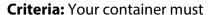# Dog Biscuit Delivery

Background: We enjoyed reading the book *Clifford's Family,* by Norman Bridwell. You have met Clifford's mom, dad, and the rest of his family. In the book, Clifford visits each of his family members. He wants to visit them again and take each of them one of his big, yummy dog biscuits.

Design Challenge: Design and construct a dog-biscuit container for Clifford to use when he takes dog biscuits to his family. You must choose one family member and design the container especially for that person.

Criteria: Your container must

- ☐ be the correct size to hold the biscuit supplied by the teacher
- ☐ open and close tightly to protect the biscuit five consecutive times successfully
- ☐ be decorated for one special member of the dog family
- ☐ be designed so that the dog can carry it.

Materials: Select from the list below.		**Tools:** Select from the list below.
• cardboard • construction paper scraps • craft sticks • fabric scraps • glue	• masking tape (limit 12 inches) • paper fasteners • pipe cleaners • tag board • yarn or string (limit 18 inches)	• crayons/markers • hole punch • pencil • push-pin paper drill • ruler • scissors

Targeted Standard of Learning: English 1.9

Supporting SOL: English 1.3, 1.13; Mathematics 1.9; Science 1.1

Targeted Standard for Technological Literacy: 11

Supporting STL: 8, 9, 10

Tips for Teachers

Targeted Standard of Learning:

English 1.9 The student will read and demonstrate comprehension of a variety of fictional texts.

a) Preview the selection.
b) Set a purpose for reading.
c) Relate previous experiences to what is read.
d) Make and confirm predictions.
e) Ask and answer who, what, when, where, why, and how questions about what is read.
f) Identify characters, setting, and important events.
g) Retell stories and events, using beginning, middle, and end.
h) Identify the main idea or theme.
i) Read and reread familiar stories, poems, and passages with fluency, accuracy, and meaningful expression.

Supporting SOL: English 1.3, 1.13; Mathematics 1.9; Science 1.1

Targeted Standard for Technological Literacy:

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

Supporting STL: 8, 9, 10

Suggested Books

Other books about dogs include

Bad Dog, Marley! by John Grogan

Clifford Collection by Norman Bridwell

Go, Dog. Go! by P.D. Eastman

Good Dog, Carl by Alexandra Day

Harry the Dirty Dog by Gene Zion

How Rocket Learned to Read by Tad Hills

Kipper by Mick Inkpen

Pat Them Gently by Melanie O'Brien

Wag! by Patrick McDonnell

Tips for Teachers, continued

Prior Knowledge & Skill	Materials & Preparation	Safety Issues	Class Management	Materials Provided	Design Process
• Understanding of targeted English Standard of Learning 2.8 • Some under-standing of the design process	• Select a book from suggested book list. • See Design Brief for recommended materials. • Give one large dog biscuit to each group of students. • Flatten cardboard boxes. • A push-pin paper drill is a large thumbtack that is secured in a large eraser until needed for making holes in paper and other materials.	• Use of scissors and other tools and materials correctly • Prevent students from eating dog biscuits. If students have food allergies, use plastic dog biscuits.	• Two or three students per group • Use cooperative group learning strategies.	• Design Brief • Guided Portfolio (adapt as appropriate/ optional) • 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.

_____

_____

_____

_____

_____

_____

_____

Guided Portfolio, p2

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.

Is your container the correct size to hold the dog biscuit?   YES   NO

How many times did your dog biscuit container open and close successfully?_____

- Can your container be opened and closed tightly five times?   YES   NO

Is your container decorated neatly for a special family member?   YES   NO

For which family member did you decorate the container? _____

Do you think the dog could easily carry the container?   YES   NO

Explain your answer:_____

_____

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 Dog Biscuit Delivery   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

Student Evaluation	0	1	2	3	4
Oral Presentation: The student					
• used complete sentences					
• used descriptive words.					
Guided Portfolio: The student participated in					
• restating the problem					
• brainstorming solutions					
• creating a solution					
• testing the solution					
• evaluating the solution.					
Team Skills: The student					
• used appropriate voice					
• encouraged team members					
• listened to team members					
• was involved in all aspects of the project					
• respected team members.					

Tested Criteria	YES	NO
The container is the correct size to hold the dog biscuit.		
The container can be opened and closed tightly five consecutive times successfully.		
The container can be carried by the dog while walking.		
The container is designed for a specific family member.		

Standards of Learning

English (2010)

Oral Language
1.3   The student will adapt or change oral language to fit the situation.
   a)   Initiate conversation with peers and adults.
   b)   Follow rules for conversation using appropriate voice level in small-group settings.
   c)   Ask and respond to questions.
   d)   Follow simple two-step oral directions.
   e)   Give simple two-step oral directions.

Reading
1.9   The student will read and demonstrate comprehension of a variety of fictional texts.
   a)   Preview the selection.
   b)   Set a purpose for reading.
   c)   Relate previous experiences to what is read.
   d)   Make and confirm predictions.
   e)   Ask and answer who, what, when, where, why, and how questions about what is read.
   f)   Identify characters, setting, and important events.
   g)   Retell stories and events, using beginning, middle, and end.
   h)   Identify the main idea or theme.
   i)   Read and reread familiar stories, poems, and passages with fluency, accuracy, and meaningful expression.

Writing
1.13   The student will write to communicate ideas for a variety of purposes.
   a)   Generate ideas.
   b)   Focus on one topic.
   c)   Revise by adding descriptive words when writing about people, places, things, and events.
   d)   Use complete sentences in final copies.
   e)   Begin each sentence with a capital letter and use ending punctuation in final copies.
   f)   Use correct spelling for commonly used sight words and phonetically regular words in final copies.
   g)   Share writing with others.

Mathematics (2009)

Measurement

1.9   The student will use nonstandard units to measure length, weight/mass, and volume.

Science (2010)

Scientific Investigation, Reasoning, and Logic

1.1   The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which
    a)   the senses are used to observe differences in physical properties;
    b)   observations are made from multiple positions to achieve a variety of perspectives and are repeated to ensure accuracy;
    c)   objects or events are classified and arranged according to characteristics or properties;
    d)   simple tools are used to enhance observations;
    e)   length, mass, volume, and temperature are measured using nonstandard units;
    f)   inferences are made and conclusions are drawn about familiar objects and events;
    g)   a question is developed from one or more observations;
    h)   predictions are made based on patterns of observations;
    i)   observations and data are recorded, analyzed, and communicated orally and with simple graphs, pictures, written statements, and numbers; and
    j)   simple investigations and experiments are conducted to answer questions.

Standards for Technological Literacy

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.