

Differentiated Instruction Teaching/Learning Examples



GRADE 9 EXPLORING TECHNOLOGIES (TIJ10) OR EXPLORING COMMUNICATIONS TECHNOLOGY (TGJ10): DESIGN PROPOSAL—TECHNOLOGICAL EDUCATION

Three 75-minute periods

This lesson can be used in any Technological Education course to introduce students to the development of a proposal for the design of a product (e.g., furniture, floral arrangement, landscaping). This lesson uses an advertisement as a sample product.

1. Learning Centres**
2. Guided Discussion/Illustration—Elements and Principles of Design (Non-linguistic Representations)*
3. Pair-Share Practice/Parking Lot—Elements and Principles of Design (Cooperative Learning)*
4. Pair-Share Review—Design Process (Questions, Cues and Advance Organizers)*
5. Pair-Square Practice—Design Brief (Cooperative Learning)*
6. Learning Contract**—Design Proposal for an Advertisement
7. Peer Assessment (Setting Objectives and Providing Feedback)*

*Marzano's Categories of Instructional Strategies (See Resources, below.)

**Differentiated Instruction Structure

DIFFERENTIATED INSTRUCTION DETAILS

Knowledge of Students

Differentiation based on student:

- Readiness Interests Preferences; Styles Intelligences Other (e.g., environment, gender, culture)



Need to Know

- Students' prior experience with different proposal formats (e.g., sketches, computer software, storyboards) to determine list of Learning Contract (Appendix D) choices

How to Find Out

- Surveys and/or observation of communication methods and formats students have used prior to this lesson

Differentiated Instruction Response

- Topic, Entry Point (content) Ways of learning (process) Ways of demonstrating learning (product) Learning environment

CURRICULUM CONNECTIONS

Overall Expectations: A. Technology Fundamentals

- A1. Demonstrate an understanding of the fundamental concepts and skills required in the planning and development of a product or service, including the use of a design process and/or other problem-solving processes and techniques
A2. Demonstrate the ability to use a variety of appropriate methods to communicate ideas and solutions

Overall Expectations: B. Technological Skills

- B1. Use problem solving processes and project-management strategies in the planning and fabrication of a product or delivery of a service
B2. Fabricate products or deliver services, using a variety of resources

Specific Expectations: (A1) Planning and Development; (A2) Communication

- A1.4 Incorporate appropriate technological concepts in the design, fabrication or delivery and evaluation of a product or service
A2.1 Use a variety of appropriate methods to communicate information or ideas and concepts during the planning and production stages of a project (e.g., design briefs)

Specific Expectations: (B1) Problem Solving and Project Management; (B2) Creating Products or Delivering Services

- B1.1 Apply the steps of the design process or other problem-solving process to plan and develop products and services
B2.3 Meet all design criteria in creating a product or delivering a service

Learning Goals:

- Explain how the elements and principles of design contribute to the effectiveness of a product (e.g., advertisement)
- Use a design brief to describe the design requirements for a specific product (e.g., advertisement)
- Follow the steps in the design process to plan and develop a proposal for a product (e.g., advertisement)
- Develop a proposal (i.e., description and sketch) that addresses all of the design requirements for a product (e.g., advertisement)

ASSESSMENT AND EVALUATION

Assessment/Success Criteria

Thinking

- Follows the steps in the design process to develop a design proposal for an advertisement
- Describes the design requirements for an advertisement in a design brief
- Explains how the proposed design for the advertisement meets the criteria in the design brief
- Explains how the elements and principles of design contribute to the effectiveness of the advertisement

Application

- Applies the selected elements and principles of design in the preliminary design
- Develops a proposal (i.e., description and sketch) that meets all of the criteria specified in the design brief

Assessment Tools:

- Checklist
- Rubric
- Anecdotal Comments

PRIOR LEARNING

Prior to this lesson, students will have:

- Experience using the design process
- Some knowledge of the elements and principles of design (See information on Fundamental Concepts for Visual Arts, Grades 1–8.)

MATERIALS AND RESOURCES

Materials:

Learning Centres: Advertisements for a variety of products of interest to students such as cell phones, cars, foods, etc. Limit the media for the advertisements to the media that the students will be working with in the course (e.g., magazines, newspapers, Internet, etc.).
Sticky notes, file folders (optional)

- Appendix A1: Elements and Principles of Design—one per student
Appendix A2: Elements of Design Definitions—one per student
Appendix A3: Principles of Design Definitions—one per student
Appendix B1: Steps in the Design Process—one per student
Appendix B2: Steps in the Design Process (Teacher Reference)
Appendix C: Design Brief—one per student
Appendix D (pp. 1 & 2): Learning Contract: Design Proposal for an Advertisement—one per student
Appendix E: Design Process Log—one per student
Appendix F: Design Proposal Learning Contract Checklist—multiple copies for peer assessment
Appendix G: Design Proposal Rubric—one per student

