development Canada: National Occupational Classification Database-

<http://www.hrdc-drhc.gc.ca/noc>

HRDC NOC Search Engine-

<http://www.worklogic.com:81/noc/Query.htm?lang=e>

Ontario Prospects: geared to young people and students

<http://www.edu.gov.on.ca/eng/general/elemsec/job/prospect/eng/index.html>

Job Futures 2000: what's hot, what's not

<http://www.hrdc-drhc.gc.ca/JobFutures>

Job Profiles: real people profile their jobs

<http://www.jobprofiles.org/index.htm>

Canada WorkInfoNet: national and regional market info

<http://www.workinonet.ca>

The following activity related careers are described in the Human Resources Development Canada (HRDC) National Occupational Classification (NOC) database. Use the search engine link above to learn the main duties performed by practitioners of each trade, the education requirements for the position, and related occupations.

5243 Theatre, Fashion, Exhibit and Other Creative Designers

5241 Graphic Designers and Illustrating Artists ()

2252 Industrial Designers ()

5242 Interior Designers ()

Diorama maker-museums and galleries (in 5212 Technical Occupations Related to Museums and Galleries)

Student Project Brief

TDJ3M Technological Design

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Contents:

1. Project Brief Handout: Design of an Information Display Booth
2. Design Scenario Handout: Technology Information Booth
3. Design Report Format
4. Evaluation Rubrics: Engineering Design Brief/Proposals, Engineering Model/Prototype Fabrication, Engineering Design Report
5. Daily Log Form

NOTE: this Student Project Brief details an assignment to produce a display booth for advertising/showcasing a school's technological achievements at their local mall. This is just one of many types of projects that can be accomplished to satisfy the requirements of the activity as described in the profile.

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Title:	<i>Design of an Information Display Booth</i>		
Activity:	Design and build a display booth for the local mall	Course:	TDJ3M Technological Design
Time Req'd:	15 hours	Date:	
RATIONALE			
<p>How we present information is as important as the information itself. When we want to present information, directions, gather input, etc., we have to consider the symbolism inherent in materials, in size and shape, in types of display, in graphical design, as well as the information we wish to convey. In the multi-billion dollar trade fair and event display industry, the structures and sign layouts are important aspects of relaying information to the public. In this project, you develop an exhibition display system that takes into account: material properties; shipping, assembly, and installation issues; environment issues; display types; and end user/client requirements.</p>			
THE ASSIGNMENT			
<p>You will design and build a display booth for a local mall to showcase the technology courses at your school.</p>			
KEY CONCEPTS: You will:			
<ol style="list-style-type: none"> 1. Document the process of researching, testing and prototyping a design for a display booth 2. Identify client and user requirements, material properties, structural elements, material and labour costs, liability issues and usability issues for your design solution 3. Write project proposals and design reports describing your process of design 4. Produce technical drawings and illustrations using industry standards 5. Build models, prototypes and complete products safely 			
TOOLS AND MATERIALS			
<p>Modeling tools, cardboard, tape, utility knives, CADD software, drawing and illustration tools, woodworking/plastics, fabric and/or metal tools as required, computer and/or video displays if required, electrical wiring tools if required, computers and associated equipment for word processing, spreadsheet/database development, drawing, modeling and presentation.</p>			
NOTES			

EVALUATION				
No.	Deliverable	Time Limit (periods)	% Weight	Notes
1	Design brief/proposal	2	10	
2	Sketches/models/test models	5	20	(in proposal and design report)
3	Completed prototypes/products	6	30	
4	Engineering report/presentation	2	40	
5	Time log	-	-	Incorporate in design report
	TOTALS	15	100%	
NOTES				
<p>All sketches, design process documentation and logs to be saved for presentation and assessment. Marks based on effort, initiative, creativity, quality of work and documentation of work accomplished. See your facilitator for approvals at all stages</p>				
PROJECT PROCEDURE				
Step	Procedure			
1	<p>Situation Analysis (Individual) (approximately two periods) Initiate log of hours Read design scenario Analyse requirements and research current designs Develop list of design criteria List possible steps to develop solution Hand in personal Design Proposal</p>			
2	<p>Drawing, Modelling and Testing (Teams) (approximately five periods) Discuss and brainstorm design criteria and possible solutions Develop sketches and models of possible solutions Choose appropriate design features for further work Develop mock-up, test for ergonomics, user survey comments Record all work and photograph all model work Retain materials for Engineering Report Seek teacher approval for continuation.</p>			
3	<p>Implementation (Teams) (approximately six periods) Determine team responsibilities and assign a Project Manager. Fabricate structure and test structural strength, fasteners, finishes, etc. Assemble and record test results, design process</p>			
4	<p>Engineering Design Report (Teams and Individual) (approximately two periods) Produce Engineering Design Report, ensure all format, headings, images, drawings, etc. are incorporated Incorporate timesheets/logs for each individual Present design features to class Hand in report</p>			

