

Bemidji Middle School Industrial Technology Outcomes – Revised 2010

Communication Technology		Grades 6-7
Standards	Benchmarks	Activities/Examples
1. Students will develop an understanding of the characteristics and scope of technology.	F New products and systems can be developed to solve problems or to help do things that could not be done without the help of technology.	<p>A student shall use appropriate technology to access, evaluate, and organize information and to produce products by:</p> <ol style="list-style-type: none"> Gathering and evaluating information from electronic sources* Applying appropriate technology processes to an identified need or problem Selecting language, format, and graphics appropriate for purpose and audience by using word processing, graphics, multimedia, spread sheets, and/or databases Maintaining, using, or creating a technological system <p>*These include, but not limited to, images, sound files, animations, and scanned materials.</p>
	H Technology is closely linked to creativity, which has resulted in innovation.	<p>Knows and uses the 6 elements of design when creating projects:</p> <ol style="list-style-type: none"> line color shape form space texture <p>Creates a website project and posts it on the internet:</p> <ol style="list-style-type: none"> students are to evaluate a need to include a particular topic (web page) on the Middle School web site plan and design the site: <ol style="list-style-type: none"> idea generation (brainstorming) concept map storyboard acquire data for the site minimum criteria: <ol style="list-style-type: none"> a theme followed throughout the website text or information (messages with at least one scrollable textbox)

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			<ul style="list-style-type: none"> 3. internal links (links to pages within their website) 4. external link (links to the <u>World Wide Web</u>) 5. coordinating colors 6. photographs 7. clip art 8. animations 9. uses a column layout 10. troubleshoot issues as they occur <p>Creates animations (animated gif) and incorporates them into their websites</p> <ul style="list-style-type: none"> a. understand the basics of “Flash” software b. plan or design (storyboard) your idea c. create an animated message* d. troubleshoot issues as they occur <p>*The message will support their Web Site and be included in its design</p>
<p>2. Students will develop an understanding of the core concepts of technology.</p>	<p>M</p>	<p>Technological systems include input, processes, output, and at times, feedback.</p>	<p>Understands the process of:</p> <ul style="list-style-type: none"> a. communication <ul style="list-style-type: none"> 1. sender 2. receiver 3. message 4. feedback b. communication systems <ul style="list-style-type: none"> 1. source 2. encoder 3. transmitter 4. receiver 5. decoder 6. destination

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	<p>P Technological systems can be connected to one another.</p>	<p>Creates a website project and posts it on the internet:</p> <ol style="list-style-type: none"> a. students are to evaluate a need to include a particular topic (web page) on the Middle School web site b. plan and design the site: <ol style="list-style-type: none"> 1. idea generation (brainstorming) 2. concept map 3. storyboard c. acquire data for the site d. minimum criteria: <ol style="list-style-type: none"> 1. a theme followed throughout the website 2. text or information (messages with at least one scrollable textbox) 3. internal links (links to pages within their website) 4. external link (links to the <u>World Wide Web</u>) 5. coordinating colors 6. photographs 7. clip art 8. animations 9. uses a column layout 10. troubleshoot issues as they occur <p>Creates animations (animated gif) and incorporates them into their websites</p> <ol style="list-style-type: none"> a. understand the basics of “Flash” software b. plan or design (storyboard) your idea c. create an animated message* d. troubleshoot issues as they occur <p>*The message will support their Web Site and be included in its design</p>

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	<p>Q Malfunctions of any part of a system may affect the function and quality of the system.</p>	<p>Creates a website project and posts it on the internet:</p> <ol style="list-style-type: none"> a. students are to evaluate a need to include a particular topic (web page) on the Middle School web site b. plan and design the site: <ol style="list-style-type: none"> 1. idea generation (brainstorming) 2. concept map 3. storyboard c. acquire data for the site d. minimum criteria: <ol style="list-style-type: none"> 1. a theme followed throughout the website 2. text or information (messages with at least one scrollable textbox) 3. internal links (links to pages within their website) 4. external link (links to the <u>W</u>orld <u>W</u>ide <u>W</u>eb) 5. coordinating colors 6. photographs 7. clip art 8. animations 9. uses a column layout 10. troubleshoot issues as they occur <p>Creates animations (animated gif) and incorporates them into their websites</p> <ol style="list-style-type: none"> a. understand the basics of “Flash” software b. plan or design (storyboard) your idea c. create an animated message* d. troubleshoot issues as they occur <p>*The message will support their Web Site and be included in its design</p>