Internet Resources:

Ministry of Education (2005). *Think Literacy: Subject-Specific Documents, Technological Education, Grades 9–12* (Process of Design Proposal Writing, pp. 28–39).
See *Think Literacy Library* at www.edu.gov.on.ca/eng/studentsuccess/thinkliteracy/library.html

Resources:

- Kagan, Spencer (1994). *Cooperative Learning*. San Clemente, CA: Kagan Publishing. (Pair-Share Structure)
Marzano, Robert J., Pickering, Debra and Pollock, Jane E. (2001). *Classroom Instruction that Works: Research-Based Strategies for Increasing Student Achievement*. Alexandria, VA: ASCD.
Ministry of Education (2009). *The Ontario Curriculum, Grades 1–8, The Arts*. (Fundamental Concepts for the Visual Arts—Elements and Principles, pp. 18–19)
Ministry of Education (2009). *The Ontario Curriculum, Grades 9 and 10, Technological Education*. (Design Process, pp. 18–19)

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Teaching/Learning Sequence: Grade 9 Exploring Technologies (TIJ10) or Exploring Communications Technology (TGJ10): Design Proposal—Technological Education

<p>MINDS ON</p> <ul style="list-style-type: none"> Establishing a positive learning environment Connecting to prior learning and/or experiences Setting the context for learning <p>Small Groups of Three to Five → Learning Centres Place a selection of advertisements at centres around the room. Organize the centres by topic (e.g., car, food, or cell phone plan advertisements) or by visual medium (e.g., print—newspaper, magazine, or Internet). Select media options based on the current focus of the course. Encourage students to bring in advertisements of their own. Distribute Elements and Principles of Design (Appendix A1).</p> <p>Students:</p> <ul style="list-style-type: none"> Select a centre based on their interests Discuss initial impressions of some of the advertisements (e.g., What is being advertised? Who is the target audience? What stands out?) As a group, choose one advertisement to examine and identify examples in the advertisement of some elements or principles of design with which they may be familiar (e.g., line, shape, emphasis)—see Elements and Principles of Design (Appendix A1) Discuss how the elements and principles are used in the advertisement (e.g., “The magazine cookie advertisement has many circle shapes.”) and how they contribute to the impact of the advertisement (e.g., “The lines make it look like a cartoon so that it appeals to kids; The area of emphasis is the plate of cookies in the centre of the advertisement.”) Share their ideas with the class <p>Lead a class discussion based on group responses. Emphasize that elements and principles are used purposefully to create a desired effect or impact. Provide feedback on any terms students may have used. Note students’ knowledge of the design elements and principles to inform the guided discussion (below) and support required during the lesson.</p> <p>Explain that products, such as advertisements, are created in response to a client’s needs. Clients frequently describe their needs in a <i>design brief</i> and may ask several designers to submit proposals. The successful proposal is the one that best meets the needs outlined in the design brief. Tell students that they will be developing a design brief for an advertisement and preparing a proposal to meet the criteria identified in the design brief. They will follow the design process to plan, develop and create the proposal. As part of the proposal, they will use the elements and principles of design to develop a preliminary design.</p>	<p>CONNECTIONS</p> <p>L: Literacy ML: Mathematical Literacy AfL, AoL: Assessment for/of Learning</p> <p>AfL: Learning Centres/ Anecdotal Comments</p>
<p>ACTION</p> <ul style="list-style-type: none"> Introducing new learning or extending/reinforcing prior learning Providing opportunities for practice and application of learning (guided → independent) <p>Small Groups of Three to Five → Guided Discussion/Illustration—Elements and Principles of Design Highlight the learning goal related to the elements and principles of design. Relate these elements and principles of design to student learning in the Visual Arts Program, Grades 1–8. Use a projection screen to show the class an image of an advertisement. Provide questions to focus small group discussion, for example:</p> <ul style="list-style-type: none"> Which elements and principles of design are prominent in this advertisement? How do they contribute to achieving the intended effect, impact, or meaning of the advertisement? <p>Students discuss the questions using the Elements of Design Definitions (Appendix A2) and Principles of Design Definitions (Appendix A3) definitions as a reference and respond as a group. Lead a discussion to provide clarification and feedback. Individually, students then use the Illustration column of Appendix A2 and Appendix A3 to illustrate the design elements and/or principles that have been discussed.</p> <p>Project additional images of advertisements as needed to clarify understanding of design elements and principles. Note: Depending on students’ prior knowledge, consider limiting the discussion to a few key elements and principles likely to be used in the proposal (e.g., colour, shape, contrast, balance).</p> <p>Pairs → Pair-Share Practice/Parking Lot—Elements and Principles of Design Explain to students that, in their design proposal, they will need to explain how they used design elements and principles and make a sketch to show how they applied the elements and principles to meet the client’s needs.