450 Goldilocks Way
Woodsville, USA
March 18, 2008

(Name of School) Manufacturing Company
(Grade Level) Form
School Address
City, State of School

Dear (School Name) Engineers,

I am writing with a problem. Recently a Miss Goldilocks came visiting our home. She was quite a character. She ate our porridge, broke our chair, and was asleep in our bed when my family and I arrived home. She went running out of the house, and we've not seen her again. But, she left behind a broken chair. It was the Just Right chair.

I am writing to ask you to make a new chair for my Baby Bear. I understand that you are good engineers and will have little difficulty with this task.

This project has four parts:

1. The first part is to build a sturdy chair for Baby Bear with your partner. You may only use the Lego pieces that we have talked about. Your chair must withstand the 'drop test'. You need to build your chair in a way that will not break from the teacher's drop.
2. The second part of the challenge is to make the chair the correct size for Baby Bear. He needs to be able to fit in the chair.
3. There is one more concern. It is the cost. I want to get the best-fitting, sturdiest chair for the least cost. I understand that your company's president has a cost structure that allows your engineers to know how much they've spent when designing products. I want to see a drawing of your model and know what the cost of your design is before I commit to commissioning you to building it.
4. Finally, I want you to write me a business letter and present me with the facts. You may include your schematic (sketch) with the cost, but I also want a letter explaining to me what you learned while working on this project. I want to know what the important physics concepts are, so I know that the chair you designed is reliable.

Thank you in advance for your efforts. I have heard such wonderful things about John Strange engineers. I hope what I've heard is true! At the completion of your project, I will choose one chair and submit your project to the Physics Department at Purdue University. You see, I understand that to build a good chair, you must understand forces and how they affect the design of your chair. I want the Physics Department to share this information with others on their website.

Sincerely,

Mr. Papa Bear

STANDARDS MET:

2.1.1, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.4, 2.2.5, 2.3.7, 2.5.3, 2.6.1, 2.6.2

3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.2.1, 3.2.5, 3.2.6, 3.5.3, 3.6.3

4.1.3, 4.2.4, 4.2.5

5.1.1, 5.2.3, 5.5.4, 5.5.5

6.1.3, 6.2.4, 6.2.5, 6.2.6