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	<p>R Requirements are the parameters placed on the development of a product or system.</p>	<p>Creates a website project and posts it on the internet:</p> <ol style="list-style-type: none"> a. students are to evaluate a need to include a particular topic (web page) on the Middle School web site b. plan and design the site: <ol style="list-style-type: none"> 1. idea generation (brainstorming) 2. concept map 3. storyboard c. acquire data for the site d. minimum criteria: <ol style="list-style-type: none"> 1. a theme followed throughout the website 2. text or information (messages with at least one scrollable textbox) 3. internal links (links to pages within their website) 4. external link (links to the <u>World Wide Web</u>) 5. coordinating colors 6. photographs 7. clip art 8. animations 9. uses a column layout 10. troubleshoot issues as they occur <p>Creates animations (animated gif) and incorporates them into their websites</p> <ol style="list-style-type: none"> a. understand the basics of “Flash” software b. plan or design (storyboard) your idea c. create an animated message* d. troubleshoot issues as they occur <p>*The message will support their Web Site and be included in its design</p>
<p>8. Students will develop an understanding of the attributes of design.</p>	<p>E Design is a creative planning process that leads to useful products and systems.</p>	<p>Knows the steps involved with designing messages:</p> <ol style="list-style-type: none"> a. identify your audience b. know your content (message) c. decide on the format

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	<p>F There is no perfect design.</p>	<p>Knows the steps involved with designing messages:</p> <ul style="list-style-type: none"> a. identify your audience b. know your content (message) c. decide on the format
	<p>G Requirements for design are made up of criteria and constraints.</p>	<p>Knows the steps involved with designing messages:</p> <ul style="list-style-type: none"> d. identify your audience e. know your content (message) f. decide on the format <p>Creates a website project and posts it on the internet:</p> <ul style="list-style-type: none"> a. students are to evaluate a need to include a particular topic (web page) on the Middle School web site b. plan and design the site: <ul style="list-style-type: none"> 1. idea generation (brainstorming) 2. concept map 3. storyboard c. acquire data for the site d. minimum criteria: <ul style="list-style-type: none"> 1. a theme followed throughout the website 2. text or information (messages with at least one scrollable textbox) 3. internal links (links to pages within their website) 4. external link (links to the <u>World Wide Web</u>) 5. coordinating colors 6. photographs 7. clip art 8. animations 9. uses a column layout 10. troubleshoot issues as they occur

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			<p>Creates animations (animated gif) and incorporates them into their websites</p> <ol style="list-style-type: none"> a. understand the basics of “Flash” software b. plan or design (storyboard) your idea c. create an animated message* d. troubleshoot issues as they occur <p>*The message will support their Web Site and be included in its design</p>
<p>9. Students will develop an understanding of engineering design.</p>	F	<p>Design involves a set of steps, which can be performed in different sequences and repeated as needed.</p>	<p>Uses design procedures which include:</p> <ol style="list-style-type: none"> a. idea generation (brainstorming their interests) b. concept map (logical, sequential order of their website) c. storyboard (roadmap or drawing on paper of their website)
	G	<p>Brainstorming is a group problem-solving design process in which each person in the group presents his or her ideas in an open forum.</p>	<p>Uses design procedures which include:</p> <ol style="list-style-type: none"> a. idea generation (brainstorming their interests) b. concept map (logical, sequential order of their website) c. storyboard (roadmap or drawing on paper of their website)
<p>10. Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.</p>	F	<p>Troubleshooting is a problem-solving method used to identify the cause of a malfunction in a technological system.</p>	<p>Creates a website project and posts it on the internet:</p> <ol style="list-style-type: none"> a. students are to evaluate a need to include a particular topic (web page) on the Middle School web site b. plan and design the site: <ol style="list-style-type: none"> 1. idea generation (brainstorming) 2. concept map 3. storyboard c. acquire data for the site d. minimum criteria: <ol style="list-style-type: none"> 1. a theme followed throughout the website 2. text or information (messages with at least one scrollable textbox) 3. internal links (links to pages within their website) 4. external link (links to the <u>World Wide Web</u>)

