

Name: _____

The Fourth Little Pig's House Design Challenge!

Team Color: _____

In the story of *the Three Little Pigs*, each pig builds a house out of different materials. Which materials were blown down by the wolf? Which material was strong enough to stay standing? Today your team will build your own house for a fourth little pig using different materials. Will your house be strong enough to protect the fourth little pig?



Objectives:

- Work as a team to design and build a house made of your choice of different materials.
- Test your house against the wind of the wolf, and make changes to your house as needed.
- Compare the different house designs in the class and decide what worked best, and what did not work very well.

What is an engineer? An **engineer** is a person who designs and builds complex products, machines, systems, or structures. **Engineers** want to know how and why things work. The three little pigs were **engineers** because they built their own houses from different materials. Today you will work together as student **engineers** to design and build a house that can stay standing in the wind of the wolf.

The ABC's of engineering:

A

A IS FOR ASKING.....?

B

B IS FOR BRAINSTORMING

C/D

C IS FOR CREATING/DESIGN

E

E IS EXPERIENCE/EXPERIMENT

F

F IS FOR FUN AND FAILURE IS OK

Materials: Just like the three little pigs and real engineers, you and your team must decide which materials you want to use. You will have \$100 to spend on supplies for your house. Each material costs a different amount, and has different properties, such as strength, flexibility, texture, and hardness. Which materials will you buy and use to build your house?

Design Rules: Your house must:

- be able to stand on its own (cannot tape down to tray)
- have 4 walls, a roof, and a door your pig can fit through to enter and exit
- be built on a tray

Design Plan: Use the space below to draw and label a design of your house using the materials you plan to buy. Explain why you are choosing these materials. Once you have a design, bring it to the store to buy your materials.

The Store	
Material	Cost
5 Small Index Cards	\$5
1 Sheet of Aluminum Foil	\$5
1 Meter of Yarn	\$5

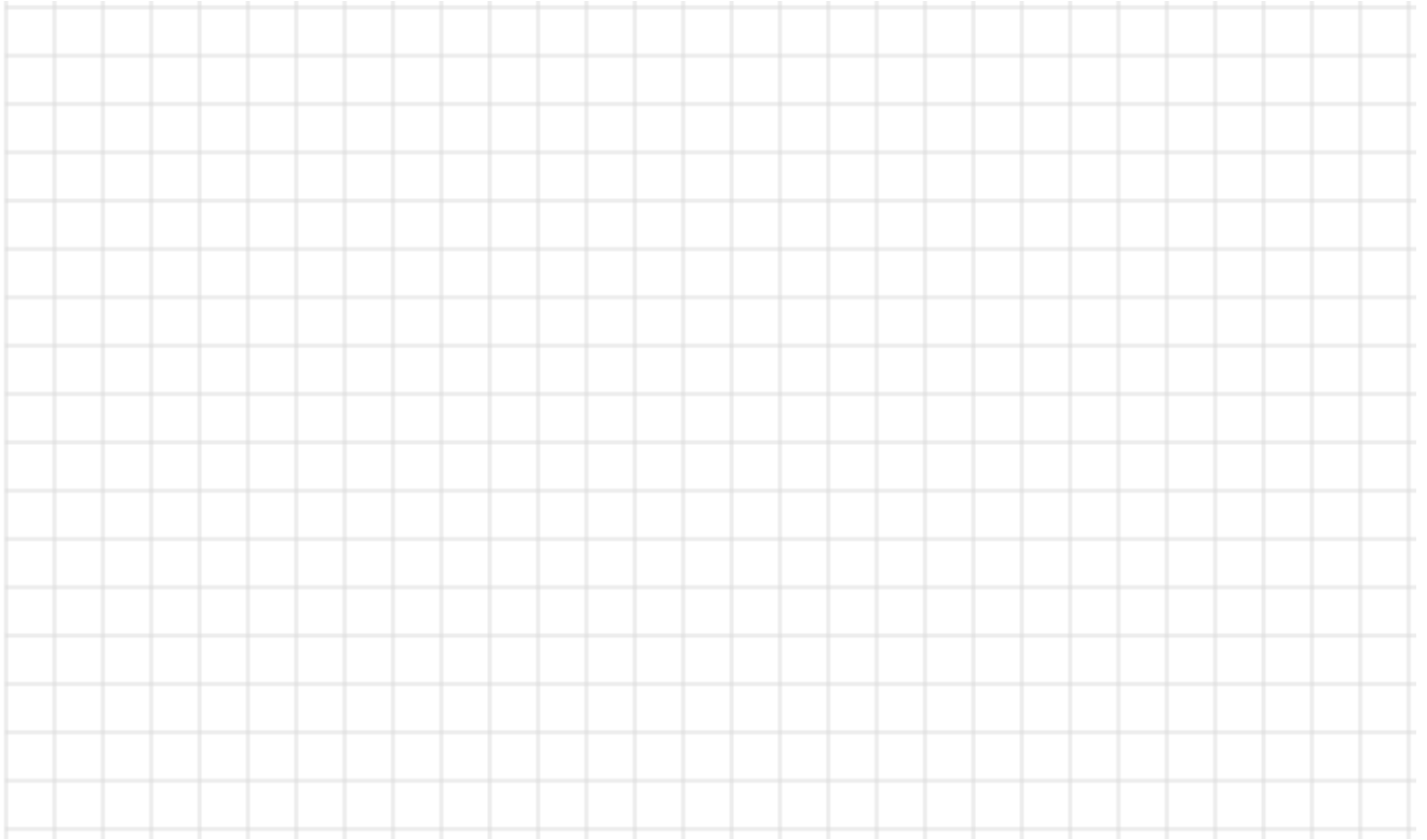
1 gram of Modeling Clay	\$10
4 Pieces of Construction Paper	\$10
5 Big Index Cards	\$10
10 Straws	\$10