Design Scenario: Technology Information Booth

The school board has been asked to display the technological expertise of their students at a booth in the local mall. Our firm has been asked to produce an information display booth to provide mall goers with an opportunity to experience the kind of technological accomplishments of the local school. It is expected that the booth will be occupied by at least two selected students at all times. This booth will be in use for one weekend, but will be stored for future uses.

Design Statement

Design a standalone information display booth for two (2) operators for the local school board to highlight their technological achievements.

Design Considerations

You are to consider the *SUM* of this design:

SITUATION: location, time, season, current practices, safety codes

USER: intended audience, end user, customer

MESSAGE: theme, clarity, utility, rationalization, symbolic intent

(The following to be identified in Proposal and Engineering Design Report):

- Client requirements: cost, space requirements, maintenance, durability, building codes, prefab elements, quick assembly/tear-down, storage and reuse.
- End User requirements: message to convey, location, audience, theme, demographics.
- Types of existing designs: kiosks, signs, interactive elements, temporary mall displays.
- Materials: symbolic meaning, e.g., metal, video screens: high tech, wood: construction shop, etc.
- Materials: ease of manufacture, assembly, strength of structure, durability, vandalism, finishes etc.
- Identify and comment on your comparative evaluation of each of these materials, to be answered in the design brief.
- Wood sheeting: Plywood, MDF, Masonite, Particle board.
- Wood structural elements: fir, spruce, pine, maple, oak, others.
- Metals: aluminum, steel, stainless steel, cold rolled steel, non-ferrous: brass, bronze, copper, etc.

- Metal structural elements: sheet, tube (square, round), flat bar, castings.
- Plastics: acrylic, Lexan, epoxy, fiberglass, vacuum formed, coatings, Coroplast (corrugated plastic sheet).
- Other: glass, rubber, concrete, stone, virtual stone.
- Fastenings: ease of assembly, installation, storage
- Shape/style: symbolism, location, size, use of colour/graphical elements, material and fastening considerations.
- Safety: installation and assembly safety, public safety, safety legislation.
- Comparison of current designs, with a description on how they might be improved.

Deliverables

We require the following:

- Design Proposal: detailing your individual research into client, display operators and audience requirements; symbols, colours, and themes of the school's technology; considerations of design; possible solutions
- From there, we will be assembling design teams to:
sketch, illustrate, and model possible solution(s);
build and test full-scale mock-up for ease of assembly, scale, and ergonomics;
build full-scale prototype, complete solution
- Engineering Design Report detailing design features, processes used to arrive at solutions and criteria considerations.
- Your job is evaluated through the completed project; criteria for your report are in the following rubric. The Engineering Design Report must include all your time sheets

Design Report Format

1. Title Page

The title page is used to grab the attention of the reader. As such, it should contain some form of illustration that appeals to the reader. It should also contain the name of the report, the name(s) of the persons that produced the report, for whom the report has been prepared and the date of production.

2. Problem Statement

The problem statement describes the identified needs and situation of the project at hand. This statement is very brief (approximately one or two sentences).

3. Design Criteria

This section outlines the set of factors that influenced the design, such as cost considerations, size limitations, user requirements, material or component properties, etc. This is the section that guided the design. It may be in bullet form, but as much detail as known should be here.

4. Procedure Notes

This should be an in-depth account of the process used in the design, testing and fabrication of the product. The sentences in each paragraph should be kept short and to the point. It should describe the route used to determine the solution to the design challenge, including research conducted, sources of information, modeling and testing of ideas and their results.

5. Materials

List all the materials and costs used in the fabrication of the final product.

6. Drawings or Illustrations

Include all drawings or illustrations that were used in the development and fabrication of the project. This includes rough sketches, technical drawings, illustrations and/or photographs of models or products. Ensure all drawings are properly labeled and descriptive.