</p> <p>Students, in pairs:</p> <ul style="list-style-type: none"> Select an advertisement of interest from those at their centre Identify the most prominent elements and principles, indicate how they contribute to achieving the intended effect, impact, or meaning of the advertisement and note these in the Example columns in Appendix A2 and Appendix A3 Use sticky notes for any questions that they have about design elements and principles and post these for the teacher to “take-up” <p>Circulate to observe and provide feedback. Address any questions students have.</p> <p>Whole Class/Pairs → Pair-Share Review—The Design Process Ask students to imagine the process that resulted in the advertisement they have just reviewed. Ask: “What steps might the designer have followed to plan, develop and share the proposal with the client?” Have the class generate a “steps to design an advertisement” list and post the ideas.</p> <p>Students, in pairs:</p> <ul style="list-style-type: none"> Examine the Steps in the Design Process (Appendix B1) and arrange the steps in order Share their steps with the class and re-order them if needed, based on teacher and class feedback Examine their class-generated “steps to design an advertisement” list and relate them to the steps in the design process <p>Use Steps in the Design Process (Teacher Reference) (Appendix B2) as a guide for making the connections. Tell students that they will follow the design process in developing their proposal and will keep a log of what they do for each step in the format of their choice—see Design Process Log (Appendix E).</p> <p>Whole Class/Pairs → Pair-Square Practice—Design Brief Remind students of the previous discussion on design briefs in Minds On and explain that they will be developing their own design brief before creating their proposal. As a class, examine the Design Brief (Appendix C) indicating that the questions are samples intended to help the client clarify their requirements. Add/refine questions as suggested by the students and explain the Pair-Square Practice activity.</p> <p>Students:</p> <ul style="list-style-type: none"> Select an advertisement and work with a partner (may be done as a role play) to develop responses to the Design Brief questions (Appendix C) Add, delete, or revise any questions that do not elicit helpful answers about the product to be designed Exchange design briefs with another pair and refine each others’ responses making notes on the Design Brief (Appendix C) Generate some ideas (e.g., a sketch or brief description) for an advertisement proposal based on the brief (Appendix C) they received from the other pair Look at the advertisement the other pair used as a base for their design brief and compare the ideas generated with the actual advertisement <p>Provide feedback that focuses on clear and complete responses that fully reflect the client’s requirements for the advertisement design. Clarify that the design brief responses are the basis for the design proposal.</p>	<p>L: Using subject-specific vocabulary/Guided Discussion</p> <p>AfL: Guided Discussion/ Anecdotal Comments</p> <p>L: Using subject-specific vocabulary/Pair-Share Practice</p> <p>AfL: Parking Lot/ Anecdotal Comments</p> <p>AfL: Pair-Share Review/ Anecdotal Comments</p> <p>AfL: Pair-Square/ Anecdotal Comments</p>
<p>CONSOLIDATION AND CONNECTION</p> <ul style="list-style-type: none"> Helping students demonstrate what they have learned Providing opportunities for consolidation and reflection <p>Individuals → Learning Contract: Design Proposal for an Advertisement Remind students that they have practiced developing design briefs, described ways that elements and principles of design contribute to the effectiveness of an advertisement and reviewed the design process and will now use this knowledge and these skills to develop a proposal for an advertisement for a product of their choice.</p> <p>Distribute the Learning Contract: Design Proposal for an Advertisement (Appendix D) and review the components: design brief, description and visual representation of the proposed advertisement design, rationale for the prominent elements and principles of design and the log for the design process. Distribute the Design Process Log (Appendix E) and ask students to use a file folder or container to store their notes, design brief, log and other materials related to the proposal.</p> <p>Lead a discussion on the criteria for successful completion of the learning contract using the Design Proposal Learning Contract Checklist (Appendix F) and the Design Proposal Rubric (Appendix G), refining the language of the criteria based on student input so that it is clear.</p> <p>Students complete their work on the Learning Contract: Design Proposal for an Advertisement (Appendix D). Monitor student work providing support and opportunities for individual, class and group clarification and feedback as required. Assessment of the design brief is critical to the remainder of the task.</p> <p>Groups of Four → Peer Assessment Form groups of four based on similarity of advertisement product (e.g., advertisements for electronic communication devices, cars)</p> <p>Students:</p> <ul style="list-style-type: none"> Present their design proposals Use the Design Proposal Learning Contract Checklist (Appendix F) to discuss and assess each other’s proposals <p>Circulate to provide feedback as required. After refining their proposals as appropriate, based on peer and teacher feedback, students submit their proposals for teacher evaluation.</p>	<p>DI INTERESTS, PREFERENCES—STYLES</p> <p>AfL: Learning Contract Design Proposal/Anecdotal Comments</p> <p>AfL: Peer Assessment/Checklist</p> <p>AoL: Learning Contract Design Proposals/Rubric</p>