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		<ul style="list-style-type: none"> 5. coordinating colors 6. photographs 7. clip art 8. animations 9. uses a column layout 10. troubleshoot issues as they occur <p>Creates animations (animated gif) and incorporates them into their websites</p> <ul style="list-style-type: none"> a. understand the basics of “Flash” software b. plan or design (storyboard) your idea c. create an animated message* d. troubleshoot issues as they occur <p>*The message will support their Web Site and be included in its design</p>
	<p>H Some technological problems are best solved through experimentation.</p>	<p>Creates a website project and posts it on the internet:</p> <ul style="list-style-type: none"> a. students are to evaluate a need to include a particular topic (web page) on the Middle School web site b. plan and design the site: <ul style="list-style-type: none"> 1. idea generation (brainstorming) 2. concept map 3. storyboard c. acquire data for the site d. minimum criteria: <ul style="list-style-type: none"> 1. a theme followed throughout the website 2. text or information (messages with at least one scrollable textbox) 3. internal links (links to pages within their website) 4. external link (links to the <u>World Wide Web</u>) 5. coordinating colors 6. photographs 7. clip art 8. animations 9. uses a column layout

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			<p>10. troubleshoot issues as they occur</p> <p>Creates animations (animated gif) and incorporates them into their websites</p> <ol style="list-style-type: none"> a. understand the basics of “Flash” software b. plan or design (storyboard) your idea c. create an animated message* d. troubleshoot issues as they occur <p>*The message will support their Web Site and be included in its design</p>
<p>11. Students will develop the abilities to apply the design process.</p>	<p>H</p>	<p>Apply a design process to solve problems in and beyond the laboratory-classroom.</p>	<p>Creates animations (animated gif) and incorporates them into their websites</p> <ol style="list-style-type: none"> e. understand the basics of “Flash” software f. plan or design (storyboard) your idea g. create an animated message* h. troubleshoot issues as they occur <p>*The message will support their Web Site and be included in its design</p> <p>Creates a website project and posts it on the internet:</p> <ol style="list-style-type: none"> a. students are to evaluate a need to include a particular topic (web page) on the Middle School web site b. plan and design the site: <ol style="list-style-type: none"> 1. idea generation (brainstorming) 2. concept map 3. storyboard c. acquire data for the site d. minimum criteria: <ol style="list-style-type: none"> 1. a theme followed throughout the website 2. text or information (messages with at least one scrollable textbox) 3. internal links (links to pages within their website) 4. external link (links to the <u>World Wide Web</u>) 5. coordinating colors 6. photographs 7. clip art

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		<ul style="list-style-type: none"> 8. animations 9. uses a column layout 10. troubleshoot issues as they occur <p>Creates animations (animated gif) and incorporates them into their websites</p> <ul style="list-style-type: none"> a. understand the basics of “Flash” software b. plan or design (storyboard) your idea c. create an animated message* d. troubleshoot issues as they occur <p>*The message will support their Web Site and be included in its design</p>
	<p>I Specify criteria and constraints for the design.</p>	<p>Creates a website project and posts it on the internet:</p> <ul style="list-style-type: none"> a. students are to evaluate a need to include a particular topic (web page) on the Middle School web site b. plan and design the site: <ul style="list-style-type: none"> 1. idea generation (brainstorming) 2. concept map 3. storyboard c. acquire data for the site d. minimum criteria: <ul style="list-style-type: none"> 1. a theme followed throughout the website 2. text or information (messages with at least one scrollable textbox) 3. internal links (links to pages within their website) 4. external link (links to the <u>World Wide Web</u>) 5. coordinating colors 6. photographs 7. clip art 8. animations 9. uses a column layout 10. troubleshoot issues as they occur

