

Teacher Package

Technological Education Exemplar Task Grade 9 Integrated Technologies

Teacher Package

- Title:** Electronic Poster Design
- Time requirement:** 350 minutes (five class periods of 70 minutes each)
- 70 minutes for an introduction and for research
 - 70 minutes to write a design brief and begin thumbnail sketches
 - 210 minutes to finish the thumbnail sketches and design a mock-up

Description of the Task¹

The task requires each student to research electronic poster design (not assessed individually), write a design brief, design thumbnail sketches, and produce a final mock-up for an electronic poster.

Final Products

The task includes the preparation and submission of the following:

- a two-paragraph design brief (see Appendix 1)
- four thumbnail sketches (see Appendix 2)
- a coloured 11" × 17" mock-up (see Appendix 3)

¹ This task has been adapted from Communications, Unit 2, Activity 2, in the course profile for Integrated Technologies, Grade 9, Open (Public).

Assessment and Evaluation (See Appendix 4)

Although the components that will be submitted are not to be formally assessed individually, the teacher should refer to the rubric to help students make improvements to meet expectations.

- Provide verbal feedback on the design briefs prior to students' formal submission of them.
- Provide verbal feedback on the diversity and uniqueness of the thumbnail sketches while students are preparing them.
- Engage in ongoing communication while students are preparing the final mock-ups.

Expectations Addressed in the Exemplar Task

Students will:

1. demonstrate understanding of how to develop products or provide services to meet identified needs;
2. identify solutions to given design problems that involve existing situations or new ideas;
3. identify ways to communicate design and research ideas and solutions through a variety of media;
4. use the design process correctly in the completion of projects.

Teacher Instructions

Prior Knowledge and Skills Required

To complete this task, students should have some knowledge or skills related to the following:

- using the computer for research (e.g., to obtain information on the use of electronics in poster design)
- knowledge of basic series circuits and electronic components
- applying the design process (brainstorming, creating thumbnail sketches, and creating mock-ups)
- the safe use of all equipment and tools
- word processing, including knowledge of different fonts

No previous knowledge of electronics is required to complete the exemplar task.

Discuss how our society is constantly exposed to electronic posters that are displayed in our community, on billboards, in buses, in sports arenas, gas stations, community centres, and malls.

- An electronic poster is any poster that is lit using electrical circuits, lights, and a power source.
- Some posters are lit from behind or within (e.g., hamburger outlets), while some have lights on top or in front.
- The messages may be promotional, informational, and/or public service in nature.
- Electronic posters provide information in a visually appealing manner.
- Electronic poster designers use brief, crisp phrases, eye-catching illustrations, and lights to attract attention.

Describe how the electronic poster operates:

- Activating a switch enables an electrical current to flow from a battery.
- The current flows through resistors to diodes and back to the other side of the battery.
- This process results in the emission of light.
- The light is emitted through the light-emitting diodes (LEDs) strategically mounted in the poster.

- The diodes come in a variety of colours so that they may be colour-coordinated with the design components of the poster.

Students will individually design an electronically illuminated poster that reflects a personal interest or one that can be used as a promotional or informational device (e.g., promoting a business, a service, and/or a specific product). Discuss the organizing principles of graphic design (e.g., contrast, repetition, alignment, proximity). Discuss personal interests in selecting poster themes and encourage students to share information (interests, hobbies) about themselves so that they may think about possible themes and interests.

Accommodations

Accommodations that are normally provided in the regular classroom for students with special needs should be provided in the administration of this performance task. You may wish to review the relevant course profile for specific suggestions for accommodations appropriate for students in special education programs.

Materials and Resources Required

- paper and pencil
- pencil crayons
- drafting tools
- cutting tools, glue, tape
- 11" × 17" paper
- coloured light-emitting diodes (LEDs), wire, and resistors (These are readily available from electronic suppliers. It is important for both students and teachers to know what these materials look like and how they will be attached to the final posters.)

- markers and/or water-based paints
- Internet access for one period so that students can conduct their research

Rubric*

Introduce the task-specific rubric to the students at least one day prior to the administration of the task. Review the rubric with the students and ensure that each student understands the criteria and the descriptions for achievement at each level.

Allow ample class time for a thorough reading and discussion of the assessment criteria outlined on the rubric.

Some students may perform below level 1. It will be important to identify the characteristics of their work in relation to the criteria in the assessment rubric and to provide feedback to help them improve.

Task Instructions

Note: The task ends with the completion of the full-size mock-up. However, it is recommended that students complete the entire project. Students may develop an aesthetic appreciation for the integration of electronic technology into images on paper as they develop posters for public display. Even if students are not completing the entire activity, it is recommended that you have light-emitting diodes, wire, and resistors so that students can see what they look like and how big they are. The full-size mock-up will not have LEDs attached to it, although the colour and location of the LEDs will be noted.

For information regarding completion of the activity, refer to Communications, Unit 2, Activity 2, of the course profile for Integrated Technologies, Grade 9, Open (Public).

* The rubric is reproduced on page 14 of this document.

Day 1 – Introduction

- Discuss the overall task and the assessment rubric (link evaluation criteria to submissions).
- Review the design process with the class. Discuss the sequencing of phases and the products expected at each phase.
- Discuss possible approaches (i.e., four distinct subjects or topics, or four distinctly different thematic treatments of a single subject).
- Demonstrate how to create thumbnail sketches and explain how to prepare a two-paragraph design brief (see Appendix 1). Distribute Appendix 1 to students.
- Remind students about safety issues.

