

Rube Goldberg

Mod.2.3

TIME

150 minutes

OVERVIEW

Students discover that the American cartoonist Rube Goldberg (1883-1970) became famous for developing sketches of oddball inventions that came to be called “Rube Goldberg Machines.” A Rube Goldberg machine is defined as a device or method “that brings about by complicated means what apparently could have been accomplished simply” (“Rube Goldberg,” *ITP Nelson Canadian Dictionary of the English Language*). Students invent and draw their own Rube Goldberg machine and write descriptions that model how Rube Goldberg described his “inventions.”

LEARNING OUTCOMES

Through this learning experience (LE), students will achieve specific learning outcomes (SLOs) in various subject areas. Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified.

English Language Arts

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified below:

- 2.3.1 *Forms and Genres* — Recognize key characteristics of various forms and genres of oral, literary, and media texts [such as novels, biographies, autobiographies, myths, poetry, drawings and prints...].
- 2.3.2 *Techniques and Elements* — Identify significant elements and techniques in oral, literary, and media texts, and examine how they interact to create effects.
- 4.1.1 *Generate Ideas* — Focus a topic for oral, written, and visual texts integrating ideas from experiences and a variety of other sources.
- 4.1.3 *Organize Ideas* — Adapt models from listening, reading, and viewing experiences to enhance own oral, written, and visual texts using organizational patterns [such as stanzas, chronological order, paragraphs...].
- 4.2.1 *Appraise Own and Others' Work* — Share own stories and creations at appropriate times during revision and use criteria to provide feedback for others and to revise and assess own work and presentations.
- 4.2.2 *Revise Content* — Revise to eliminate unnecessary information.
- 4.2.4 *Enhance Artistry* — Choose language, sounds, and images [including transitional devices] to enhance meaning and emphasis.

Science

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified below:

- SLOs related to Scientific Inquiry or the Design Process in Cluster 0: Overall Skills and Attitudes.

ICT LITERACY SKILLS AND COMPETENCIES

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which skills and competencies students may achieve, in addition to those identified below:

- basic operating skills
- graphics creation
- inquiry using electronic sources
- electronic publishing
- word processing

SUGGESTED LEARNING RESOURCES

Software

- word processing
- web page authoring
- graphics

Internet

- IMYM Links Database: <<http://www.edu.gov.mb.ca/ks4/tech/imym/resources/links.html>>
- The Official Rube Goldberg Web Site: <<http://www.Rube-Goldberg.com>>

Print

- Appendix C: Index of Teaching and Learning Strategies and Tools
- Manitoba Education and Training. *Grades 5 to 8 English Language Arts: A Foundation for Implementation*. Winnipeg, MB: Manitoba Education and Training, 1998. (See Explanatory Paragraphs, Grade 6, 302; Signal or Transitional Words, Grade 6, 310.)

Games

- *Mousetrap* (by Hasbro)
- *The Incredible Machine 2* (by MobyGames of Sierra Entertainment)

BLMs

- BLM Mod.2.3#1: Rube Goldberg
- BLM Mod.2.3#2: Explanatory Paragraph Checklist

SUGGESTIONS FOR INSTRUCTION

Preparation and Set-up

- Bookmark The Official Rube Goldberg Web Site on the class computers or place the link on the class website.
- Make wall charts of the following (see Print resources suggested for this LE):
 - Signal or Transitional Words
 - Explanatory Paragraph
- Students search the school library for information on Rube Goldberg.

Activating Strategies

- Using a computer and projection system, students view a Rube Goldberg machine from The Official Rube Goldberg Web Site.
- At home, students watch one episode of the *Red Green Show*. They describe a Red Green invention and the need it fulfills (e.g., making popcorn for a crowd by using a clothes dryer, cleaning the inside of a convertible car by making a lift system that allows the car to be tipped over a trash container).
- Students discuss what Rube Goldberg and Red Green have in common (e.g., both use roundabout ways to fulfill a need, both use items available around a house, both create

inventions that seem to work in theory, in both cases there are much easier ways of doing what the inventors intend to accomplish).