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		<p>Creates animations (animated gif) and incorporates them into their websites</p> <ol style="list-style-type: none"> a. understand the basics of “Flash” software b. plan or design (storyboard) your idea c. create an animated message* d. troubleshoot issues as they occur <p>*The message will support their Web Site and be included in its design</p>
	<p>J Make two-dimensional and three-dimensional representations of the designed solution.</p>	<p>Uses design procedures which include:</p> <ol style="list-style-type: none"> a. idea generation (brainstorming their interests) b. concept map (logical, sequential order of their website) c. storyboard (roadmap or drawing on paper of their website)
	<p>K Test and evaluate the design in relation to pre-established requirements, such as criteria and constraints, and refine as needed.</p>	<p>Uses design procedures which include:</p> <ol style="list-style-type: none"> a. idea generation (brainstorming their interests) b. concept map (logical, sequential order of their website) c. storyboard (roadmap or drawing on paper of their website)
	<p>L Make a product or system and document the solution.</p>	<p>Creates a website project and posts it on the internet:</p> <ol style="list-style-type: none"> a. students are to evaluate a need to include a particular topic (web page) on the Middle School web site b. plan and design the site: <ol style="list-style-type: none"> 1. idea generation (brainstorming) 2. concept map 3. storyboard c. acquire data for the site d. minimum criteria: <ol style="list-style-type: none"> 1. a theme followed throughout the website 2. text or information (messages with at least one scrollable textbox) 3. internal links (links to pages within their website)

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			<p>4. external link (links to the <u>World Wide Web</u>)</p> <p>5. coordinating colors</p> <p>6. photographs</p> <p>7. clip art</p> <p>8. animations</p> <p>9. uses a column layout</p> <p>10. troubleshoot issues as they occur</p> <hr/> <p>Creates animations (animated gif) and incorporates them into their websites</p> <p>a. understand the basics of “Flash” software</p> <p>b. plan or design (storyboard) your idea</p> <p>c. create an animated message*</p> <p>d. troubleshoot issues as they occur</p> <p>*The message will support their Web Site and be included in its design</p>
<p>12. Students will develop the abilities to assess the impact of products and systems.</p>	<p>H</p>	<p>Use information provided in manuals, protocols, or by experienced people to see and understand how things work.</p>	<p>A student shall use appropriate technology to access, evaluate, and organize information and to produce products by:</p> <p>a. Gathering and evaluating information from electronic sources*</p> <p>b. Applying appropriate technology processes to an identified need or problem</p> <p>c. Selecting language, format, and graphics appropriate for purpose and audience by using word processing, graphics, multimedia, spread sheets, and/or databases</p> <p>d. Maintaining, using, or creating a technological system</p> <p>*These include, but not limited to, images, sound files, animations, and scanned materials.</p>
	<p>I</p>	<p>Use tools, materials, and machines safely to diagnose, adjust, and repair systems.</p>	<p>A student shall use appropriate technology to access, evaluate, and organize information and to produce products by:</p> <p>a. Gathering and evaluating information from electronic sources*</p> <p>b. Applying appropriate technology processes to an identified need or problem</p> <p>c. Selecting language, format, and graphics appropriate for purpose</p>

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		<p>and audience by using word processing, graphics, multimedia, spread sheets, and/or databases</p> <p>d. Maintaining, using, or creating a technological system</p> <p>*These include, but not limited to, images, sound files, animations, and scanned materials.</p>
	<p>J Use computers and calculators in various applications.</p>	<p>A student shall use appropriate technology to access, evaluate, and organize information and to produce products by:</p> <ul style="list-style-type: none"> a. Gathering and evaluating information from electronic sources* b. Applying appropriate technology processes to an identified need or problem c. Selecting language, format, and graphics appropriate for purpose and audience by using word processing, graphics, multimedia, spread sheets, and/or databases d. Maintaining, using, or creating a technological system <p>*These include, but not limited to, images, sound files, animations, and scanned materials.</p> <p>Creates animations (animated gif) and incorporates them into their websites</p> <ul style="list-style-type: none"> a. understand the basics of “Flash” software b. plan or design (storyboard) your idea c. create an animated message* d. troubleshoot issues as they occur <p>*The message will support their Web Site and be included in its design</p> <p>Creates a website project and posts it on the internet:</p> <ul style="list-style-type: none"> a. students are to evaluate a need to include a particular topic (web page) on the Middle School web site b. plan and design the site: <ul style="list-style-type: none"> 1. idea generation (brainstorming) 2. concept map 3. storyboard c. acquire data for the site

