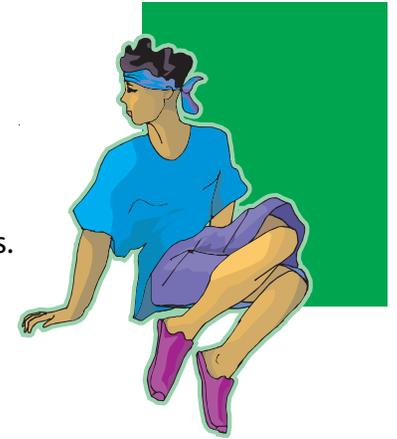# A Seat for Mom

Based on the book *A Chair for My Mother* by Vera B. Williams

Background: We read the book *A Chair for My Mother* by Vera B. Williams. A fire destroys everything the family owns. Rosa, the little girl in the story, wants to save money to buy her mother a big, comfortable chair.

Design Challenge: Design and build a seat for the little girl's mother. Include some feature on the seat that will make it special for her mom. Design and create a neat and colorful newspaper advertisement that shows a picture of the seat and its cost. Tell your classmates about your seat.

Criteria:	
Your seat must	Your advertisement must
☐ have a special feature for the mother ☐ be between 8 and 12 inches on each side ☐ hold one pound for two minutes.	☐ display a reasonable price for the seat based on actual furniture prices found in actual advertisements ☐ describe the seat's special features using complete sentences.

Materials: Select from the list below.		**Tools:** Select from the list below.	
• construction paper • corks • craft sticks • empty containers • fabric or felt scraps • flattened cardboard • glue	• masking tape (limit 12 inches) • pipe cleaners • Styrofoam • tag board • twist ties • yarn or string	• computer • crayons/markers • hole punch • pencils	• ruler • scissors • timer • weight (1 pound)

Targeted Standard of Learning: History and Social Science 2.9
Supporting SOL: English 2.3, 2.8, 2.9, 2.12, 2.13, 2.14; Mathematics 2.11; Science 2.1

Targeted Standards for Technological Literacy: 6, 11
Supporting STL: 8, 9, 10

Tips for Teachers

Targeted Standard of Learning:

History and Social Science 2.9   The student will explain that scarcity (limited resources) requires people to make choices about producing and consuming goods and services.

Supporting SOL: English 2.3, 2.8, 2.9, 2.12, 2.13, 2.14; Mathematics 2.11; Science 2.1

Targeted Standards for Technological Literacy:

6   Students will develop an understanding of the role of society in the development and use of technology.

11   Students will develop the abilities to apply the design process.

Supporting STL: 8, 9, 10

Prior Knowledge & Skill	Materials & Preparation	Safety Issues	Class Management	Materials Provided	Design Process
• Exposure to History and Social Science Standard of Learning 2.9 • Exposure to the design process • Use of the Internet for research	• *A Chair for my Mother* by Vera B. Williams • See Design Brief for recommended materials. Teacher may substitute materials. • Collect newspaper/ magazine and online ads for chairs. • One-pound weight: dried beans come in one-pound bags	• Discuss proper use of tools	• Groups of two students; no more than four students	• Design Brief • Guided Portfolio (adapt as appropriate/opti onal) • Rubric Assessments	Follow the Design Process: • Restate the problem. • Brainstorm solutions. • Create the best solution. • Test the solution. • Evaluate the solution.

Guided Portfolio

Name _____

Group Members _____

1. What is the problem? State the problem in your own words.

_____

_____

_____

_____

_____

_____

_____

Name _____

2. Brainstorm solutions. Sketch and/or describe some possible solutions.

Name _____

3. Create the solution you think is best.
Keep notes about your problems and how you solve them. Make sketches if they help.

Name _____

4. Test your solution.

Does your seat have a special feature for the mother?   YES   NO

- Explain what it is and how you made it.

Does the seat measure between 8 and 12 inches on all sides?   YES   NO

- The back measures _____ inches.   • The left side measures _____ inches.

- The front measures _____ inches.   • The right side measures _____ inches.

Can the seat hold one pound for two minutes?   YES   NO

Does your chair have a reasonable price based on real furniture prices?   YES   NO

- Explain how you came up with the price. Share the advertisements that you used.

Does your advertisement describe the seat's special feature?   YES   NO

- Identify the special feature in the advertisement.

Did you write in complete sentences when describing the special feature
in the advertisement?   YES   NO

Name _____

5.   Evaluate your solution.

Was it the best solution? Why, or why not?

_____

_____

Look back at your brainstorming page. Would one of your other ideas have been better? Explain your reasoning.

_____

_____

What did you learn by designing and creating this model?