- Students define a Rube Goldberg invention and write the definition in their Invention Journal (see OLE.8: Reflection Journal).
- Students complete Part A of BLM Mod.2.3#1: Rube Goldberg.

Acquiring Strategies

- Students explore more examples of Rube Goldberg machines from both electronic and print resources.
- Students examine the writing style in the descriptions of the machines (e.g., it is written in “telegraphic” style, not with full sentences). They look at the vocabulary used in the description of the steps and make a list of the verbs on a class chart. Students note that Rube Goldberg uses precise language with an economy of words, yet his instructions are clear.
- Review Signal or Transitional Words on the class wall chart.
- Review the steps for writing an explanatory paragraph as outlined on the Explanatory Paragraph wall chart. Using the illustration of a Rube Goldberg machine, students collaborate as a class to write a step-by-step description of how the machine works, including appropriate signal or transitional words. Compare the class description with the original Rube Goldberg description.

Applying Strategies

- Brainstorm simple daily needs of students (e.g., pick up clothes from bedroom floor, take out the garbage, empty the dishwasher, make the bed, brush teeth).
- Based on the class discussion, students identify a personal need they would like to have fulfilled more easily and design a Rube Goldberg-type invention to meet that need. Using Rube Goldberg-style writing, students draft instructions for how their invention works (see Part B of BLM Mod.2.3#1: Rube Goldberg). In Think-Pair-Share groups, students exchange their invention design and instructions, and provide each other with feedback on the accuracy of the instructions.
- Students review their draft instructions and write final step-by-step instructions describing how their invention functions.
- Students complete BLM Mod.2.3#2: Explanatory Paragraph Checklist.

Variations/Extensions

- Use software (e.g., *The Incredible Machine 2*) to build original inventions.
- Play a game (e.g., *Mousetrap*) to stimulate imagination and inventiveness.
- Students use a Venn Diagram to compare a Red Green and a Rube Goldberg invention.
- After completing Mod.3.4: Electromagnetism, students use their knowledge of motors and electromagnets to attempt to build their Rube Goldberg invention.
- Students sketch and scan their Rube Goldberg invention and place the graphics on the class website.

SUGGESTIONS FOR ASSESSMENT

- Review students’ completed BLM Mod.2.3#2: Explanatory Paragraph Checklist. Read students’ instructions for their Rube Goldberg inventions. Check whether students’ assessment of their writing is accurate.
- Observe group work. Do the peer suggestions lead to improvement?
- Check students’ completed BLM Mod.2.3#1: Rube Goldberg. Are students making appropriate changes or clarifications?

CONNECTION TO INVENTION CONVENTION

- Students let their imaginations run free when they create a Rube Goldberg invention. This provides students with practice in preparation for designing and creating their own invention.

BLM Mod.2.3#1: Rube Goldberg

Name _____ Date _____

The cartoonist, Rube Goldberg, used a variety of simple machines to develop “oddball” inventions. A Rube Goldberg machine is defined as a device or method “that brings about by complicated means what apparently could have been accomplished simply” (“Rube Goldberg,” *ITP Nelson Canadian Dictionary of the English Language*).

Part A: Imagine that you are a reporter. Your assignment for the day is to gather some information on an interesting fellow named Rube Goldberg. Write your notes below.

Part B: On a blank sheet of paper, sketch your own Rube Goldberg-type invention. Then write a detailed, step-by-step description of how your invention functions, including no less than seven steps.

Name of Invention:
Description:
1.
2.
3.
4.
5.
6.
7.

BLM Mod.2.3#2: Explanatory Paragraph Checklist

Name _____ Date _____

Criteria	Student		Teacher	
	Yes	No	Yes	No
1. Is the topic sentence clearly worded?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is it clear what is being explained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Are the steps in the correct order?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are the steps clearly stated and easy to follow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Are the best signal or transitional words used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Does the paragraph have an effective closing sentence?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Student Questions/Comments				
Teacher Comments				

Exploratory Paragraph Checklist: Adapted from *Grades 5 to 8 English Language Arts: A Foundation for Implementation* (Manitoba Education and Training, Grade 6, 302).