7. Conclusion

Describe the results of the process of finding a solution to the design challenge. Include the results of testing solutions. Include a description on how each of the design criteria was met (or not). Describe possible improvements or modifications for future work. Suggest other users or situations that may benefit from your research and/or testing.

8. References

This is a list of all reference materials that students used in order to complete the project, including books, articles, interviews, and Internet sources.

9. Log Sheet

From your daily log records, list the dates and amount of hours taken for each facet of the project. Each team member should include his or her personal time log.

Engineering Design Brief/Proposal Rubric

Criteria	Level 1	Level 2	Level 3	Level 4
<p>Knowledge/Understanding Knowledge of facts, influencing design decisions TF3.01</p> <p>Understanding of material properties SP1.03</p>	<p>- demonstrates limited identification of design factors such as user requirements, location details, materials and fabrication techniques</p>	<p>- demonstrates some identification of design factors such as user requirements, location details, materials and fabrication techniques</p>	<p>- demonstrates considerable identification of design factors such as user requirements, location details, materials and fabrication techniques</p>	<p>- demonstrates a high degree of identification of design factors such as user requirements, location details, materials and fabrication techniques</p>
<p>Thinking/Inquiry Analyze user requirements and determine project criteria TFV.01, TFV.05, TF1.01, TF1.02, TF2.01 SPV.02</p>	<p>- evaluates few user requirements</p> <p>- evaluates few design criteria</p> <p>- makes little rationalization of material choices</p>	<p>- evaluates user requirements, needs work in rationalization</p> <p>- evaluates some design criteria, needs work on rationalization</p> <p>- makes some rationalization of material choices</p>	<p>- evaluates user requirements thoroughly, good rationalization</p> <p>- evaluates many design criteria, good rationalization</p> <p>- good rationalization of material choices</p>	<p>- evaluates user requirements thoroughly and exactly, very thorough rationalization</p> <p>- evaluates many design criteria completely, thorough rationalization</p> <p>- thorough rationalization of material choices, lots of comparisons</p>
<p>Communication Uses effective illustration, writing techniques SPV.03, TF2.03, SP1.01, SP1.02</p>	<p>- uses language, symbols, and visuals with limited accuracy and effectiveness</p> <p>- design brief requires further clarification and/or formatting</p>	<p>- uses language, symbols, and visuals with some accuracy and effectiveness</p> <p>- design brief requires minor corrections for clarification and/or formatting</p>	<p>- uses language, symbols, and visuals with considerable accuracy and effectiveness</p> <p>- design brief is clear, accurate and properly formatting</p>	<p>- uses language, symbols, and visuals with a high degree of accuracy and effectiveness</p> <p>- design brief is clear, accurate, properly formatting and exceptionally creative</p>
<p>Application Describes liability issues ICV.03</p>	<p>- describes some liability and safety issues in product design in limited fashion</p>	<p>- describes many liability and safety issues in product design in limited fashion</p>	<p>- describes liability and safety issues in product design accurately and fully</p>	<p>- describes liability and safety issues as well as access issues in product design accurately and fully</p>

Engineering Model/Prototype Fabrication Rubric

Criteria	Level 1	Level 2	Level 3	Level 4
Knowledge/Understanding Identify concerns in technical design ICV.01	- models or prototypes demonstrate limited consideration of technical features	- models or prototypes demonstrate consideration of some technical features	- models or prototypes demonstrate thorough consideration of technical features	- models or prototypes demonstrate thorough research and evaluation of technical features
Thinking/Inquiry Analysis and evaluation by testing TFV.01, TFV.05, SPV.02, SPV.05, TF1.01, TF1.02, TF2.01, TF3.02	- models and prototypes demonstrate limited consideration of material properties, user requirements or specific location features	- models and prototypes demonstrate some consideration of material properties, user requirements or specific location features	- models and prototypes demonstrate thorough consideration of material properties, user requirements or specific location features	- models and prototypes demonstrate thoroughly researched and creative consideration of material properties, user requirements or specific location features
Communication Presentation of ideas and solutions TF2.03	- uses model details and visuals with limited accuracy and effectiveness	- uses model details, and visuals with some accuracy and effectiveness	- uses model details, symbols, and visuals with considerable accuracy and effectiveness	- uses model details, symbols, and visuals with a high degree of accuracy and effectiveness
Application Use procedures, tools, and equipment safely ICV.04	- uses procedures, equipment, and technology safely and correctly only with supervision	- uses procedures, equipment, and technology safely and correctly with some supervision	- use procedures, equipment, and technology safely and correctly	- demonstrates and promotes the safe and correct use of procedures, equipment, and technology

