

**Three Little Pigs' House
Design Challenge**

**Three Little Pigs' House
Design Challenge**

**Three Little Pigs' House
Design Challenge**

Student Name: _____

Grade: 3 **School Name:** He'eia Elementary **Date:** _____

Table of Contents (to be completed at the end of the EDP assignment)

Description	Page Number

ASK

Problem Statement: To design and build a house, 9 inches or taller, with 4 sides and a roof, with no spaces or holes, that will withstand the wolf trying to blow it down (using a hand fan) for 10 seconds.

Specification Sheet

Justification – The reason why this is a specification based on the engineering design challenge or the customer’s needs.

Weight: Number assigned to a specification based on its importance (on a scale of 1 to 5, with 5 being the most important)

#	Specifications	Weight
1	House should use only the provided materials.	2
2	House has no spaces or holes.	3
3	House is 9 inches or taller.	4
4	House has 4 sides and a roof.	4
5	House can withstand the wolf trying to blow it down for 10 seconds.	5

IMAGINE

Problem Statement: To design and build a house, 9 inches or taller, with 4 sides and a roof, with no spaces or holes, that will withstand the wolf trying to blow it down (using a hand fan) for 10 seconds.

Background Research

- Summary of information from sources
- Bibliography

Sketch two ideas (A & B) below. Please make sure to include labels in your design and indicate the science concepts where they apply.

A

Material	Quantity	Material	Quantity

B

Material	Quantity	Material	Quantity

Pugh Chart (decision matrix)

Please evaluate specifications.

	Specifications	Weight	Design A		Design B	
1	House should use only the provided materials.	2				
2	House has no spaces or holes.	3				
3	House is 9 inches or taller.	4				
4	House has 4 sides and a roof.	4				
5	House can withstand the wolf trying to blow it down for 10 seconds	5				
	Total					

Which plan did you choose?

A or B

Justification

Clearly Write Out the Steps for Executing the Design

(These instructions should be clear enough to allow someone else to follow them. Use illustrations if necessary to make the instructions clear.)

List Your Materials

Material	Quantity	Material	Quantity

--	--	--	--

CREATE

Problem Statement: To design and build a house, 9 inches or taller, with 4 sides and a roof, with no spaces or holes, that can withstand the wolf trying to blow it down (using a hand fan) for 10 seconds

Scoring Sheet

Criteria	Exceeds 5	Meets 3	Needs Improvement 1
1. Materials		The house used only the provided materials.	The house used other materials than what was provided.
2. Design		The house has no spaces or holes.	The house has spaces or holes.
3. Height		The house is 9 inches or taller.	The house is under 9 inches tall.
4. Build		The house has 4 sides and a roof.	The house does not have 4 sides or does not have a roof.

5 Durability	The house withstood the wolf blowing it down for more than 10 seconds.	The house withstood the wolf blowing it down for 10 seconds.	The house could not withstand the wolf blowing it down for 10 seconds.
---------------------	--	--	--

	Specifications	Weight	Score	Weighted Score= Weight x Score
1	House should use only the provided materials.	2		
2	House has no spaces or holes.	3		
3	House is 9 inches or taller.	4		
4	House has 4 sides and a roof.	4		
5	House can withstand the wolf trying to blow it down for 10 seconds.	5		

		Total	
--	--	--------------	--

Test Data

Date _____

No spaces or holes Yes or No

9 inches or taller Yes or No

4 sides and a roof Yes or No

Time the house withstood the wolf's blowing _____ seconds

Observations

Student Reflection

(Successes and Challenges: What worked? What didn't work? Why?
 How you felt as you were building...happy or frustrated? Why?

IMPROVE – PLAN

Problem Statement

To design and build a house, 9 inches or taller, with 4 sides and a roof, with no spaces or holes, that will withstand the wolf trying to blow it down (using a hand fan) for 10 seconds

Sketch your new Design (include labels)

List Your Materials

Material	Quantity	Material	Quantity

IMPROVE - CREATE

Criteria	Exceeds 5	Meets 3	Needs Improvement 1
1. Materials		The house used only the provided materials.	The house used other materials.
2. Design		The house has no spaces or holes.	The house has spaces or holes.
3. Height		The house is 9 inches or taller.	The house is under 9 inches tall.
4. Stories		The house has 4 sides and a roof.	The house does not have 4 sides or does not have a roof.
5. Durability	The house withstood the wolf blowing it down for more than 10 seconds.	The house withstood the wolf blowing it down for 10 seconds.	The house could not withstand the wolf blowing it down for 10 seconds.

	Specifications	Weight	Score	Weighted Score= Weight x Score
1	House used only the provided materials.	2		
2	House has no holes or spaces.	3		
3	House is 9 inches or taller.	4		
4	House has 4 sides and a roof.	4		
5	House can withstand the wolf blowing it down for 10 seconds.	5		
	Total			

Page 14

Retest Data

Date _____

No spaces or holes Yes or No

9 inches or taller Yes or No

4 sides and a roof Yes or No

Time the house withstood the wolf's blowing _____ seconds

Observations

Student Reflection

(Successes and Challenges: What worked? What didn't work? Why?
How you felt as you were building...happy or frustrated? Why?