Day 2 – Research and Begin Thumbnail Sketches

- Students research subject(s) to get ideas and background information on posters and simple electronic circuitry.
- Students brainstorm poster ideas and design solutions.
- Students develop thumbnail sketches exploring four distinct subjects or themes (see Appendix 2). Distribute Appendix 2 to students.

Day 3 – Finalize Thumbnail Sketches and Write Design Briefs

- Students edit and complete thumbnails in consultation with peers and the teacher.
- With reference to appropriateness of subject/theme, identified audience, and creativity of design, help each student choose the best thumbnail for a mock-up.
- Students write, edit, and submit a design brief, two paragraphs in length (see Appendix 1).

Days 4 and 5 – Create Mock-Ups

- On 11" × 17" sheets of paper, students rough out their full-scale mock-ups from selected thumbnail sketches.

- Photocopy the final mock-ups prior to colouring and indication of LED placement (if students will be continuing on to the electronic portion of the project).
- Students complete their mock-ups by generating computer type for tracing, colouring graphics and text, and carefully indicating the location of LEDs.

Note: If completing the activity, students design the electrical circuitry for the poster and assemble the final electronic poster complete with wiring, resistors, and diodes. For completion of the activity, refer to Communications, Unit 2, Activity 2, of the course profile for Integrated Technologies, Grade 9, Open (Public). Use the following instructions only if students are completing the activity and fabricating the working poster.

- Enrich the activity to accommodate learners who need a greater challenge by having students complete their designs on the computer and by expanding the complexity of the electronic circuit so that it performs various functions. For example, light sensors or variable timers could be added so that the LEDs function under various pre-designed conditions.

Note: Distribute Appendices 1 and 2 to students.

Appendix 1: Design Briefs

A design brief explains what you are going to try to create and how you think you will go about creating it. It is written to help you understand the complexity of the problem, describe possible solutions, and convince others that you have a good idea. As a designer, you have the flexibility to set your own goals. Your design brief will clearly outline your goals.

The following is an example of how to organize your design brief. It should be a minimum of two paragraphs and a maximum of one page. The design brief should be typed or, if necessary, neatly handwritten.

- Identify the problem or situation. (Refer to the outline of the activity provided by your teacher.)
- Describe your research. Outline how your research influenced how you came up with new ideas. State how your thumbnails reflect your research.
- Describe the subject or theme and state the intended purpose of the poster (e.g., information, promotion, advertisement).
- Describe the important elements to be included in the poster.
- Identify the target audience of your poster (e.g., age group) and the location where it will be displayed.
- Outline the materials that may be required for fabrication (e.g., adhesives, markers, paints, pencil crayons).

Write your brief in proper sentence format and have another student proof-read it for understanding, spelling, and grammar. Your design brief is used to help you stay on track by reminding you of your target audience and your theme.

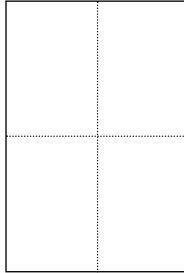
Note: Although language skills are not assessed in this task, good writing skills should be emphasized and promoted.

Appendix 2: Thumbnail Sketches

Thumbnail sketches are used to convey ideas in a visual format so that you and other people can understand the ideas. The ability to create thumbnail sketches is necessary because it helps you form a visual idea of your thoughts (e.g., Will it work? Look good? Fit the page?). You do not have to be able to draw well to create a thumbnail sketch. It is more important that it be neat and that it communicates the proposed idea or theme.

A minimum of four thumbnail sketches will help you develop your ideas further. You may draw out as many ideas as you like, but you are required to create *four very distinct* sketches so that you have a choice of which one is best for your final design. Try different ideas:

- Fold an 8 1/2" × 11" letter-size paper into four equal sections. Each quarter of the page represents one thumbnail sketch (one idea).
- Hand-draw a different idea in each of the four rectangles.
- Use a sharp pencil and draw neatly.
- Include the slogan and illustrations.
- Indicate the location and colour of LEDs on each sketch.
- You may want to ask other students or the teacher which one best represents your ideas.
- Once you are satisfied with your four design concepts, choose one for the mock-up.



Appendix 3: Mock-Ups

- Use a full 11" × 17" sheet of paper.
- Work out details, such as the colours, types of lettering (from computer fonts), and graphic objects to be included.
- Draw neatly with a sharp pencil and ruler, tracing the lettering from computer fonts.
- Trace out the design with coloured pencils or markers.
- Use a symbol to indicate where the LEDs will go and what colour they will be. (*Note:* Symbols should reflect the actual colour and size of LEDs.)
- The colour mock-up must include the LED locations, the slogan, and the illustration(s).

Appendix 4: Assessment Instructions

While the students are completing the task, it is important for teachers to check for understanding at each stage of the process.

Assessment Checklist

Thumbnail Sketches

- Does the student have four distinct subjects or thematic approaches?
- Does the student understand the role of thumbnail sketches in the design process?

Design Briefs

Does the design brief contain the following required components:

- outline of the task and goals
- description of the research steps
- description of the impact of the research on ideas and solutions
- description of the four subjects or themes explored in the thumbnail designs
- identification of the best design solution and the reasons for the choice
- identification of the target audience and the venue of the poster
- list of materials that may be required

11" × 17" Mock-up

- Is there a clear connection to or development from the best thumbnail sketch?
- Does the mock-up contain the required components (e.g., headline type traced from computer-generated text, an accurately rendered graphic, the location of LEDs)?

Application

- Does the design brief identify connections between phases of the design process, that is:
 - between the development of possible ideas and the thumbnail sketches?
 - between the design choices and the stated intent of the poster?
- Do the mock-up, sketches, and design brief demonstrate an ongoing design process?