10 Lego Pieces, Assorted	\$20
1 Meter of Masking Tape	\$20

I am choosing the _____ material _____ for the _____ structure _____ because _____.

I am choosing the _____ material _____ for the _____ structure _____ because _____.

Results and Conclusion: Use the space below to draw your final house design. Label the materials you used for each part of your house.



1. Did your house stay standing in the wind from the wolf? _____

2. What materials did you use? _____

3. How much money did you spend? _____

4. In 1-2 sentences, explain why you think your house **was** or **was not** able to withstand the wind.

Comparing Houses in the Class

WORD BANK

BUILDING MATERIALS	BUILDING STRUCTURES
Small Index cards	Wall
Aluminum Foil	Roof
Yarn	Door
Modeling Clay	Side
Construction Paper	Floor
Large Index Cards	Edge
Straws	Corner
Legos	Chimney
Masking Tape	Bottom

What materials worked best for each building structure? Why?

The _____ worked well for the _____
material structure

because _____.

The _____ worked well for the _____
material structure

because _____.

The _____ worked well for the _____
material structure

because _____.

What materials did not work well for each building structure? Why?

The _____ did not work for the _____
material structure

because _____.

The _____ did not work for the _____
material structure

because _____.

Application: Your teacher has built a house to protect the fourth little pig from the wolf. Observe your teacher's house, and compare it to the houses you and your classmates built. Do you think your teacher's house will protect the pig? Why or why not? Use the sentences below to show your thinking.

1) I predict that my teacher's house WILL / WILL NOT stand in the wind of the wolf.

2) My teacher used _____ material _____ for the _____ structure _____ which will _____. I think this because _____.

3) My teacher used _____ material _____ for the _____ structure _____ which will _____. I think this because _____.

4) My teacher used _____ material _____ for the _____ structure _____ which will _____. I think this because _____.

5) Did your teacher's house protect the pig? _____

6) In 1-2 sentences, explain why you think your teacher's house **was** or **was not** able to protect the pig: _____