Engineering Design Report Rubric

Criteria	Level 1	Level 2	Level 3	Level 4
<p>Knowledge/Understanding Knowledge of facts, influencing design decisions TF3.01, ICV.01</p> <p>Understanding of material properties SP1.03</p>	<p>- demonstrates limited identification of design factors such as user requirements, location details, materials and fabrication techniques</p> <p>- demonstrates limited understanding of design factors (safety, ergonomics, etc.) to be considered</p>	<p>- demonstrates some identification of design factors such as user requirements, location details, materials and fabrication techniques</p> <p>- demonstrates some understanding of design factors (safety, ergonomics, etc.) to be considered</p>	<p>- demonstrates considerable identification of design factors such as user requirements, location details, materials and fabrication techniques</p> <p>- demonstrates considerable understanding of design factors (safety, ergonomics, etc.) to be considered</p>	<p>- demonstrates a high degree of identification of design factors such as user requirements, location details, materials and fabrication techniques</p> <p>- demonstrates thorough understanding of design factors (safety, ergonomics, etc.) to be considered</p>
<p>Thinking/Inquiry Analyze user requirements and determine project criteria TFV.01, TFV.05, TF1.01, TF1.02, TF2.01 SPV.02, SPV.04, TF3.02</p>	<p>- evaluates few user requirements, makes little rationalization of material choices</p> <p>- makes limited match between criteria and solution(s)</p>	<p>- evaluates user requirements, needs work in rationalization, makes some rationalization of material choices</p> <p>- makes some important matches between criteria and solution(s)</p>	<p>- evaluates user requirements thoroughly, good rationalization, good rationalization of material choices</p> <p>- makes many important matches between criteria and solution(s)</p>	<p>- evaluates user requirements thoroughly and exactly, very thorough rationalization, of material choices, lots of comparisons</p> <p>- makes many important matches and generalizations between criteria and solution(s)</p>
<p>Communication Uses effective technical drawing, illustration, writing techniques SPV.01, SPV.03, TFT2.02, TF2.03, SP1.02</p>	<p>- uses language, symbols, and technical drawings with limited accuracy and effectiveness</p> <p>- design report requires further clarification and/or formatting</p>	<p>- uses language, symbols, and technical drawings with some accuracy and effectiveness</p> <p>- design report requires minor corrections for clarification and/or formatting</p>	<p>- uses language, symbols, and technical drawings with considerable accuracy and effectiveness</p> <p>- design report is clear, accurate and properly formatting</p>	<p>- uses language, symbols, and technical drawings with a high degree of accuracy and effectiveness</p> <p>- design report is clear, accurate, properly formatting and exceptionally creative</p>
<p>Application Follows CSA drawing standards TFV.02</p>	<p>- drawings require remedial work to come to CSA standards, missing code details</p>	<p>- drawings have minor errors in CSA standards and code details</p>	<p>- drawings are to CSA standards and codes</p>	<p>- accurate and professional level of drawings standards</p>

Daily Log

Student:	
Class:	

Date	Project	Function	Hours	Teacher Signature

Total Hours:	
Student Signature:	
Teacher Signature:	

Safety Resource Pack

TDJ3M Technological Design

UNIT 4: ACTIVITY 2:

Design of an Information Kiosk/Device

Contents:

1. Safety Data Sheets:
 1. general lab safety
 2. power tools
 3. hand tools
 4. band saw
 5. table saw
 6. utility knives
 7. sander
 8. glues and solvents
2. Safety Passport
3. Safety Test

NOTE:

All personnel in a shop environment must be wearing approved safety eyewear at all times.

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INSERT THE FOLLOWING SHEETS FROM THE SAFETY RESOURCE PACK:

Safety Data Sheets:

- 9. general lab safety
- 10. power tools
- 11. hand tools
- 12. band saw
- 13. table saw
- 14. utility knives
- 15. sander
- 16. glues and solvents

Safety Passport(s)

Safety Test(s)