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		<p>d. minimum criteria:</p> <ol style="list-style-type: none"> 1. a theme followed throughout the website 2. text or information (messages with at least one scrollable textbox) 3. internal links (links to pages within their website) 4. external link (links to the <u>World Wide Web</u>) 5. coordinating colors 6. photographs 7. clip art 8. animations 9. uses a column layout 10. troubleshoot issues as they occur
	<p>K Operate and maintain systems in order to achieve a given purpose.</p>	<p>A student shall use appropriate technology to access, evaluate, and organize information and to produce products by:</p> <ol style="list-style-type: none"> a. Gathering and evaluating information from electronic sources* b. Applying appropriate technology processes to an identified need or problem c. Selecting language, format, and graphics appropriate for purpose and audience by using word processing, graphics, multimedia, spread sheets, and/or databases d. Maintaining, using, or creating a technological system <p>*These include, but not limited to, images, sound files, animations, and scanned materials.</p> <p>Creates a website project and posts it on the internet:</p> <ol style="list-style-type: none"> a. students are to evaluate a need to include a particular topic (web page) on the Middle School web site b. plan and design the site: <ol style="list-style-type: none"> 1. idea generation (brainstorming) 2. concept map 3. storyboard c. acquire data for the site

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			<p>d. minimum criteria:</p> <ol style="list-style-type: none"> 1. a theme followed throughout the website 2. text or information (messages with at least one scrollable textbox) 3. internal links (links to pages within their website) 4. external link (links to the <u>World Wide Web</u>) 5. coordinating colors 6. photographs 7. clip art 8. animations 9. uses a column layout 10. troubleshoot issues as they occur <p>Creates animations (animated gif) and incorporates them into their websites</p> <ol style="list-style-type: none"> a. understand the basics of “Flash” software b. plan or design (storyboard) your idea c. create an animated message* d. troubleshoot issues as they occur <p>*The message will support their Web Site and be included in its design</p>
<p>17. Students will develop an understanding of and be able to select and use information and communication technologies.</p>	<p>H</p>	<p>Information and communication systems allow information to be transferred from human to human, human to machine, and machine to human.</p>	<p>Understands the process of:</p> <ol style="list-style-type: none"> a. communication <ol style="list-style-type: none"> 1. sender 2. receiver 3. message 4. feedback b. communication systems <ol style="list-style-type: none"> 1. source 2. encoder 3. transmitter 4. receiver 5. decoder 6. destination

Standards	Benchmarks	Activities/Examples
	<p>I Communication systems are made up of a source, encoder, transmitter, receiver, decoder, and destination.</p>	<p>Understands the process of:</p> <ul style="list-style-type: none"> a. communication <ul style="list-style-type: none"> 1. sender 2. receiver 3. message 4. feedback b. communication systems <ul style="list-style-type: none"> 1. source 2. encoder 3. transmitter 4. receiver 5. decoder 6. destination
	<p>J The design of a message is influenced by such factors as intended audience, medium, purpose, and the nature of the message.</p>	<p>Knows the steps involved with designing messages:</p> <ul style="list-style-type: none"> a. identify your audience b. know your content (message) c. decide on the format
	<p>K The use of symbols, measurements, and drawings promotes a clear communication by providing a common language to express ideas.</p>	<p>Uses design procedures which include:</p> <ul style="list-style-type: none"> a. idea generation (brainstorming their interests) b. concept map (logical, sequential order of their website) c. storyboard (roadmap or drawing on paper of their website)