_____

_____

Rubric for A Seat for Mom

Name_____ Date _____

0—no evidence; 1—limited understanding; 2—some understanding with room for improvement; 3—good understanding with room for improvement; 4—substantial understanding

Design Brief Rubric	0	1	2	3	4
The student restated the problem in his/her own words.					
The student brainstormed more than one idea.					
The student shared problems that occurred and their solutions through written notes and oral communication per teacher's instructions.					
The student tested the solution to make sure					
• the seat is the correct size					
• the seat has a special feature					
• the seat holds one pound for two minutes					
• the advertisement describes the seat's special feature					
• the special feature was described in the advertisement using complete sentences					
• the advertisement shows the price of the seat.					
The student evaluated how he/she could make it better next time.					

Rubric for A Seat for Mom

Name_____ Date _____

0—no evidence; 1—limited understanding; 2—some understanding with room for improvement; 3—good understanding with room for improvement; 4—substantial understanding

Oral Communication Rubric	0	1	2	3	4
2.1 The student will demonstrate an understanding of oral language structure.					
a) Create oral stories to share with others.					
b) Create and participate in oral dramatic activities.					
c) Use correct verb tenses in oral communication.					
d) Use increasingly complex sentence structures in oral communication.					
e) Begin to self-correct errors in language use.					
2.2 The student will expand understanding and use of word meanings.					
a) Increase listening and speaking vocabularies.					
b) Use words that reflect a growing range of interests and knowledge.					
c) Clarify and explain words and ideas orally.					
d) Identify and use synonyms and antonyms.					
e) Use vocabulary from other content areas.					
2.3 The student will use oral communication skills.					
a) Use oral language for different purposes: to inform, to persuade, to entertain, to clarify, and to respond.					
b) Share stories or information orally with an audience.					
c) Retell information shared by others.					
d) Follow three- and four-step directions.					
e) Give three- and four-step directions.					

Standards of Learning

English (2010)

Oral Language

2.3   The student will use oral communication skills.
   a)   Use oral language for different purposes: to inform, to persuade, to entertain, to clarify, and to respond.
   b)   Share stories or information orally with an audience.
   c)   Participate as a contributor and leader in a group.
   d)   Retell information shared by others.
   e)   Follow three- and four-step directions.
   f)   Give three- and four-step directions.

Reading

2.8   The student will read and demonstrate comprehension of fictional texts.
   a)   Make and confirm predictions.
   b)   Relate previous experiences to the main idea.
   c)   Ask and answer questions about what is read.
   d)   Locate information to answer questions.
   e)   Describe characters, setting, and important events in fiction and poetry.
   f)   Identify the problem and solution.
   g)   Identify the main idea.
   h)   Summarize stories and events with beginning, middle, and end in the correct sequence.
   i)   Draw conclusions based on the text.
   j)   Read and reread familiar stories, poems, and passages with fluency, accuracy, and meaningful expression.

2.9   The student will read and demonstrate comprehension of nonfiction texts.
   a)   Preview the selection using text features.
   b)   Make and confirm predictions about the main idea.
   c)   Use prior and background knowledge as context for new learning.
   d)   Set purpose for reading.
   e)   Ask and answer questions about what is read.
   f)   Locate information to answer questions.
   g)   Identify the main idea.
   h)   Read and reread familiar passages with fluency, accuracy, and meaningful expression.

Writing

2.12 The student will write stories, letters, and simple explanations.
  a) Generate ideas before writing.
  b) Organize writing to include a beginning, middle, and end for narrative and expository writing.
  c) Expand writing to include descriptive detail.
  d) Revise writing for clarity.

2.13 The student will edit writing for correct grammar, capitalization, punctuation, and spelling.
  a) Recognize and use complete sentences.
  b) Use and punctuate declarative, interrogative, and exclamatory sentences.
  c) Capitalize all proper nouns and the word I.
  d) Use singular and plural nouns and pronouns.
  e) Use apostrophes in contractions and possessives.
  f) Use contractions and singular possessives.
  g) Use knowledge of simple abbreviations.
  h) Use correct spelling for commonly used sight words, including compound words and regular plurals.
  i) Use commas in the salutation and closing of a letter.
  j) Use verbs and adjectives correctly in sentences.

2.14 The student will use available technology for reading and writing.

History and Social Science (2008)

Economics

2.9 The student will explain that scarcity (limited resources) requires people to make choices about producing and consuming goods and services.

Mathematics (2009)

Measurement

2.11 The student will estimate and measure
  a) length to the nearest centimeter and inch;
  b) weight/mass of objects in pounds/ounces and kilograms/grams, using a scale; and
  c) liquid volume in cups, pints, quarts, gallons, and liters.

Science (2010)

Scientific Investigation, Reasoning, and Logic

2.1 The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which
   a) observations and predictions are made and questions are formed;
   b) observations are differentiated from personal interpretation;
   c) observations are repeated to ensure accuracy;
   d) two or more characteristics or properties are used to classify items;
   e) length, volume, mass, and temperature are measured in metric units and standard English units using the proper tools;
   f) time is measured using the proper tools;
   g) conditions that influence a change are identified and inferences are made;
   h) data are collected and recorded, and bar graphs are constructed using numbered axes;
   i) data are analyzed, and unexpected or unusual quantitative data are recognized;
   j) conclusions are drawn;
   k) observations and data are communicated;
   l) simple physical models are designed and constructed to clarify explanations and show relationships; and
   m) current applications are used to reinforce science concepts.

Standards for Technological Literacy

Standard 6:   Students will develop an understanding of the role of society in the development and use of technology.

Standard 8:   Students will develop an understanding of the attributes of design.

Standard 9:   Students will develop an understanding of engineering design.

Standard 10:   Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.

Standard 11:   Students will develop the abilities to apply the design process.

Please give us some feedback.

Complete the form below to let us know how this design brief worked for you and your students. Please be specific so that we might use your suggestions to improve the activity. *You can fill this out on your computer, or you can print it, fill it out manually, and scan it.*

Teacher: _____

School: _____

School division: _____

Design brief title: _____

Background *Put an X in the appropriate column:*	Needs to be rewritten	Needs minor adjustment	Is ready for classroom use
Does it set the context for the activity?			
Is it age-appropriate in language, length, and complexity?			
Does it reference prior learning and/or research that the students did that will facilitate designing a solution to a problem?			
Is it detailed enough that an adult will understand the purpose for the design brief?			
COMMENTS. *If any of the questions above are marked other than "ready for classroom use," please provide suggestions here.*			

Design Challenge	Needs to be rewritten	Needs minor adjustment	Is ready for classroom use
Does the challenge support your curriculum?			
Is it age-appropriate in language, length, and complexity?			
Is it detailed enough that an adult will understand the purpose for the design brief?			
COMMENTS. *If any of the questions above are marked other than "ready for classroom use," please provide suggestions here.*			

Criteria Criteria are part of the challenge. They set the limitations for the design. They are not directions.	Needs to be rewritten	Needs minor adjustment	Is ready for classroom use	N/A
Are the limitations age-appropriate?				
Do the limitations encourage critical thinking?				
Is the application of mathematic knowledge/skills integrated into the criteria? If not, should the skill area be addressed?				
Is the application of science knowledge/skills integrated into the criteria? If not, should the skill area be addressed?				
Is the application of social studies knowledge/skills integrated into the criteria? If not, should the skill area be addressed?				
Are language skills integrated into the criteria? If not, should the skill area be addressed?				
COMMENTS. *If any of the questions above are marked other than "ready for classroom use," please provide suggestions here.*				

Materials Materials help set the limitations for the design. The list should include materials that might work.	Needs to be rewritten	Needs minor adjustment	Is ready for classroom use	N/A
Does the materials list encourage a variety of design solutions?				
Does the materials list include a variety of choices for joining items?				
Does the materials list include materials that force students to make decisions?				
COMMENTS. *If any of the questions above are marked other than "ready for classroom use," please provide suggestions here.*				

Tools Tools can be used in the construction of the designed product. They are used to manipulate materials. They cannot become part of the product.	Needs to be rewritten	Needs minor adjustment	Is ready for classroom use
Are the tools listed age appropriate?			
Are all tools needed for the activity included?			
COMMENTS. *If any of the questions above are marked other than "ready for classroom use," please provide suggestions here.*			

Standards of Learning	Yes	No
Does the design brief reinforce the targeted Standard of Learning(s)?		
Are the supporting Standards of Learning appropriate?		
What Standards of Learning would you add or remove?		

Standards for Technological Literacy	Yes	No
Does the design brief reinforce the targeted Standard(s) for Technological Literacy?		
Are the supporting Standards for Technological Literacy appropriate?		
What Standards for Technological Literacy would you add or remove?		

Tips for Teachers	Yes	No
Are the tips listed in the chart helpful for a first-time teacher?		
What tips would you add?		

Guided Portfolio	Needs to be rewritten	Needs minor adjustment	Is ready for classroom use
Are the instructions and questions age appropriate and clear?			
In the "Test your solution" section, do the questions force students to thoroughly test their solutions?			
In the "Evaluate your solution" section, do the questions force students to honestly evaluate their solutions			
COMMENTS. *If any of the questions above are marked other than "ready for classroom use," please provide suggestions here.*			

Additional Comments
Please use this area to provide general suggestions for improving this design brief.